# Configuring Siebel Business Applications

Version 8.0, Rev. C

February 2011

ORACLE

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# 1 What's New in This Release

## What's New in Configuring Siebel Business Applications, Version 8.0, Rev. C

Table 1 lists changes in this version of the documentation to support release 8.0 of the software.

Table 1. What's New in Configuring Siebel Business Applications, Version 8.0, Rev. C

| Topic | Description |
|---|---|
| "Guidelines for Creating a Business Component That References a Specialized Class" on page 80 | Modified topic. If you set the Class property of a business component to CSSBCServiceRequest, then you must also add the Abstract field to this business component. |
| "How a Business Component Field Calculates a Value" on page 84 | Modified topic. You cannot use a script on a calculated field. |
| "Guidelines for Modifying Configuration Files" on page 194 | New topic. Siebel CRM does not support any change you make to an application configuration file. The only exception is if the documentation for a Siebel application explicitly describes how you can change the configuration file. |
| "Configuring Client-Side Import to Update a Business Component Field" on page 259 | Modified topic. You cannot use client-side import with a specialized business component or specialized applet. |
| "Displaying the Save Button in High Interactivity" on page 353 | New topic. Because a Siebel application that runs in high interactivity uses an implicit save by default, the Save buttons are not visible in the predefined application. You can configure these buttons so Siebel CRM displays them in high interactivity. |
| "Avoiding Losing Context During a Drilldown" on page 361 | New topic. In some custom configurations, if the user drills down to navigate through certain views, then Siebel CRM might ignore the search specification in the parent applet and lose the record context. |
| "Configuring Quick Fill for a Custom Applet" on page 362 | New topic. You can configure quick fill for a custom applet. |
| "Setting the Input Method Editor Mode on a Control or List Column" on page 320 | Modified topic. You can use the input method editor only in high interactivity. |
| "Using the Case Insensitivity Wizard on a Table" on page 551 | Modified topic. After you use the Case Insensitivity Wizard, you must apply and then compile your changes. |

Table 1. What's New in Configuring Siebel Business Applications, Version 8.0, Rev. C

| Topic | Description |
|---|---|
| "Using the MLOV Converter Utility to Convert Multiple Languages" on page 612 | New topic. The MLOV Converter Utility upgrades only one language at a time. If the target columns include data in more than one language, then you must run the utility for each language. |
| "How Siebel CRM Handles Certain Date Formats" on page 677 | New topic. If you set DDD, DD/MM/YYYY as the display format on a date list column, then Siebel CRM displays the date with the expected format, but you cannot update the date. |

# 2 Architecture of Siebel Business Applications

This chapter provides an overview of the architecture for Oracle's Siebel Business Applications. It includes the following topics:



## About Siebel Objects

This chapter describes Siebel objects. It includes the following topics:



A Siebel *object definition* is the metadata that defines a Siebel application. Siebel object definitions define user interface elements that Siebel CRM includes in the Siebel client, business entities, and the Siebel CRM database organization. The *Siebel Repository* is a set of database tables that stores these object definitions. Examples of types of objects include applets, views, business components, and tables. You use Oracle's Siebel Tools to create or modify an object definition.

An object definition includes *properties*, which are qualities of the software construct that the object defines. For example, the properties of a database column includes the name, data type, and length of the column.

**NOTE:** The terms Siebel Business Applications and Siebel CRM are used interchangeably throughout this document.

### How Siebel Tools Represents Relationships Between Objects

A *parent-child relationship* is a hierarchical relationship that defines a relationship between object definitions. Siebel Tools displays child objects of the parent-child relationship if you expand an object type in the Object Explorer. For example, if you expand the applet object type, then Siebel Tools displays the following child object types:

- Applet method menu item
- Applet browser script
- Applet server script
- Applet toggle

A parent-child relationship between object definitions implies that the child object definition is in, or belongs to the parent object definition. It does not imply inheritance between object definitions. The set of properties of a parent object is not related to the set of properties of a child object.

For more information about the Object Explorer and the Object List Editor, see *Using Siebel Tools*.

**NOTE:** Terms such as object, property, or class describe the Siebel CRM metadata. These terms do not describe corresponding terms in object-oriented programming.

# About the Siebel Object Architecture

The metadata that defines Siebel CRM objects and files, such as web templates and style sheets, is divided in several architectural layers. Figure 1 illustrates the architecture.

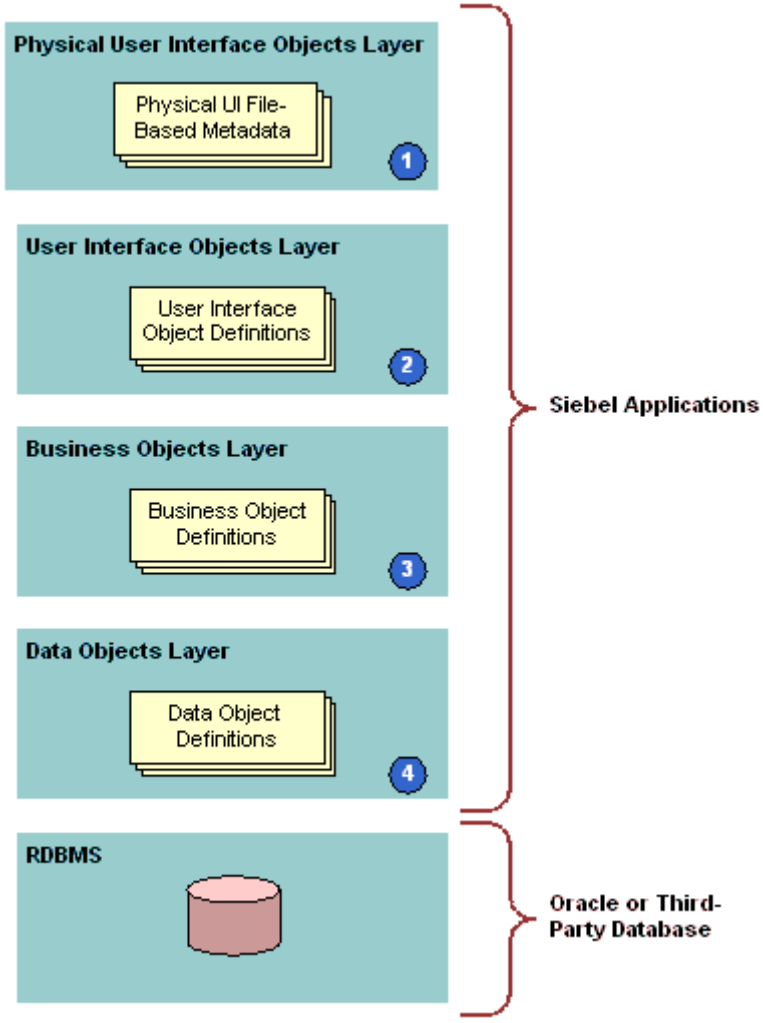



Figure 1. Siebel Object Architecture

The architecture includes the following objects:

1 **Physical user interface objects layer.** Includes the physical files, templates, style sheets, and other metadata that reference files that render the user interface displayed in the Siebel client. For more information, see "Overview of the Physical User Interface Layer" on page 24.

2 **Logical user interface object layer.** Includes object definitions for the user interface displayed in the Siebel client. These objects define the visual elements that Siebel CRM displays to the user and with which the user interacts in a Web browser. A user interface object references a business object. For more information, see "Overview of the Logical User Interface Object Layer" on page 25.

3 **Business object layer.** Includes objects that define business logic and organize data from underlying tables into logical units. For more information, see "Overview of the Business Object Layer" on page 27.

4 **Data objects layer**. Includes object definitions that directly map the data structures from the underlying relational database to Siebel CRM. These objects provide access to those structures through object definitions in the business object layer. For more information, see "Overview of the Data Objects Layer" on page 29.

Siebel CRM insulates objects in each layer of the Siebel object architecture from the layers above and below each layer, including the RDBMS (Relational Database Management System) at the bottom of the architecture. This allows you to change or customize Siebel objects in one layer without affecting other layers. Similarly, because Siebel CRM separates the database in the RDBMS from the object architecture, you can make database changes with only minimal affect on Siebel CRM.

## Overview of the Physical User Interface Layer

The physical user interface layer includes physical files, such as templates, Siebel tags, style sheets, and other metadata that reference files. These files control the layout and the look and feel of the Siebel client. The physical user interface layer separates definitions for style and layout from user interface objects in the Siebel repository. This separation allows you to define definitions for style and layout across multiple objects of the Siebel client. For more information, see *Siebel Developer's Reference*.

For more information about configuring Siebel CRM, see "Developing a Plan to Control File Versions for the Physical User Interface Layer" on page 190.

### Siebel Web Template

A *Siebel Web template* (SWT) is an HTML file that defines the layout and format of elements that Siebel CRM displays in the Siebel client. Elements include views, applets, controls, and so forth. The template provides this layout information to the Siebel Web Engine (SWE) when the engine renders Siebel repository objects into HTML files. Siebel CRM then displays these HTML files in the Siebel client. For more information, see "About Siebel Web Templates" on page 147.

### Siebel Tag

A *Siebel tag* is a special tag in a template file. A tag specifies how a Siebel object is defined in the Siebel repository and how it must be laid out and formatted in the HTML page that Siebel CRM renders in the Web browser. For more information, see "About Siebel Tags" on page 172.

### Cascading Style Sheet

A *cascading style sheet* (CSS) is a style sheet document that defines how Siebel CRM displays HTML or XML elements and their contents in a Web document. It includes typographical and format information on how Siebel CRM displays the Web page, such as the text font. It controls the look and feel of user interface elements. A cascading style sheet gives you control over the appearance of the page. For more information, see "Customizing Web Templates to Render Menus, Toolbars, and Thread Bars" on page 527.

## Overview of the Logical User Interface Object Layer

The logical user interface object layer includes object definitions that determine the visual interface that the user interacts with in a Web browser. A user interface object displays data from the business object layer and provides the user with controls that allow the user to navigate, view, and modify data.

### Applet

An *applet* is a user interface object that allows the user to view, enter, and modify data that the applet derives from a single business component. It includes the following qualities:

- Occupies a section of a view
- Composed of controls, such as buttons, fields, check boxes, and other types of controls, such as buttons that call a method or an ActiveX control
- Allows the user to view, enter, modify, and navigate through records
- Can display as a form, list of records, chart, business graphics, or navigation tree
- Allows data entry for a single record, or through a scrolling table that displays multiple records

For more information, see "About Applets, Controls and List Columns" on page 113.

An applet in Siebel CRM is not equivalent to a Java applet.

### View

A *view* is an object type that is a collection of related applets that Siebel CRM displays simultaneously in the Siebel client. A view can contain lists, forms, charts, and other types of applets. Most views are a master-detail view or a list-form view. A view is associated with the data and relationships that exist in a single business object. For more information, see "About Views" on page 132.

### Screen

A *screen* is an object type that is a collection of related views. A screen is associated with a major functional area of the enterprise, such as accounts, contacts, and opportunities. In general, all views in a screen reference the same business object. For more information, see "About Screens" on page 135.

## Application

An *application* is an object type that is a collection of screens. The user can access Siebel CRM through the following clients:

- Siebel Web Client
- Siebel Mobile Web Client
- Handheld Client
- Wireless Web Client

The user navigates to a screen from the tab bar or the Site Map, as defined in the object definition of the Siebel application. Your organization might possess licenses for more than one Siebel application. For example, Siebel Sales and Siebel Call Center. Different groups in your organization might use these applications, such as the sales team or the customer support team. For more information, see "About Applications" on page 144.

A Siebel application is not equivalent to an application executable, such as an .exe file.

## Page Tab

A *page tab* is an object type that associates a screen to a parent application. A page tab is a child of a screen object, and is included as a tab in the tab bar. The user clicks the tab to access the screen. For more information, see "Creating a Page Tab" on page 285.

## Screen Menu Item

A *screen menu item* is an object type that associates a screen with the application object. A screen menu item is a child object of an application. Siebel CRM displays it as a link on the Site Map and provides the user a way to navigate to a screen. For more information, see "Creating a Screen Menu Item" on page 285.

## Control

A *control* is an object type that is an element in the Siebel client, such as a field, text box, check box, button, and so forth. A control is a child of an applet, and allows the user to interact with Siebel CRM and with CRM data. For more information, see "About Applet Controls and List Columns" on page 115.

## List Applet

A *list applet* is a type of applet that allows simultaneous display of data from multiple records. The predefined list displays data fields in a multicolumn layout where Siebel CRM displays each record of data in a row. A list applet can include textual data, images in JPEG (Joint Photographic Experts Group) and GIF (Graphics Interchange Format) formats, and edit controls, such as check boxes, lists, multi-value group applets, and text fields.

The user can click in the far left column selection area of a list applet to choose a single row. If chosen, the fields in the row can activate input or edit controls. If the user clicks New in the applet, then Siebel CRM creates a new row with a series of empty fields where the user can enter information.

### List

A *list* is an object type that defines property values that pertain to a scrolling list in a list applet. A list is a child of an applet and provides a parent object definition for a set of list columns. For more information, see "How Siebel CRM Constructs a List Applet" on page 114.

### List Column

A *list column* is an object type that corresponds to a column in a scrolling list in a list applet, and to fields in the business component. A list column is a child of a list. For more information, see "Creating a List Applet" on page 331.

### Web Template, Applet Web Template, and View Web Template

A *web template*, *applet web template*, and *view web template* are object types that identify external HTML files, or other markup language files, that define the layout and Siebel Web Engine interactions for an applet or view. For more information, see the following topics:

- About the Form Applet and List Applet on page 113
- About Views on page 132
- About Siebel Web Templates on page 147.

### Applet Web Template Item

An *applet web template item* is an object type that defines a control, list item, or special Web control in the Web implementation of an applet. For more information, see "About the Form Applet and List Applet" on page 113.

### View Web Template Item

A *view web template item* is an object type that defines the inclusion of an applet in the Web implementation of a view. For more information, see "About Views" on page 132.

## Overview of the Business Object Layer

The business object layer includes objects that define business logic and organize data from underlying tables into logical units. This topic describes the more common objects that exist in the business object layer. For more information, see *Siebel Object Types Reference*.

## Business Component

A *business component* is an object type that associates columns from one or more tables into a single structure. A business component provides a layer of wrapping over tables. This wrapping allows an applet to reference a business component rather than the underlying table. For more information, see "About Business Components" on page 73.

## Business Component Field

A *business component field* is a child object of a business component that provides the source of data for controls and list columns in an applet. It typically associates a column to a business component. Siebel CRM can calculate a field from the values in other fields in the business component. A field supplies data to a control or list column in the Web interface. For more information, see "About Business Component Fields" on page 82.

## Join

A *join* is an object type that establishes a relationship between a business component and a table that is not the base table of the business component. The join allows the business component to use fields by using columns from the joined table. The join uses a foreign key in the business component to obtain rows on a one-to-one basis from the joined table, even though a one-to-one relationship between the two is not necessarily required. For more information, see "About Joins" on page 93.

## Join Specification

A *join specification* is an object type that provides details about how Siebel CRM defines the join in the business component. A join specification is a child of a join. For more information, see "How Siebel CRM Uses the Join Specification" on page 95.

## Business Object

A *business object* is an object type that groups related business components together. A business object allows you to establish a relationship among the various business components that Siebel CRM uses in the context of a given business object. For more information, see "About Business Objects" on page 107.

## Business Object Component

A *business object component* is an object type that provides a way to include a business component and, generally, a link in the parent business object. The link specifies how the business component is related to another business component in the context of the business object. For more information, see "About Business Objects" on page 107.

### Link

A *link* is an object type that defines a one-to-many relationship between two business components. The link makes master-detail views possible. A *master-detail* view is a type of view that displays one record of the parent business component along with many records of the child business component that correspond to the parent. For example, many contacts for a single account. You can also use a pair of links to create a many-to-many relationship. For more information, see "About Links" on page 105.

### Multi-Value Group, Multi-Value Link, and Multi-Value Group Applet

A *multi-value group* is a set of child records that are associated with a parent record. A *multi-value link* is an object type that provides a way to create a multi-value group. A *multi-value group applet* is a dialog box that displays the records that constitute a multi-value group. If the user opens the applet from a parent record in a list or form applet, then Siebel CRM uses a multi-value link to build and then display a multi-value group in the multi-value group applet. For more information, see the following topics:

- Viewing an Example of a Multi-Value Group Applet on page 472
- About Multi-Value Links on page 97
- How Siebel CRM Constructs a Multi-Value Group on page 474

### User Property

A *user property* is an object type that provides a way for you to configure specific behavior that goes beyond what is configured in the properties of the parent object. At the business object layer, a user property exists as a child object of a business component, business service, integration component, integration object, or virtual business component. For more information, see *Siebel Developer's Reference*.

### Business Service

A *business service* is an object type that contains a set of methods. It provides the ability to call C++ or scripted methods of the business service from a script that you create, and in the object interface logic, through the mechanism that Siebel CRM uses to call the method. For more information, see *Integration Platform Technologies: Siebel Enterprise Application Integration*.

## Overview of the Data Objects Layer

Object definitions in the data objects layer provide a logical representation of the underlying physical database, which includes tables, columns, indexes, and so forth. Because these objects are independent of the installed RDBMS, a layer of abstraction over the RDBMS exists, thus insulating Siebel CRM and you from having to administer and restructure the database.

Siebel object definition payers provide a way to manage relational databases in Siebel CRM. Siebel CRM generates queries in response to a user action, in combination with the context that the relevant object definitions establish. The RDBMS contains the data and handles the queries that originate in Siebel CRM. Siebel CRM processes the query results that it returns from the RDBMS up through the relevant object definitions in the architecture, and then presents the results to the user.

**NOTE:** Siebel CRM creates the physical tables in the RDBMS when you install Siebel CRM.

This topic describes some of the more common objects in the data layer of the Siebel object architecture. For more information, see *Siebel Object Types Reference*.

### Table

A *table* is an object type that is the direct representation of a database table in an RDBMS. It contains column and index child object types that represent the columns and indexes of the table. Table, column, and index objects in Siebel Tools provide a detailed picture of all of the tables, columns, and indexes that are included in the RDBMS. For more information, see "About Siebel Tables" on page 45.

### Column

A *column* is an object type that represents one column in a database table. It is represented by the column object definition that is a child of the corresponding object definition for the table. For more information, see "About Columns and Indexes in a Siebel Table" on page 59.

### Index

An *index* is an object type that identifies a physical index file in the RDBMS. For more information, see "Indexes of a Siebel Table" on page 61.

## Hierarchy of Object Types and Relationships

An object in an upper layer is built on an object in a lower layer. For example, an applet references a business component, a view references a business object, and a field references a column.

Figure 2 illustrates the relationships between the major object types in Siebel CRM.

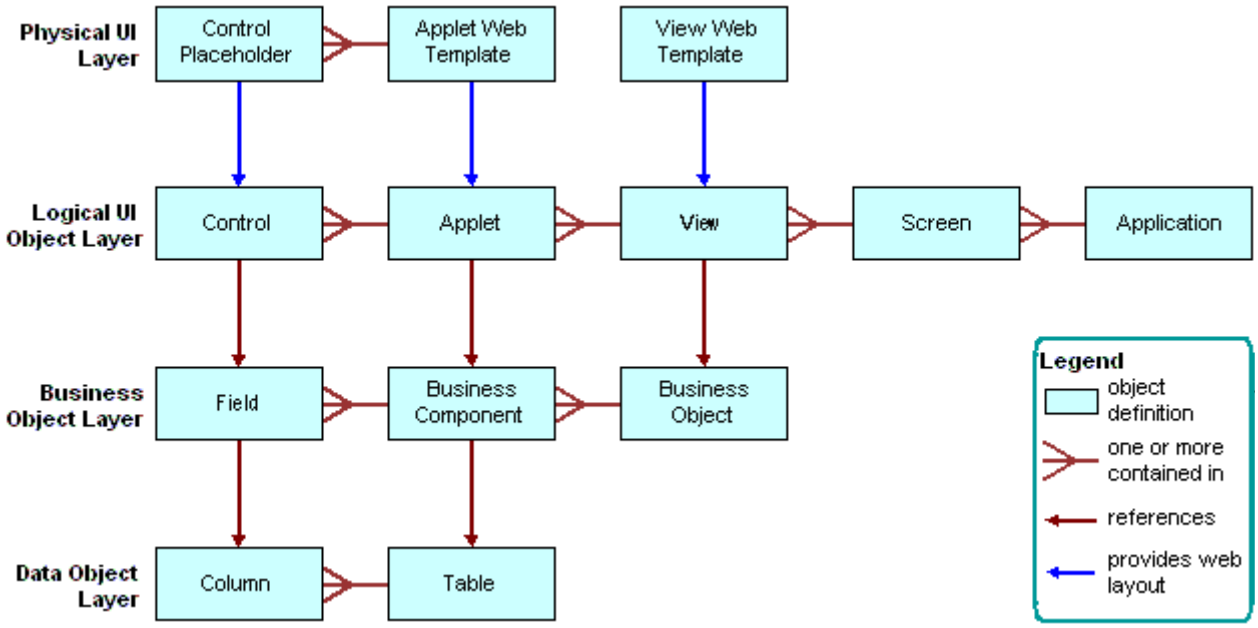



Figure 2. Relationships and the Major Object Types in Siebel CRM

## About Classes in Siebel Tools

In Siebel Tools, a *class* is a property of certain object types, such as applet and business component. The value of the class property assigns a set of behaviors to the object definition, and distinguishes it from other categories of object definitions of the given object type. For example, a value of CSSFrameList in the class property in the object definition of an applet makes the applet a list applet. To accomplish this, the Class property assigns a DLL to the object definition.

# About the Siebel Operating Architecture

This topic describes the major components that the architecture uses to implement Siebel CRM on one or more servers. It includes the following topics:

# Components of the Siebel Operating Architecture

This topic describes some of the major components of the Siebel operating architecture.

## Object Manager

The *object manager* hosts a Siebel application, providing the central processing for HTTP transactions, database data, and *metadata*, which are object definitions in the Siebel repository that are relevant to the current state of Siebel CRM. The Siebel Web Engine and data manager operate as facilities in the object manager.

The object manager handles object definitions for all levels of the object layer hierarchy. These objects include Web interface definitions, business object definitions, and data object definitions. For run-time objects that reference the object definitions, Siebel CRM only directly instantiates the business object layer objects. These objects include business objects, business components, and so forth. The Siebel Web Engine instantiates interface objects. The data manager instantiates data objects.

The object manager also implements the mechanism by which the Web interface objects receive notification of various state changes of the business component.

For more information about application object manager components that are defined on the Siebel Server, see *Siebel System Administration Guide*.

## Siebel Web Engine

The Siebel Web Engine (SWE) generates the Siebel CRM user interface as HTML pages on the Siebel Server and then passes them to a Web browser through HTTP. The Siebel Web Engine allows the user to view and modify data. The Siebel Web Engine interfaces with the object manager to retrieve and update data. A notification mechanism between the Siebel Web Engine and the object manager allows the architecture to immediately notify all applets if a user modifies data in a given applet. This way, all applets can update their data on the screen.

## Data Manager

The *data manager* is a facility that resides in the object manager. It issues SQL queries in response to requests from the object manager, and passes back database result sets to the object manager. The data manager includes one connector DLL for each type of database connection that the Siebel system supports. The object manager dynamically loads the DLL that the data source requires.

For a description of the major entities that make up a Siebel deployment, see *Siebel Deployment Planning Guide*. For more information about the Siebel environment, see *Siebel Installation Guide* for the operating system you are using.

# Infrastructure of the Siebel Web Engine

The Siebel Web Engine provides a way to deploy Siebel CRM in HTML and other markup languages. Figure 4 on page 39 illustrates how a Siebel client interacts with the object manager on the Siebel Server through the Siebel Web Engine. The Siebel Web Engine includes the following components:

- The SWSE (Siebel Web Server Extension) on the Web server
- The Siebel Web Engine service in the object manager on the Siebel Server

The SWSE runs on the Web server, and interfaces with the Siebel Web Engine service in the object manager. Most of the work occurs in the Siebel Web Engine. The SWSE mostly maintains the session and functions as a communication intermediary. Network communication between the SWSE and the object manager occurs through SISNAPI (Siebel Internet Session Network Application Programming Interface), a Siebel communication protocol that references TCP/IP that provides security and compression.

The Siebel Web Engine runs as the Web Engine Interface Service object manager service. This service implements most components of the Siebel Web Engine, deploying an interface between SWSE and the object manager. From the perspective of SWSE, the Siebel Web Engine interface service does the following work:

- Handles incoming HTTP requests that include the Siebel Web Engine prefix
- Generates HTTP responses

From the perspective of the object manager, the Siebel Web Engine interface provides a user interface for interactions with the object manager.

## Where Components Are Hosted

No components are hosted on the client if the user accesses Siebel CRM through a Web client. The client interacts through a Web browser. The user accesses a URL that navigates to a Siebel application that is hosted on a Web server. This application is predefined with HTML or equivalent pages that the Siebel Web Engine service generates in the object manager.

## How You Can Use Siebel Tools to Build a View

You can use Siebel Tools to associate a set of HTML templates with an applet and view, thus making the applet and view available to the Web. In the Siebel client, when Siebel CRM renders an applet, the Siebel Web Engine obtains the information that defines the applet, the appropriate data for the various applet controls or list columns, and the HTML template. The engine then combines definition and data to generate the final Web page that Siebel CRM sends to the browser.

To create an applet web template in Siebel Tools, you use the Web Applet Designer and the following object types:

- Applet web template
- Applet web template item object types

To create a view web template in Siebel Tools, you use the following object types:

- View web template
- View web template item

## How the Siebel Web Engine Generates a Siebel Application

The user interacts with Siebel CRM through a Web browser. The Siebel client includes a set of Web pages that the Siebel Web Engine dynamically generates. To perform this work, the engine matches the Siebel repository definition of the Siebel application to Siebel web templates. When the user interacts with Siebel CRM, such as by clicking a button or link in a browser, the Siebel Web Engine does the following work:

1. Reads the object definitions from the SRF (Siebel Repository File) file.
2. Chooses the necessary web templates.
3. Combines the object definitions and templates.
4. Retrieves data from the underlying business objects and business components.
5. References the data, applet, and view information to the corresponding placeholders in the Siebel Web template file.
6. Presents the HTML output to the user.

Figure 3 illustrates the relationships between style sheets, templates, and objects in the Siebel repository, and the final HTML output.

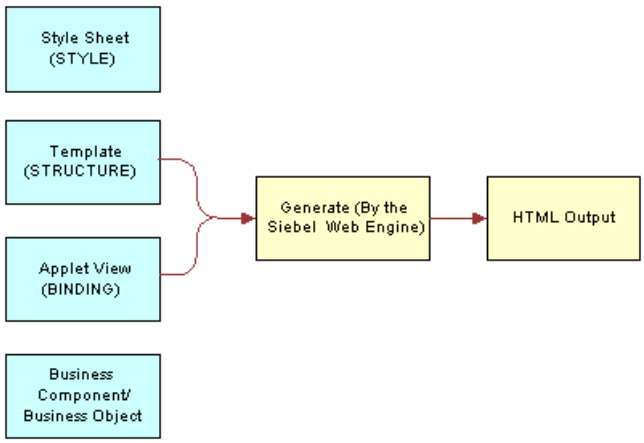



Figure 3. Relationships Between Style Sheets, Templates, and Objects in the Siebel Repository, and the Final HTML Output

## Integration with Java EE

Many enterprises develop and implement Java applications to meet a variety of business requirements. Typically, these applications combine existing enterprise information systems with new business functions to deliver services to a broad range of users. These services are typically architected as a distributed application that includes the following tiers:

- Clients

- Data sources
- The middle tier between clients and data sources

The middle tier is where you typically find transports and interfaces to receive messages that travel between applications that reside in and out of the enterprise. These transports and interfaces can include HTTP, MQSeries, Java servlets, Enterprise Java Beans (EJBs) that are typically in XML format, and so forth.

To simplify integration, Siebel CRM uses Java and XML to receive XML requests that Siebel CRM sends through HTTP or MQSeries. Java and XML provide a uniform way to receive and process requests from Siebel CRM in a Java EE environment. Siebel CRM uses Oracle's Siebel EAI integration infrastructure to transmit requests that Siebel CRM initiates to the appropriate Java EE Application Server. Java and XML includes a Servlet that receives HTTP requests and an MQSeries Base Server that retrieves messages from an MQSeries queue.

To use Java and XML, you must implement the ProcessRequest interface, which is responsible for understanding the contents of the incoming request and dispatching it to the appropriate Java component.

**CAUTION:** You can only use Java and XML to receive XML requests from Siebel CRM. You can only create custom code solely for use in object code form and solely for the purpose of integrating a Siebel application with a non-Siebel application. However, any modification or extension of this code is not in the scope of Maintenance Services and will void all applicable warranties. For more information, see "Getting Help from Oracle" on page 192.

### JavaBeans Can Represent Siebel Integration Objects or Business Services

You can use the Siebel Code Generator Business Service to generate JavaBeans that represent Siebel integration objects or business services. The JavaBeans that the Siebel Code Generator generates provide a strong interface for integration objects, business services, and their related components. This allows you to identify and use the Java code that you require for Siebel CRM.

**CAUTION:** You can only use the source code that the Siebel Code Generator Business Service generates in object code form and solely for the purpose of integrating a Siebel application with a non-Siebel application. Any modification or extension of code that the Siebel Code Generator Business Service generates is not in the scope of Maintenance Services and will void all applicable warranties.

For more information about Java, XML, and the Siebel Code Generator Business Service, see *Transports and Interfaces: Siebel Enterprise Application Integration*.

## Integrations That Use Siebel Partner Connect and Siebel Tools for Partner Connect

*Siebel Partner Connect* is a business-to-business integration solution that allows a brand owner to deploy integrated processes with their demand-chain partners.

*Siebel Tools for Partner Connect* is a set of tools that a brand owner can use to configure and administer their integrations with their channel partners. It includes the following webMethods products:

- webMethods Developer
- webMethods Trading Networks Console
- webMethods Business Integrator

For more information, see *Siebel Partner Relationship Management Administration Guide*.

# About Standard Interactivity and High Interactivity

This topic describes standard interactivity and high interactivity. It includes the following topics:



## Overview of Standard Interactivity and High Interactivity

This topic describes an overview of standard interactivity and high interactivity.You deploy Siebel CRM in standard interactivity or high interactivity. For more information, see the following topics:



### Standard Interactivity

*Standard interactivity* resembles most traditional Web applications. It supports different types of browsers. Page refreshes occur often, such as if the user creates a new record, submits a form, or browses through a list of records. You typically deploy a customer application in standard interactivity. Standard interactivity includes the following qualities:

- An applet that is in query mode displays a check box as a menu.
- A hierarchical list does not constrain values. Example hierarchical lists include Area and Subarea for service requests.

## High Interactivity

*High interactivity* resembles a Windows client. It supports fewer browsers than standard interactivity, but it includes a set of features that simplifies data entry for the user. For example, page refreshes do not occur as often as they do in standard interactivity. The user can create new records in a list, save the data, and continue browsing without encountering a page refresh. You typically deploy a Siebel employee application in high interactivity.

High interactivity supports the following features:

- **Browser scripting.** Allows you to use browser script to access Siebel objects. To reduce the number of page refreshes, this technique allows you to build data validation logic on the client.
- **Implicit save.** Allows Siebel CRM to automatically save a record if the user steps off the record.
- **User interface features.** Allows the following features:
  - Drag-and-drop column reordering
  - Drag-and-drop file attachments
  - Keyboard shortcuts
  - Pop-up controls for calendar
  - Calculator and currency functions
  - Applet scroll bars
- **Customizable toolbars**. Allows you to customize JavaScript toolbars and define new ones. For more information, see "Using Web Templates to Customize Toolbars" on page 530.

## List Applet Behavior

Siebel CRM renders a list applet differently depending on the interactivity:

- **Standard interactivity.** The user can click a row selector control in a row in the list to activate the row. If chosen, the fields in the row can activate input or edit controls. Clicking New creates a new row with a series of empty fields where the user can enter information.
- **High interactivity.** The user can click any area in a row in the list to activate the row:
  - Because the row selector control is redundant, Siebel CRM automatically deletes the control when it renders the list.
  - Because high interactivity uses an implicit save model, a Save control is not required. If the user steps off the current record, then Siebel CRM automatically saves changes to the Siebel database.

## Comparison of Standard and High Interactivity

Table 2 compares some of the major technology and deployment capabilities between standard interactivity and high interactivity.

Table 2. Some Differences Between Standard and High Interactivity

| Description | Standard Interactivity | High Interactivity |
|---|---|---|
| Uses Java technology | No | Yes |
| Uses JavaScript technology | Yes | Yes |
| Uses ActiveX technology | No | Yes |
| Uses Document Object Model | No | Yes |
| Deployment | Customer or partner | Siebel employee or partner |

# JavaScript Usage in High Interactivity

*JavaScript* is an interpreted language that runs in many Web browsers. You can use it to customize browser behavior. Objects that represent the applet, business component, business service, and application object types exist in the browser address space as JavaScript objects and provide communication with the Siebel Server. These object types are the same object types that Siebel CRM instantiates in the browser. Initially, Siebel CRM passes these objects to the Siebel Web Engine, but also provides caching and other local processing. Siebel CRM uses the following JavaScript objects:

- **Browser Applet.** Provides a way to communicate and interact between applet controls.
- **Browser Buscomp.** Provides a way to interact with business components. For example, the browser business component updates the state of browser applets as values that change in the underlying business component. These updates are due to master and detail views, calculated values, and certain behavior.
- **Browser Business Service.** Provides a set of methods from browser scripts that you define. You can reuse a browser business service.
- **Browser Application.** Provides a framework for Siebel CRM. In a browser application, you can create a method that is not specific to a business component or that calls a method on the Siebel Server.

You can script an instance of a browser applet, browser business component, browser business service, and browser application. For more information, see "Creating a Script to Customize Siebel CRM" on page 198.

Figure 4 illustrates how different components of Siebel CRM interact. Siebel CRM shares certain business component logic with the browser, Siebel Web Engine, and the Object Manager. Siebel CRM shares certain Web applet logic between all HTML clients. Browser logic is the only part that is specific to a browser.

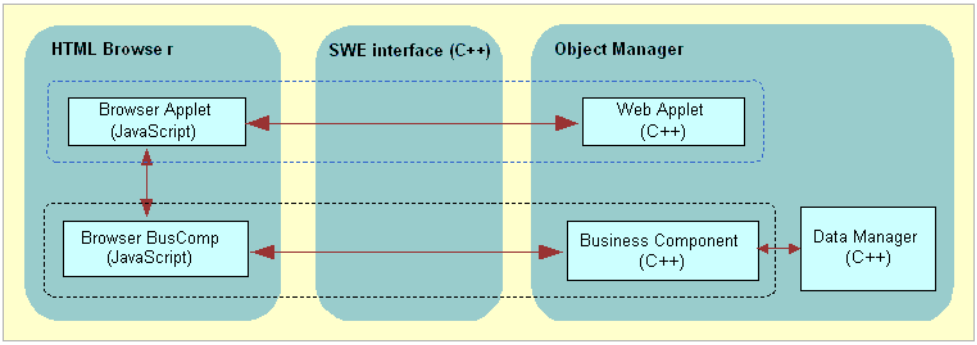



Figure 4. JavaScript Usage in High Interactivity

Siebel CRM maintains these browser JavaScript objects in synchronization with their server counterparts so that changes to the browser or server objects are reflected in their corresponding objects. Siebel CRMSiebel CRM performs application processing among the browser objects. Using the remote procedure call protocol, Siebel CRM activates the Siebel Server if the Siebel Server requires data or new layouts. The Siebel Server can also use the notifications protocol to initiate an action on the browser.

## Guidelines for Configuring an Object for High Interactivity

If you deploy Siebel CRM in high interactivity, then use the following guidelines:

- Siebel CRM supports browser scripting in high interactivity.
- For a field to interpret and display custom HTML, such as a URL that the user enters, you must set the Type property of the field to URL. If it is not set to URL, then Siebel CRM presents and interprets the HTML as plain text. For example, if the user types a URL in a field of type TEXT, then Siebel CRM does not recognize the URL as a link to a Web page.
- You cannot modify the appearance of the rich text editor.
- You cannot modify the background and text color of a list applet.
- You cannot place a control that calls a method, such as the delete function, on every row in a list. Instead, place a button in the applet that calls the method. This way, the function acts on the chosen record.
- There are situations where the configuration file for the Siebel application sets Siebel CRM to run in high interactivity, and all the applets in a view are configured to support high interactivity, but Siebel CRM displays the view in standard interactivity. To remedy this situation, take the following actions:

- Do not explicitly set an applet to Query mode. Because high interactivity implicitly supports a query operation from the Siebel client, it does not support explicit use of the Query mode. For more information, see "Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data" on page 118.
- Deactivate any New template that is associated with an applet that you use in a high interactivity application. Siebel CRM then uses the Edit template as the default value to create new records. A problem can occur if one of the applets is in the New mode and uses a New template that is different from the Edit template that Siebel CRM uses in default mode.
- Disallow any multirow edit or multirow select for the list applets.
- Do not use a hierarchical list applet in the view.
- Do not use the style layout of a catalog for an employee application. If the view uses a template that displays applets in the style layout of a catalog, then Siebel CRM might display the view in standard activity.
- Do not use a combo box list that uses Long Lists or includes an associated pick applet. For example, if the user performs an action from a high interactivity applet that causes a pick applet to display, then the pick applet is not displayed in high interactivity.

## Calendar Views That Siebel CRM Supports with Standard and High Interactivity

Most views in Siebel CRM can display in standard interactivity and high interactivity. However, some calendar views can run only in high interactivity or standard interactivity, but not in both. For more information, see "Using Standard Interactivity to Deploy a High Interactivity Application" on page 302.

For a Siebel application that typically runs in high interactivity, the seed responsibilities support the following views:

- High interactivity views
- Views that can high interactivity and standard interactivity can share

For a Siebel application that typically runs in standard interactivity, the seed responsibilities support the following views:

- Standard interactivity views
- Views that can high interactivity and standard interactivity can share

Table 3 describes calendar views that Siebel CRM supports for high and standard interactivity.

Table 3. Calendar Views That Siebel CRM Supports for High and Standard Interactivity

| View Name | High Interactivity Only | Standard Interactivity Only | High and Standard Interactivity |
|---|---|---|---|
| HI Activity Calendar View | Yes | No | No |
| eCalendar Daily View | No | Yes | No |
| eCalendar Monthly View | No | Yes | No |

Table 3. Calendar Views That Siebel CRM Supports for High and Standard Interactivity

| View Name | High Interactivity Only | Standard Interactivity Only | High and Standard Interactivity |
|---|---|---|---|
| eCalendar Weekly View | No | Yes | No |
| eGanttChart View | No | No | Yes |
| eCalendar Detail View | No | No | Yes |
| eCalendar Detail View With Participants | No | No | Yes |
| Calendar Access List View | No | No | Yes |

# About Siebel Technologies That Customize Siebel CRM Behavior

This topic describes solutions other than Siebel Tools that you can use to customize Siebel CRM. It includes the following topics:



These solutions are controlled through administration views in the Siebel client rather than Siebel Tools and are used by developers and administrators.

## Siebel Personalization

*Siebel Personalization* is a solution that allows you to filter content in an applet that Siebel CRM displays for a specific user according to the requirements of the preference or profile of the user. For example, you can include a salutation applet that does the following work:

- Greets the user by name
- Indicates how much time has elapsed since the user last visited the site
- Presents information about specific products or services with which the user might be interested

Note the following key points about personalization:

- Personalization is available on any applet in Siebel CRM.

- Personalization uses rules and rule sets to determine which records the user can view in a given applet according to the profile of the user. A rules evaluates the profile to determine which records and applications to display. A rule set is a group of rules. You can define multiple rule sets so that if the criteria in one rule set is not met, then Siebel CRM evaluates the next rule set.
- The user profile references any attribute that belongs to one of the following items:
  - If the user is a contact, a contact record and the account of the contact record
  - If the user is an employee, an employee record and the division of the employee record
- Personalization uses the User Profile Attributes object to contain and retrieve elements of a user profile. You can display these attributes in the Siebel CRM user interface, and in rules that determine the content that Siebel CRM displays to the user.
- Siebel Personalization can track events that occur in the context of Siebel CRM for the application, business component, and applet. When an event occurs, it starts a Personalization Action that modifies user profile attributes.
- A rule or an event can call an action. Siebel CRM uses an action to set a predefined profile attribute or a profile attribute that Siebel CRM creates dynamically in the Siebel client. A profile attribute that Siebel CRM creates dynamically in the Siebel client only exists for the duration of the user session. You can use a profile attribute that is configured in Siebel Tools or created in the Siebel client can to store state information in much the same way that a variable is stored in a cookie or a persistent frame. Where possible, you must use a profile attribute instead of a cookie.
- A rule or action can call a business component method or a business service method. Typically, you use the method to return values that Siebel CRM uses as criteria for a rule or for setting a profile attribute.

For more information, see *Siebel Personalization Administration Guide*.

## Task-Based User Interface

You can use the task-based user interface (Task UI) to create a wizard-like user interface that Siebel CRM displays in the Siebel client. A *task UI* is a multiple-step, interactive operation that can include branching and decision logic. Task UI guides the user through task execution, allows forward and backward navigation in task execution, and allows the user to pause and resume task execution. These features guide the user through the execution of an unfamiliar task, which helps to increase the efficiency of a novice or intermittent user. Task UI can also increase the efficiency of a busy veteran user, especially a user who works in an environment that is prone to interruption. Task UI allows for easy switching between multiple tasks throughout the work day. For more information, see *Siebel Business Process Framework: Task UI Guide*.

## Siebel Worklfow

*Siebel Worklfow* is a customizable business application that allows you to manage and enforce business processes, such as response time objectives, creating review policies, or monitoring service requests or opportunities over time. Siebel Worklfow uses the same basic processes that organizations use in their sales, marketing, and service departments that determine business workflow. You can use Siebel Worklfow to automatically enforce business policies and procedures. For more information, see *Siebel Business Process Framework: Workflow Guide*.

## Siebel Interactive

*Siebel Interactive* is a technology that allows you to incorporate HTML documents that are stored on the same or on a different Web site. You can retrieve and display internal or external HTML content, and programmatically execute a search specification against various Web servers. This functionality also provides a way to manage large stores of internal content that reference HTML which might include information that is valuable for users, such as FAQs. For more information about Siebel Briefings, see *Siebel Briefings Administration Guide*.

## Siebel eSmartScript

*Siebel eSmartScript* allows you to deploy an interactive guide in question and answer format in a Web page that helps the user find information. The interactive guide asks the user to answer questions to refine a search. Depending on the answers, the guide pursues branching paths to locate the correct answer. Siebel eSmartScript is integrated with Siebel SmartScript so that you can use a single administrative user interface to define scripts, and then deploy those scripts to call center agents or to users through the Web.

You configure Siebel eSmartScript through the same administrative screens that you configure SmartScript. You can deploy a Predefined SmartScript with little or no more configuration. You need only display the eSmartScript view, and then Siebel CRM dynamically generates the remaining views, applets, and so forth.

Siebel eSmartScripts can make applications more driven by data, which simplifies Web configuration. A Siebel eSmartScripts is relatively easy to configure, deploy and administer. For more information, see *Siebel SmartScript Guide*.

## Siebel Assignment Manager

*Siebel Assignment Manager* provides you with a way to assign the most qualified person to a specific task. To accomplish this, Siebel CRM matches candidates to assignment objects. To assign the most qualified candidate to each object, Assignment Manager applies assignment rules that you define.

You can specify how Siebel CRM uses Assignment Manager to evaluate a record. You can run Assignment Manager to process assignments interactively in real time, dynamically when the user makes database changes, or periodically in batches. For more information, see *Siebel Assignment Manager Administration Guide*.

## State Model

*State model* provides you with a way to customize workflow control according to the status of an object, such as a service request or a product defect. A state represents the status of an object, such as Open, Closed, or Pending. The state represents where the object is in the lifetime of the object. The state can also determine if the user can or cannot modify the data of that object. For example, a service request that is in a Closed state might be considered frozen and the user cannot modify the object.

A *state transition* defines how the user can change an object from one state to the next. For example, state model can allow a user to change the state for a service request from Closed to Open, and from Open to Pending, but not directly from Closed to Pending. The change of a service request from Closed to Open, or Open to Pending, represents state transitions. For more information, see the content about State Model in *Siebel Applications Administration Guide*.

## Siebel Pricer

*Siebel Pricer* is a solution that allows you to define, assess, administer, and deploy a flexible pricing strategy. It includes the following:

- A set of administration views that allow you to define pricing adjustments and the conditions under which Siebel CRM applies them.
- An engine that evaluates the condition statements and determines which pricing adjustments Siebel CRM applies.
- A testing area that allows assessment of the pricing adjustments.
- Integration with user interfaces, such as Quotes, Orders, Siebel eSales, Siebel PRM, and Siebel eConfigurator.

Siebel Pricer includes the following components:

- **Price lists.** Contain base prices.
- **Pricing models.** Management tool to control a set of related pricing factors.
- **Pricing factors.** Statements that define conditions and pricing adjustments.
- **Scripting.** Allows you to use business services with a pricing factor to customize the pricing calculation and to access external data.
- **Pricing validation.** Allows you to test pricing factors and the pricing model before releasing to users.
- **Reports.** Allows you to print reports of pricing factors.
- **Pricer Engine.** Evaluates conditional statements and applies pricing adjustments.

For more information, see *Siebel Pricing Administration Guide*.

# 3 About Tables and Columns

This chapter describes tables and columns. It includes the following topics:



## About Siebel Tables

This topic describes Siebel tables. It includes the following topics:



For more information, see "Overview of the Data Objects Layer" on page 29.

### Overview of Siebel Tables

The object definition of a Siebel table is a logical representation in the Siebel repository of the physical table that resides in the underlying RDBMS. Note the following:

- You can use an extension table to customize the data objects layer.
- You can use an extension column on a base table.
- You cannot add a new base table, delete a base table or column, or modify the properties of a base column.

Siebel CRM uses the term *base table* to describe the following object definitions:

- The table that an extension table customizes, as defined in the Base Table property of the extension table
- The table on which a business component is built, as defined in the Table property of the business component.

For more information, see "Guidelines for Naming an Object" on page 192.

## Naming Format for a Siebel Table

A Siebel table in the Siebel database adheres to the following three part naming format:

*PREFIX_NAME_SUFFIX*

Table 4 describes the naming format.

Table 4. Parts of the Table Naming Format

| Part | Description |
|---|---|
| PREFIX | A one-letter to three-letter prefix that distinguishes the table from other tables in Siebel CRM. Example prefixes include EIM_, S_, W_, and so forth. |
| NAME | A unique table name that is generally an abbreviation of the name of the entity supertype. For example, the table name for the event supertype is EVT. |
| SUFFIX | The subtype of the entity. For example, the EVT supertype includes the activity subtype, which is represented in the suffix as ACT. For example, S_EVT_ACT. |

Table 5 describes some of the prefixes that Siebel CRM commonly uses. Each prefix indicates the part of the Siebel schema to which a table belongs.

Table 5. Table Prefixes That Siebel CRM Commonly Uses

| Prefix | Description |
|---|---|
| EIM_ | Interface table for Enterprise Integration Manager. |
| S_ | Siebel base table.<br>In some situations, a table might contain a name of the form S_*name*_IF. This format indicates an obsolete interface table. |
| W_ | Siebel Business Data Warehouse table. |

Table 6 describes some of the suffixes that Siebel CRM commonly uses. Each suffix indicates a table type.

Table 6. Table Suffixes That Siebel CRM Commonly Uses

| Suffix | Description |
|---|---|
| _ATT | File attachment table. |
| _REL | A table that supports a many-to-many relationship from an entity back to itself. |
| _SS | A table that stores Siebel-to-Siebel integration information. |
| _X | A one-to-one extension table, available for you to add custom data to the Siebel database. |

Table 6. Table Suffixes That Siebel CRM Commonly Uses

| Suffix | Description |
|---|---|
| _XA | A table that stores custom data that is associated with an object class. |
| _XM | A one-to-many extension table, available for you to add custom data to the Siebel database. |

## How an Extension Table Stores Custom Data

This topic describes the extension table. It includes the following topics:



An *extension table* is a table that provides columns that you can use to store custom data. An extension table contains an implicit one-to-one or a one-to-many relationship with a base table. Siebel CRM provides a set of predefined extension tables that you can use. These tables include generic ATTRIB_ columns that you can use to store custom data. Because these tables are part of the data objects layer, you are not required to update the database if you use them.

**NOTE:** Siebel CRM uses some ATTRIB_ columns in an extension table. Do not modify or delete an ATTRIB_ column that a predefined Siebel application uses.

You can use the New Table Wizard to create your own extension. Because an extension table that you create requires a change to the logical schema, you must apply it to the physical database.

When Siebel CRM updates a column in a base table, it does not update the timestamps of the extension tables of the base table unless the columns in the extension tables are also updated. However, if Siebel CRM changes a record in an extension table, then it updates the system columns in the parent table. Siebel CRM performs this work because the object manager treats the associated record in an extension table as logically part of the parent record.

### Related Topics

For more information, see the following topics:


- Options to Use a Predefined One-to-One Extension Table on page 64
- Options to Use a Predefined One-to-Many Extension Table on page 66
- Manually Creating a One-to-One Extension Table on page 240
- Using the New Table Wizard to Create a New Table on page 235

## A One-To-One Extension Table Extends Data Storage for a Single Business Component

The name of a one-to-one extension table includes an _X suffix. A row in an extension table contains a one-to-one relationship with the corresponding row in the base table. The row is basically an extension of the base table record. The value of the Type property of a one-to-one extension table is Extension.

Figure 5 illustrates an example of how a one-to-many extension table requires you to create new fields for the business component of the base table and map them to available columns in the one-to-one extension table. The Hobby, Married, and Spouse fields are added to the Contact business component. These fields reference columns in the S_CONTACT_X extension table.

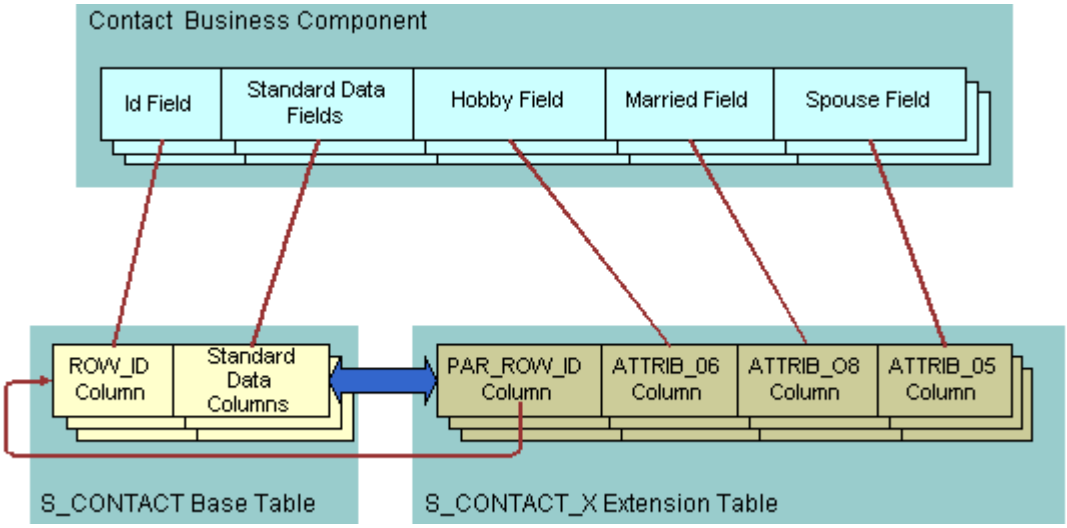



Figure 5. Example of How a One-To-One Extension Table Extends Data Storage for a Single Business Component

## An Implicit Join Creates a Relationship Between a Base Table and a Business Component

An *implicit join* is a relationship that establishes a one-to-one relationship between the extension table, the base table, and the business component. An implicit join fulfills the following roles:

- Establishes a relationship between the following objects:
  - Between one-to-one (_X) extension tables and relevant intersection tables.
  - Between extension tables of the S_PARTY table and the S_USER table. S_ORG_EXT, S_CONTACT, and S_POSTN are examples of these extension tables. These implicit joins map data to party business components. For example, if you add a field to the Account business component and then choose the Join property, then Siebel Tools displays several implicit joins that are not included in the Joins list in Siebel Tools, including joins that contain an S_ORG_EXT or S_USER alias.
- Makes the rows of the extension table available on a one-to-one basis to the business component that uses the extension table.

- Is part of the Siebel object architecture. You do not use Siebel Tools to explicitly create an implicit join.
- Typically uses the table name as the Join Alias. The name of the implicit join is the same name as the extension table. If a field in the business component references a column in the extension table, then the Column property of the Field object is the name of the column, and the Join property is the name of the extension table. For example, the Column property for the Industry field in the Contact business component contains ATTRIB_48, and the Join property contains S_CONTACT_X.
- Is sometimes referred to as an implied join.

Unlike an explicit join, Siebel CRM can update the columns from an implicit join.

If you create an extension table, then Siebel Tools automatically defines an implicit join. For more information, see "How an Extension Table Stores Custom Data" on page 47.

### How Siebel CRM Constructs an Implicit Join

Figure 6 illustrates how Siebel CRM constructs an explicit join.

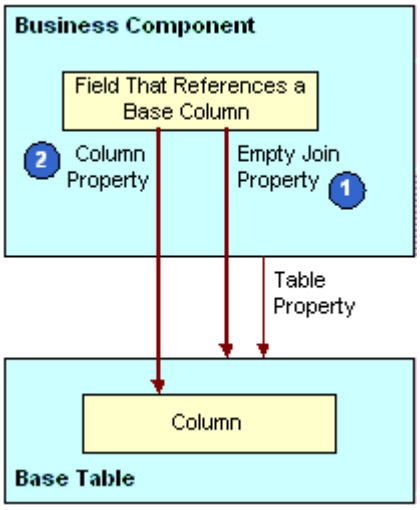



Figure 6. How Siebel CRM Constructs an Implicit Join

Siebel CRM uses the following objects and properties to construct an implicit join:

1 **Empty join property.** If the Join property is empty, then Siebel CRM obtains the column from the base table that the business component references.

2 **Column property.** Identifies the table column.

## An Explicit Join Creates a Relationship Between an Extension Table and a Business Component

An *explicit join* is a join that is different from an implicit join in the following ways:

- In the Siebel client, the user cannot typically edit a field that references a column from a joined table. You typically use this field only to display information.
- You do not create an implicit join. With an implicit join, the column in the extension table is automatically available for you to use.

For other tables, you use Siebel Tools to explicitly create the join. For more information, see "About Joins" on page 93.

### How Siebel CRM Constructs an Explicit Join

Figure 7 illustrates how Siebel CRM constructs an explicit join.

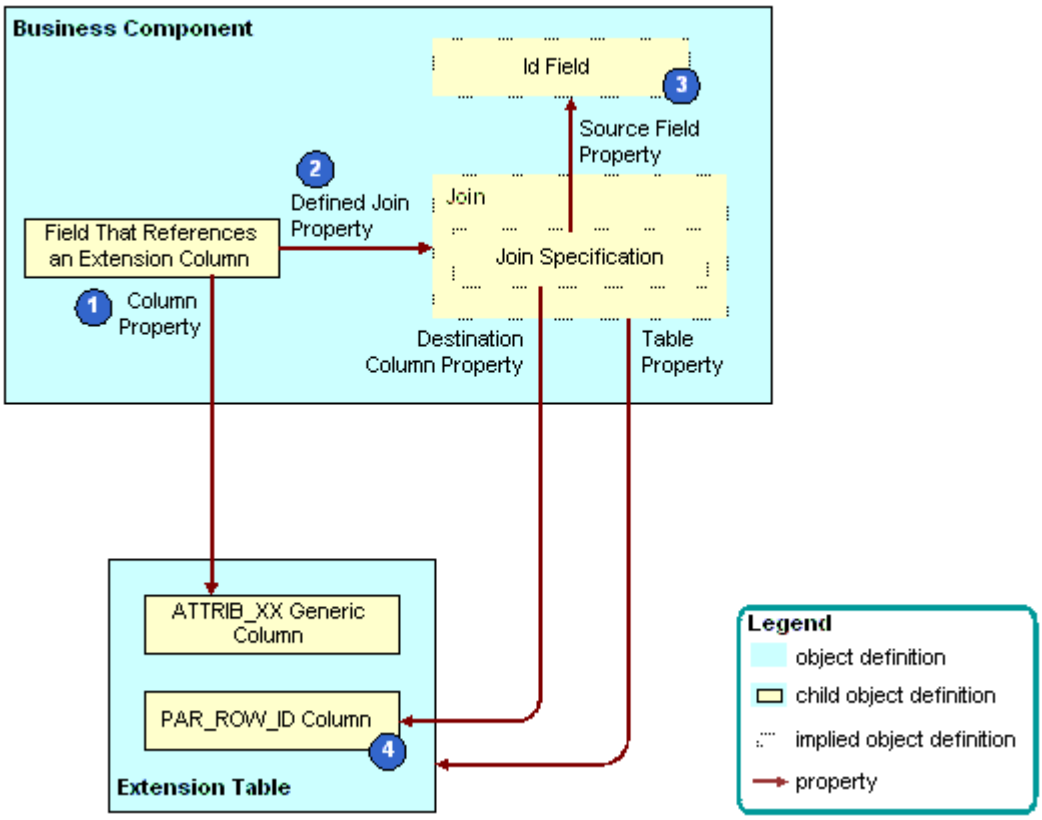



Figure 7. How Siebel CRM Constructs an Explicit Join

Siebel CRM uses the following objects and properties to construct an explicit join:

1. **Column property.** Identifies the table column.
2. **Defined join property.** If the Join property is not empty, then the Join property identifies the join that supplies data from an extension table or other joined table.
3. **Id field.** A system field in the business component. It represents the ROW_ID column in the base table, and you can use it in a join that involves an extension table and other joined tables. For more information, see "System Fields of a Business Component" on page 91.

4 **PAR_ROW_ID (parent row ID) column.** A column that is a foreign key to the base table that the extension table extends. Every extension table includes a column for parent row ID. Every row in an extension table contains a value in the PAR_ROW_ID column.

For more information, see "Options to Use a Predefined One-to-One Extension Table" on page 64.

## A One-To-Many Extension Table Stores Data from Multiple Business Components

A *one-to-many extension table* is a table that you can use to track an entity that includes a one-to-many relationship with a parent business component but is not represented by a predefined business component. You can store data for multiple business components in a one-to-many extension table. You use the Type column to group records in a one-to-many extension table. You configure each business component to retrieve only the rows of a given type.

The name of a one-to-many extension table includes an _XM suffix. A one-to-many extension table can contain multiple rows for a single row in the base table. Similar to a one-to-one extension table, a one-to-many extension table includes a set of generic ATTRIB_nn columns that you can use to store custom data. Unlike a one-to-one extension table, the value in the Type property for a one-to-many extension table is Data (Public) rather than Extension.

### Related Topics

For more information, see the following topics:

- Options to Use a Predefined One-to-Many Extension Table on page 66
- Configuring Objects to Use a One-To-Many Extension Table on page 239
- Customizing a Business Component on page 247
- Configuring a Link to Create a One-to-Many Relationship on page 265
- Creating a Business Object on page 266

## Summary of Support for Extension Tables and Extension Columns

Table 7 summarizes support for extension tables and extension columns.

Table 7. Summary of Support for Extension Tables and Extension Columns

| Object | Description |
|---|---|
| Public data table | Can be extended by using an extension table and extension columns. |
| Private data table | The following support is available for the private data table:<br>■ Cannot contain an extension column<br>■ Cannot add an extension column to a private data table<br>A *private data table* is a table with the Type property set to Data (Private). Some interface tables are private, although most are public. |

Table 7. Summary of Support for Extension Tables and Extension Columns

| Object | Description |
|---|---|
| Intersection table | The following support is available for an intersection table:<br>■ Can be extended with an extension column<br>■ Cannot be extended with a custom extension table |
| LOV Bounded, LOV Type property of a table column | Read-only for a predefined column in Siebel CRM but is editable for a custom extension column.<br>MLOV (multilingual list of values) is allowed with a custom extension column. |
| Predefined one-to-one extension column | It is recommended that you do not modify or delete a predefined one-to-one extension column. |
| Predefined extension column | Similar to a data column in a base table, you must not modify or delete a predefined extension column that a predefined Siebel application uses. |
| Custom extension column | The following support is available for a custom extension column:<br>■ You can use the Database Designer to add a custom extension column to a base table. The Database Designer is available in the Tables list in Siebel Tools. The relational database that you use with Siebel CRM determines if you can or cannot create a custom extension column on a base table.<br>■ You can add a custom extension column to one of several types of tables. For more information, see "Adding an Extension Column to a Base Table" on page 238. |
| Custom extension table | The following is available for a custom extension table:<br>■ You can use the Database Designer to create a new *one-to-one* extension table.<br>■ Several types of custom extension tables are available. For more information, see Table 10 on page 65. |

Table 7. Summary of Support for Extension Tables and Extension Columns

| Object | Description |
|---|---|
| EIM mapping | The following support is available for Enterprise Integration Manager (EIM) mapping:<br>■ The EIM Table Mapping Wizard provides a way for you to create or associate a new table with the appropriate interface table for using EIM:<br>■ You can generate EIM Table Mapping objects to import data to a table that you define.<br>■ You can automate the creation of an EIM attribute map on an extension column that is added to a base table.<br>■ You cannot add an EIM mapping for a foreign key relationship to a table that does not contain a user key.<br>For more information, see "Mapping a Custom Table to an Interface Table" on page 571. |
| Custom extension to a dock object | The Dock Object Mapping Wizard provides a way for you to associate a new table with a predefined or a new custom Dock object. This support provides a way to synchronize data that resides in the dock object of a Remote user. |

## How an Intersection Table Defines a Many-To-Many Relationship

This topic describes the intersection table. It includes the following topics:



An *intersection table* is a table that defines a many-to-many relationship. It provides an intersection between two business components. A *many-to-many relationship* is one in which there is a one-to-many relationship from either direction. For example, there is a many-to-many relationship between Accounts and Contacts. You can view this relationship in the Siebel client:

- The Account Detail - Contacts View displays one account with multiple detail contacts.
- The Contact Detail - Accounts View displays one contact with multiple detail accounts.

The two different views can be included in different business objects. The business objects associate the two business components in opposite directions.

There is no database construct that directly establishes a many-to-many relationship. Instead, the Siebel schema uses two links and an intersection table to create a many-to-many relationship.

Figure 8 illustrates an example of how an intersection table defines a many-to-many relationship.

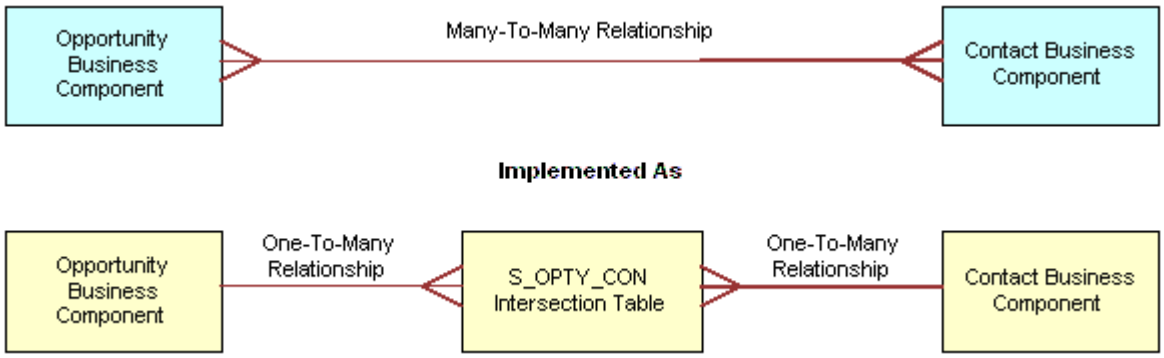



Figure 8. Example of How an Intersection Table Defines a Many-to-Many Relationship

The Type property of an intersection table contains Data (Intersection).

You can customize an intersection table with extension columns. You cannot customize an intersection table with custom extension tables.

For more information, see "About Links" on page 105.

## How Siebel CRM Constructs an Intersection Between Tables

An *association* is a pair of ROW_ID values, where each value references a specific row in the base table of a business component. An intersection table contains one row for each association that exists between the row in the base table of one business component and a row in the base table of another business component. The association row in the intersection table stores the ROW_ID values of the row in the base table of each business component.

Figure 9 illustrates how Siebel CRM constructs an intersection. The associations in the intersection table serve the Opportunity/Contact and the Contact/Opportunity links, and their corresponding views. The figure illustrates how the set of object definitions and relationships pertain to one of two links. The other link uses the same set of object types, but with different relationships. Siebel CRM can display one association in both views. For example, the association between Cynthia Smith and Smith Dry Goods.

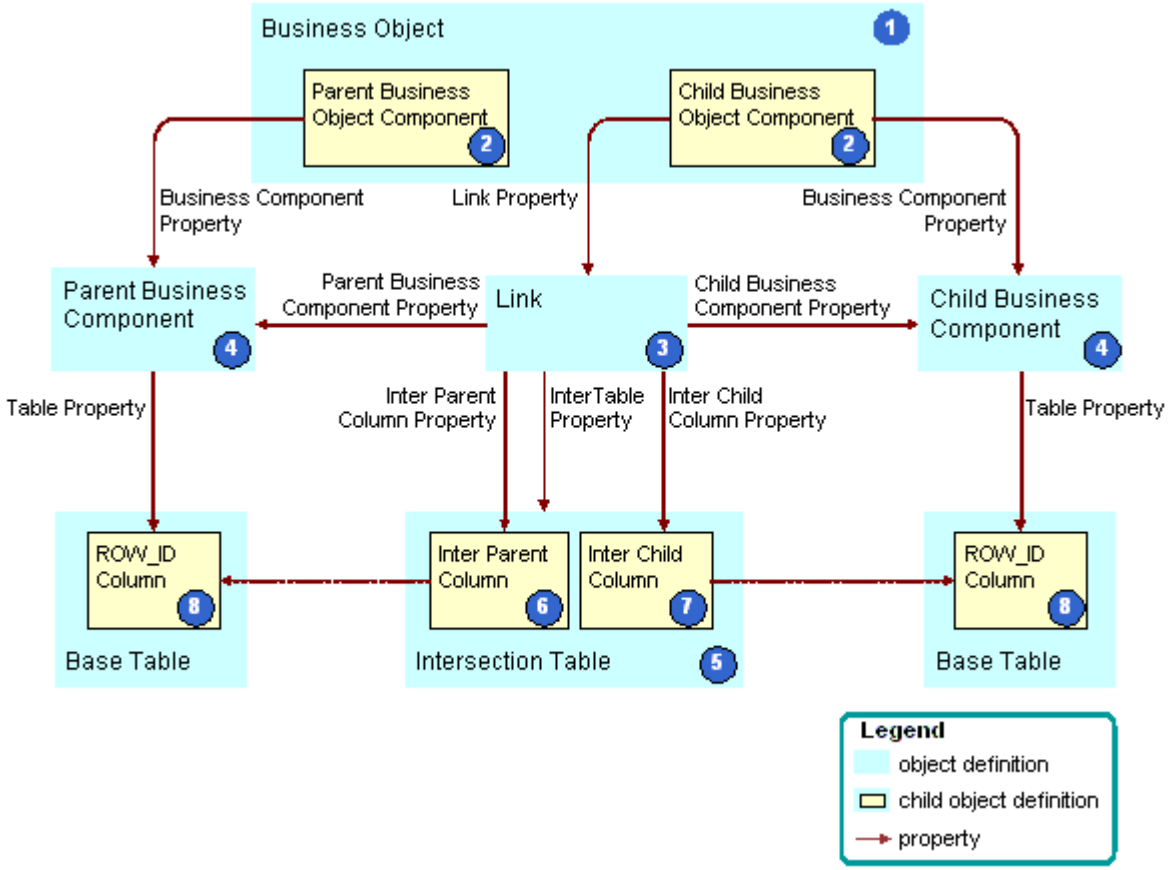



Figure 9. How Siebel CRM Constructs an Intersection

Siebel CRM uses the following objects to construct an intersection:

1. **Business object.** References the link that uses the intersection table. It also contains the two business components that are included in the link. The business object makes this reference indirectly through the child business object component of the business object.
2. **Parent and child business object components.** The Siebel schema uses the business object component to include business components in the business object. The business object component is a child of the business object. The detail business object component references the child business component through the Business Component property. It also references the link through the Link property. The parent business object component only references the corresponding business component.

3 **Link.** Establishes a one-to-many relationship between the two business components in a specific direction. The properties of the link define that one business component is the parent and the other is the child in the parent-child relationship.

4 **Parent and child business components.** The Siebel schema specifies two business components in the link. They provide data to the objects that display the parent-child relationship in the Siebel client. The base table of each business component contains the ROW_ID column that the Inter Child Column and Inter Parent Column properties of the link reference.

5 **Intersection table.** Contains the associations between rows in the base tables of the parent and child business components. Each row in the intersection table represents one association between the two business components. Two columns in the intersection table serve as foreign keys to the base tables of the two business components. These columns are identified in the Inter Parent Column and Inter Child Column properties of the link.

6 **Inter Parent column.** Contains the reference to the associated row in the base table of the parent business component. It is identified in the Inter Parent Column property of the link.

7 **Inter Child column.** Contains the reference to the associated row in the base table of the child business component. It is identified in the Inter Child Column property of the link.

8 **ROW_ID columns.** A unique identifier column for the rows in the base table of each business component.

The Siebel schema uses the following properties of the link specifically to create a many-to-many relationship. These properties are empty for links that do not create a many-to-many relationship:

- Inter Table
- Inter Parent Column
- Inter Child Column

## How Siebel CRM Constructs a Many-To-Many Relationship

Figure 10 illustrates how Siebel CRM uses properties in two links to construct a many-to-many relationship. In this example, the relationship is between Opportunities and Contacts.

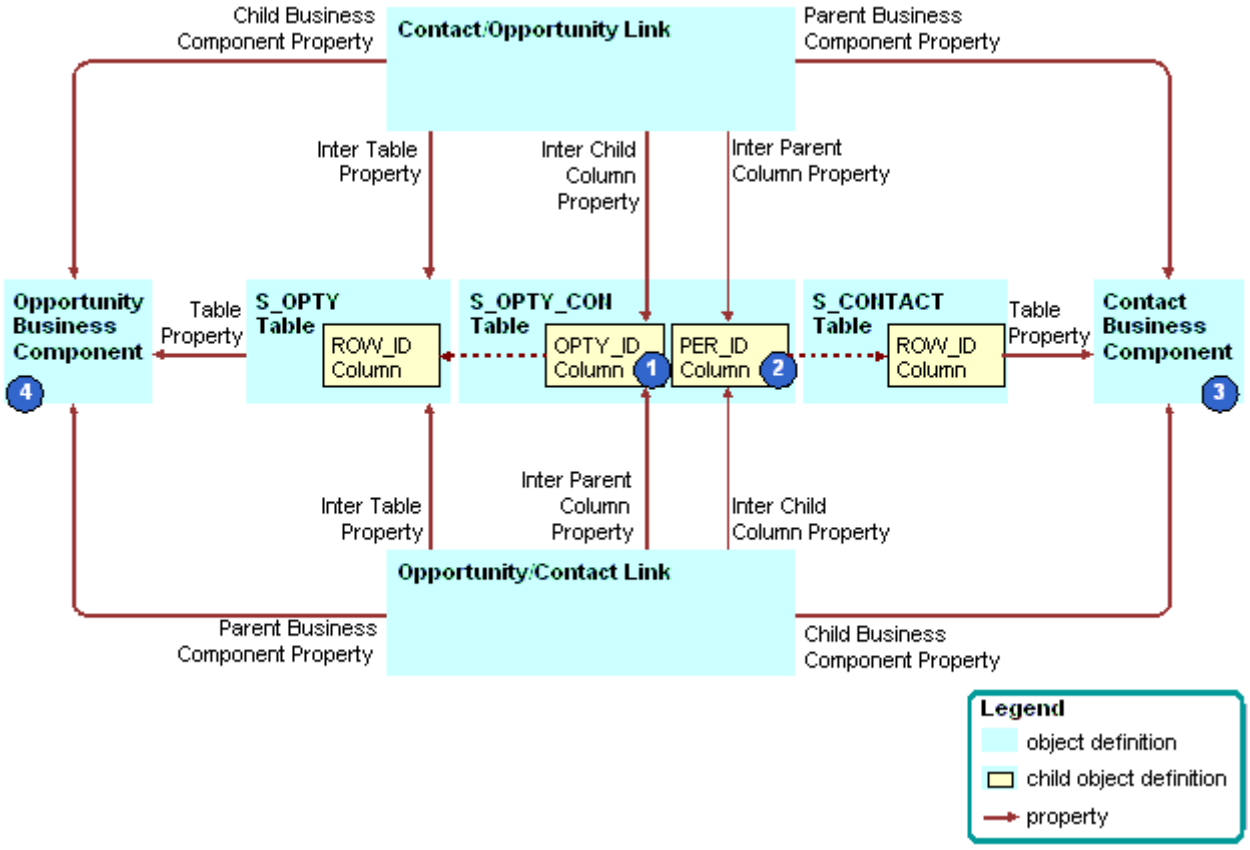



Figure 10. Example of How Siebel CRM Constructs a Many-To-Many Relationship

Siebel CRM uses the following objects to construct a many-to-many relationship:

1 **OPTY_ID column.** The following properties reference the OPTY_ID column in the S_OPTY_CON table:

- The Inter Child Column property of the Contact/Opportunity link
- The Inter Parent Column property of the Opportunity/Contact link

2 **PER_ID column.** The following properties reference the PER_ID column in the S_OPTY_CON table:

- The Inter Parent Column property of the Contact/Opportunity link
- The Inter Child Column property of the Opportunity/Contact link

3 **Contact business component.** The following properties reference the Contact business component:

- The Parent Business Component property of the Contact/Opportunity link
- The Child Business Component property of the Opportunity/Contact link

4 **Opportunity business component.** The following properties reference the Opportunity business component:

- The Child Business Component property of the Contact/Opportunity link
- The Parent Business Component property of the Opportunity/Contact link

## Intersection Data in an Intersection Table

An intersection table contains two foreign key columns that establish a relationship between the records of two business components. It also contains *intersection data columns*, which are columns that contain data that are specific to the intersection.

For example, the S_OPTY_CON table defines the many-to-many relationship between opportunities and contacts, and it includes several data columns in addition to OPTY_ID and PER_ID. These data columns contain information about the combination of a specific opportunity and a specific contact. Some of these columns include:

- **ROLE_CD.** The role that the contact in the opportunity plays.
- **TIME_SPENT_CD.** The time spent on the opportunity with the contact.
- **COMMENTS.** Comment that is specific to this combination of opportunity and contact.

Some intersection data columns are useful to one parent-child relationship, some are useful to the other parent-child relationship, and some are useful to both of these relationships. For example:

- The ROLE_CD column is useful only in the context of a parent-child relationship in which an opportunity is the parent record with multiple detail contact records.
- The TIME_SPENT_CD column is useful in the context of either parent-child relationship. Each contact fulfills a unique role in the opportunity. The time spent can be useful if viewed from one of the following perspectives:
  - Time spent with each contact of an opportunity
  - Time spent with each opportunity of a contact

## How Siebel CRM Uses an Implicit Join with an Intersection Table

To access an intersection data column, the Siebel schema uses a field in a business component that uses a join. An implicit join exists for any intersection table, and it includes the same name as the intersection table. Siebel CRM creates the implicit join if a link that uses an intersection table is created. It exists for the child business component. For example:

- The schema references the ROLE_CD column of the S_OPTY_CON table to the Role field in the Contact business component.
- The Join property of the Role field contains S_OPTY_CON.
- The Contact business component does not contain a child S_OPTY_CON join object definition.

The schema automatically provides the join. This join is not visible in the Object Explorer. This is similar to the implicit join that exists for a one-to-one extension table. You can also use an implicit join to update data.

# About Columns and Indexes in a Siebel Table

A *column* is a representation of the physical column in the underlying database management system. The Siebel schema records the name, data type, length, primary key status, foreign key status, alias, and other properties of the database column as properties in the corresponding object definition of the column. The schema provides other properties that are internal to Siebel CRM in the object definition, such as the Changed status and Inactive status, and the Type.

### Related Topics

For more information, see the following topics:

- Properties of a Table Column on page 666
- How a CIAI Index Can Improve a Query on page 545.

## Data Columns of a Siebel Table

A *data column* is a column that provides data for a field. It can also serve as a foreign key that references a row in another table. Most columns in Siebel CRM are data columns. A data column is sometimes referred to as a base column. A data column can be public or private. You cannot modify the properties of a data column.

## Extension Columns of a Siebel Table

An *extension column* is a column that stores custom data. Siebel CRM supports the following extension columns:

- **Predefined extension column.** Included in a predefined extension table for your use. Siebel CRM names these columns ATTRIB_*nn*, where *nn* is a value between 01 and 47. For example, ATTRIB_13. It is recommended that you do not modify or delete a predefined extension column.
- **Custom extension column in an extension table.** Added by a developer to an extension table. Siebel CRM names these with an X_ prefix.
- **Custom extension columns in a base table.** Added by a developer to a base table. The relational database system that you use with Siebel CRM determines if this configuration is allowed or not allowed. If the database system supports a custom extension column in a base table, it might be preferable for performance reasons to add it to the base table, rather than to add it to an extension table. Performance might be affected if you add the extension column to an extension table, because Siebel CRM generates extra SQL to join the extension table.

## System Columns of a Siebel Table

A *system column* is a column that Siebel CRM displays in all tables, although the same set of system columns is not included in every table. You can use the data in a system column for various purposes. For example, you can use the ROW_ID column to create a join. Most system columns are read-only. In general, you must not modify the data in a system column. There are exceptions, such as using certain system columns in an interface table. For more information, see "System Fields of a Business Component" on page 91.

Table 8 describes some of the system columns that Siebel CRM commonly uses.

Table 8. System Columns That Siebel CRM Commonly Uses

| Column | Description |
|---|---|
| ROW_ID | Stores a unique, base 36 alphanumeric identifier for the rows in the table. ROW_ID is present in all tables. It is the typical destination column of a foreign key relationship from another table. In a predefined data table, the Id field often represents ROW_ID for use in a join or link. For example, the Id field in the Account business component represents the ROW_ID column in the S_ORG_EXT table<br><br>For more information, see "Relationship Between a System Field and a System Column" on page 91. |
| CREATED | Stores the creation date and time of each record. |
| CREATED_BY | Stores the ROW_ID of the S_USER record of the person who created the record. This is not the user name that the user entered when the user logged in to Siebel CRM. |
| LAST_UPD | Stores the date of the last update that was performed for the record. |
| LAST_UPD_BY | Stores the ROW_ID of the S_USER record of the person who last updated the record. This is not the user name that the user entered when the user logged in to Siebel CRM. |
| DB_LAST_UPD | Stores the date of each record that is updated in the database. DB_LAST_UPD differs from LAST_UPD. For example, if the user updates a record, the Siebel CRM updates the LAST_UPD and DB_LAST_UPD columns in the local database. If the user synchronizes with a Server database, then Siebel CRM only updates the DB_LAST_UPD column. |
| PAR_ROW_ID | Stores a foreign key to the ROW_ID column of the base table. Siebel CRM includes the PAR_ROW_ID column in extension tables, file attachment tables, and tables whose name contains a _T suffix. |

Siebel CRM automatically updates the following columns:

- CREATED
- CREATED_BY
- LAST_UPD

- LAST_UPD_BY
- ROW_ID

The following columns store the date, time, and user values of the Siebel client. They do not store the date, time, and user values for the Siebel database:

- CREATED
- CREATED_BY
- LAST_UPD
- LAST_UPD_BY

### Indexes of a Siebel Table

An *index* is a logical representation of a physical index in the underlying database management system. Siebel CRM includes a set of predefined indexes. The name for each index contains an S_ prefix. You must not modify or delete a predefined index. You can create a custom index. For more information, see "Properties of an Index of a Siebel Table" on page 670 and "Creating a Custom Index" on page 238.

### Index Columns of an Index

An *index column* is a child object of the index object. The object definition for an index column associates one column to the parent index. For more information, see "Properties of an Index Column" on page 671 and "Creating a Custom Index" on page 238.

## How a User Key Creates a Unique Set of Values

A *user key* is a key that specifies columns that must contain unique sets of values. The purpose of a user key is to prevent the user from entering duplicate records. You can use it to determine the uniqueness of records during a data import operation in Enterprise Integration Manager.

The name of the parent table of the user key that contains an _U*n* suffix designates the user key. For example, S_PROD_INT_U1. Each user key includes User Key Column child objects that define the table columns that must include unique values. For example, BU_ID, NAME, and VENDR_OU_ID in the S_PROD_INT_U1 user key.

A predefined index exists for each predefined user key. This index also takes the form S_*TABLE_NAME*_U*n*.

**NOTE:** You cannot add or modify a user key in a predefined Siebel table or EIM base table. For help with remapping data to meet your business requirements, see "Getting Help from Oracle" on page 192.

For more information, see "About Interface Tables" on page 565.

## How the S_Party Table Controls Access

The party model organizes entities such as Person, Organization, Position, and Household. A party always represents a single person or a group that Siebel CRM can translate to a set of people, such as a company or a household. Siebel data access technology uses the Party model. Certain parts of the data objects layer use the Party model to abstract the difference between people, companies, households, and other legal entities. This model covers relationships between your company and people, such as contacts, employees, partner employees, and users, and other businesses, such as accounts, divisions, organizations, and partners. The S_PARTY table is the base table for this access. The Siebel schema implicitly joins related tables as extension tables.

Table 9 lists the extension tables and their corresponding EIM interface tables. A *party table* is a table that holds party data. Some example party tables include S_CONTACT, S_ORG_EXT, S_USER, and S_POSTN.

Table 9. S_PARTY Extension Tables and Corresponding EIM Interface Tables

| Data Type | Extension Table to S_PARTY | EIM Interface Table |
|---|---|---|
| Accounts | S_ORG_EXT | EIM_ACCOUNT |
| Business Units | S_BU | EIM_BU |
| Contacts | S_CONTACT | EIM_CONTACT |
| Employees | S_CONTACT | EIM_EMPLOYEE |
| Households | S_ORG_GROUP | EIM_GROUP |
| Positions | S_POSTN | EIM_POSITION |
| Users | S_USER | EIM_USER |

Because the Siebel schema implicitly joins these extension tables to the S_PARTY table, they are available through the S_PARTY table.

The PARTY_TYPE_CD column of the S_PARTY table supports the following types:

- AccessGroup
- Household
- Organization
- Person
- Position
- UserList

## Guidelines for Using the S_PARTY_PER and S_PARTY_REL Tables

The predefined S_PARTY_PER and S_PARTY_REL intersection tables create a many-to-many relationship between party business components, such as Account and Contact. Which table you use depends on if you must or must not enforce access control.

Use the S_PARTY_PER table to create a many-to-many relationship between two party business components where you must create access control. Records in the S_PARTY_PER table provide data access rights from the parent to the child parties. However, to maintain a good response time with a query that is constrained by visibility, you must minimize the number of rows in the S_PARTY_PER table. Therefore, if you create a many-to-many relationship where you do not require access control, such as if you create a recursive many-to-many relationship between a party business component and itself, then use the S_PARTY_REL table.

For example, use the S_PARTY_PER table to create a relationship between the following members:

- Access groups and members
- Accounts and contacts
- Employees and positions
- User lists and users

If you must customize tables in the party model, then you must create an extension table from the S_PARTY table. For example, S_CONTACT is an extension table of the S_PARTY table. Because the S_CONTACT table is an Extension (Siebel) type, you cannot use it as a base table for an extension table. You must create an extension table and use the S_PARTY table as the base table. To display data from the new extension table, create an explicit join to bring in data from the new extension table to the business component you are using.

For more information about the party model, see *Siebel Security Guide*.

# Options to Customize the Data Objects Layer

This topic describes options to customize the data objects layer. It includes the following topics:



### Related Topics

For more information, see the following topics:


- Configuring Tables on page 235
- Properties of a Siebel Table on page 666


## Options to Customize Predefined Objects and Perform Advanced Customization

This topic describes options that are available to you to customize predefined objects and to perform advanced customization.

## Options to Customize a Predefined Database Object

You can customize a predefined extension table or column that is available for you to use for your own purposes. These tables and columns provide the easiest option to store more entities because they are already part of the data objects layer. Using them does not require you to modify the logical schema. The following predefined extensions are available:

- Extension columns
- One-to-one extension tables
- One-to-many extension tables

For more information, see "Options to Use a Predefined One-to-One Extension Table" on page 64 and "Options to Use a Predefined One-to-Many Extension Table" on page 66.

You can use the Database Designer to can add an extension column to a base table or to create a new one-to-one extension table. For more information, see "Adding an Extension Column to a Base Table" on page 238.

## Options to Perform Advanced Customization of Database Objects

You can use the New Table Wizard to create the following types of tables:

- Stand-alone table
- One-to-one extension table
- One-to-many extension table
- Intersection table

For more information, see "Using the New Table Wizard to Create a New Table" on page 235.

You can use the EIM Table Mapping Wizard to map an extension to an interface table. This wizard allows you to create or associate the new table to the appropriate interface table that uses EIM. You can generate EIM table mapping objects that import data to tables you define, and you can automate how Siebel Tools creates an EIM attribute map on an extension column that you add to a base table. For more information, see Chapter 24, "Transferring Data Between Databases."

You can use the Dock Object Mapping Wizard to map an extension to a dock object**.** To support data synchronization to Remote users, this wizard allows you to associate the new table with a predefined or custom dock object. For more information, see Chapter 25, "Configuring Dock Objects for Siebel Remote."

# Options to Use a Predefined One-to-One Extension Table

Siebel CRM uses one-to-one predefined extension tables for many of the predefined data tables. The predefined extension table contains columns of various types that possess a predefined one-to-one relationship with a base table. This base table uses more columns in the extension table for new functionality without altering the base table or modifying the database schema. For more information, see "Guidelines for Modifying a Predefined One-to-One Extension Table" on page 70.

A one-to-one predefined extension table does not require you to create a new business component because Siebel CRM implicitly defines this type of table as a join. For more information about implicit joins, see "How an Extension Table Stores Custom Data" on page 47.

A one-to-one predefined extension table includes an _X suffix, such as S_PROD_INT_X. Siebel CRM names columns in these tables with ATTRIB_*nn*, where *nn* is a value from 01 to 47.

Table 10 lists the different data types in a Siebel extension table and the number of columns of each data type.

Table 10. Data Types in a Predefined Extension Column

| Data Type | Number of Columns |
|---|---|
| Number | 12 |
| Date | 10 |
| Varchar(255) | 1 |
| Varchar(100) | 5 |
| Varchar(50) | 10 |
| Varchar(30) | 5 |
| Char(1) | 4 |

## Determining Availability of a Predefined Extension Column

Before you use a predefined extension table you must determine if a predefined Siebel application uses or does not use the table column. To do this, you search the Siebel repository for fields that are associated with the column.

**CAUTION:** If a field that Siebel CRM defines references a column, then do not deactivate the field to use the column for another purpose.

### *To determine availability of a predefined extension column*

1. In Siebel Tools, in the Object Explorer, click the Flat tab.
2. In the Object Explorer, click Field.
3. In the Fields list, issue a query using values from the following table.

| Property | Value |
|---|---|
| Column | Name of the column you must use. |
| Join | Name of the extension table you must use. |

4. If the query does not return any Field object definitions, then Siebel CRM does not use the column in the extension table and it is available.

5 If the query returns one or more object definitions, find another extension column in that table. To determine which extension columns are currently in use, perform the query again using values from the following table.

| Property | Value |
|---|---|
| Column | ATTRIB* |
| Join | Name of the extension table you must use. |

## Options to Use a Predefined One-to-Many Extension Table

More than 20 predefined tables exist that contain a one-to-many relationship with a base table. These tables include the _XM suffix. They include generic columns that you can use to store more data. They allow you to track entities that do not exist in a predefined Siebel application and include a one-to-many relationship to a predefined base table. Because the extension tables themselves are already part of the data objects layer, you are not required to modify the database schema. For more information, see “How an Extension Table Stores Custom Data” on page 47.

# Guidelines for Customizing the Data Objects Layer

This topic describes guidelines to customize the data objects layer. It includes the following topics:



For more information, see "Guidelines for Reusing a Predefined Table" on page 207.

## Overview of Guidelines for Customizing the Data Objects Layer

If you customize the data objects layer, then use the following guidelines:

- Do not modify a predefined base table or the columns of a predefined base table.
- Do not modify a predefined one-to-one extension table or the column of a predefined one-to-one extension table. For more information, see "Options to Use a Predefined One-to-One Extension Table" on page 64.
- The predefined user interface displayed in the Siebel client does not use all the relationships that are available in the underlying data objects layer. However, most entity relationships are available for you to use. Use predefined objects in the data objects layer, if possible.
- To minimize the affect of your changes on other developers, make any bulk changes to the Siebel schema at the beginning of each project phase. If you make changes during a project phase, then you must distribute these changes to all remote users. You can use Siebel Anywhere to distribute a schema change. Otherwise, you must generate a new database extract for each remote user before you can progress to the next phase.
- Do not create a column that contains a name that is longer than 18 characters in the DB2 environment.
- The data objects layer includes over 2,000 database tables. Each of these tables follows a consistent naming format to help you identify an individual table. For information on naming formats for tables, see "About Siebel Tables" on page 45.

## Guidelines for Creating a New Table

If you create a new table, then use the following guidelines:

- You can only create the following types of tables:
  - Data (Public)
  - Data (Intersection)
  - Extension
- You must explicitly grant permissions on any table that you define.
- Use the New Table Wizard only after you explore other ways of meeting your business requirements, such as using a predefined extension table.

## Guidelines for Adding an Extension Column to a Base Table

You can add an extension column to a predefined base table. Adding an extension column avoids having to add another join to an extension table to store custom data. You can add an extension column to any of the following table types:

- Data table
- Intersection table
- Interface table
- Predefined extension table
- Custom extension table
- Extension (Siebel) table

You cannot add an extension column to a private data table, which is identified with a Type property of Data (Private). Some interface tables are private, although most are public. Use the following guidelines if you add a column to a table:

- Any column you add must conform to the data type limitations of all the RDBMS types that are used in your enterprise. Consider your server database and any regional or remote databases.
- In an Oracle database, the maximum length of an extension column with a VARCHAR data type is 2000 characters. If you create a VARCHAR column that is longer than 2000 characters, then the Siebel schema automatically implements it as a column with a LONG data type.
- If you add a new column to a predefined table with one or more rows of data, then the RDBMS does not allow you to add the column unless you also provide a default value.
- After you add a column to the physical table, you cannot remove the column. For more information, see the documentation for your database technology.
- If you create a new extension column in the Siebel schema, then padding problems might occur with Siebel Remote. For more information, see *Siebel Remote and Replication Manager Administration Guide*.

- If you add a column to a table, then do not use a column name that includes a word that is reserved on your server or client database. You can use a reserved word if you use an underscore (_) at the beginning and end of the word. For more information, see "Naming Format for a Siebel Table" on page 46.

## Guidelines for Creating a Custom Index

You can create a custom index to improve performance. If you create a custom index, then use the following guidelines:

- If you create a custom table, then the custom table typically requires new indexes.
- Use caution if you create an index. A custom index can result in a situation where objects reference the custom index instead of the predefined indexes. This situation can result in poor performance.
- If at some point you no longer require a custom index that you have defined, do not delete it from the Siebel repository. Instead, to deactivate it, make sure the Inactive property of the index contains a check mark.
- You must thoroughly test any custom index in a test environment before you implement it in a production environment.
- In a DB2 environment, do not create an index that contains a name that is longer than 18 characters.

## Guidelines for Creating a LONG Column

If you create a LONG column, then use the following guidelines:

- Only one LONG column can exist for each table.
- You can only add a LONG column to a one-to-one extension table whose Base Table property includes a valid base table.
- You cannot add a LONG column to a one-to-many extension table because it is a Data (Public) table.
- You cannot add a LONG column to a Data (Public) table, such as the S_EVT_ACT table. Only Oracle can create a LONG column in a Data (Public) table.
- You can use a LONG column to store a maximum of 16 KB or 16383 characters.
- Querying a LONG column starts more input and output operations in your RDBMS that are not necessary with other types of column data. This extra input and output slightly increases the time Siebel CRM requires to retrieve each row of data from the database, which can add up to a noticeable reduction in performance if Siebel CRM retrieves many rows of data from the database.
- For DB2 on z/OS, use a 32K tablespace if 16K is too small. If 32K is too small, then convert the LONG type to a CLOB type. For more information, see *Implementing Siebel Business Applications on DB2 for z/OS*.

## Guidelines for Modifying a Predefined One-to-One Extension Table

It is strongly recommended that you add custom extension columns to the base table to store your data instead of storing frequently accessed data in columns in a one-to-one extension column. Also, it is strongly recommended that you do not modify a predefined one-to-one extension table or the column of a predefined one-to-one extension table for the following reasons:

- All columns in a predefined extension table are not available to use because Siebel CRM uses some of the columns. You must not modify or delete an extension column that Siebel CRM uses.
- A C++ class might use the extension table in a reserved way. Modifying the table might cause behavior that you cannot predict.
- Because an upgrade effort might use the extension table, you cannot predict future use of the table.
- Because docking rules use some extension columns, the columns are reserved for use with Siebel Remote. For more information, see Chapter 25, "Configuring Dock Objects for Siebel Remote."
- Use of an extension table affects performance because Siebel CRM must include the table in all queries that use the field on which Siebel CRM executes the query. This situation can become a problem if the table is joined to multiple business components, specifically if a number of extension tables are in use.

It is permissible to use a predefined one-to-one extension table in the following situations:

- If you must use a LONG column because the database only permits one LONG column for each database table.
- If the implementation of a database constraint is beneficial. For example, to realize the improved performance that results if maximum bytes in a row are used before record chaining occurs.

## Guidelines for Creating a Custom One-to-One Extension Table

If you create a custom one-to-one extension table, then use the following guidelines:

- If you must customize a table whose type is Extension or Extension (Siebel), then you must extend from the base table of the table, not from the extension table. The Base Table property of the extension table describes which base table to extend. For example, the S_CONTACT table is an extension table of the S_PARTY table. Because the S_CONTACT table is an Extension (Siebel) table, you cannot use it as a parent table for an extension table. Instead, extend the S_PARTY table and use an implicit join to display the data from the extension table.
- A custom one-to-one extension table does not require new docking rules because the Siebel schema implicitly routes data in this table according to the docking rules of the parent table.

## Guidelines for Customizing a Base Table or Customizing a One-To-Many Extension Table

To decide to add an extension column to a base table or to use columns in a one-to-many extension table, consider the following guidelines:

- Try to use a predefined one-to-many extension table or column to meet design requirements. They are predefined and already part of the data objects layer so they do not require modification of the Siebel schema or the physical database. If a predefined extension table or column is not available, then explore other options, such as creating a new extension table.
- Add extension columns to a base table if the data you must store almost always exists for a given base record and is accessed regularly. By avoiding the join that an extension table uses, this technique often results in better performance. However, note that it can result in slower access to the base table if a lot of data exists where numerous large fields are added and where these fields always contain data. In this situation, fewer rows fit on one page.

  **NOTE:** If a user query regularly includes an extension column, then it is likely that an index is required on the column that must be included on another base table column. Therefore, you must add it to the base table.

- Use columns in a one-to-many extension table if one-to-many extension fields are required, and if the user only infrequently accesses the view that displays this data. In this situation, Siebel CRM executes the join for the extension table, but only if the user accesses this view.

## Guidelines for Customizing a Foreign Key That Affects Enterprise Integration Manager

Use caution if you configure an extension column to contain a foreign key. An extension column that contains a foreign key might be appropriate if it references a business object that is visible to the enterprise. You must avoid an extension column that contains a foreign key if it references a business object whose visibility is limited, such as Opportunity, Contact, Account, or Service Request. Using an extension column as a foreign key column can cause problems if Siebel CRM generates an EIM mapping or if Siebel CRM routes data to a remote user.

You cannot configure EIM to import data to a foreign key column, because you cannot configure the required EIM object types.

You cannot add an EIM mapping for a foreign key relationship to a table that does not include a user key.

## Guidelines for Creating a Custom Docking Rule

If your enterprise uses the Siebel Mobile Web Client, then note that Dock Object Visibility rules govern how Siebel CRM downloads data to the local database. These rules use predefined relationships to determine which data from which tables Siebel CRM routes to the local database of the remote user.

If you create a new relationship, then there are no Dock Object Visibility rules that allow relevant data to be downloaded to the local database. This situation might result with a user who cannot view data. To resolve this problem, you can use a feature of the Docking Wizard to create custom docking rules for custom foreign keys. You must analyze how your customization affects performance before you create a new Dock Object Visibility rule or object. This analysis is required to avoid performance problems with the Transaction Processor and Transaction Router.

If you add a rule, then you might inadvertently add a significant number of database records for Remote users, which might affect initialization and synchronization performance. An increased number of records in the Remote database might also affect performance.

For more information about Dock Objects, see “Configuring Dock Objects for Siebel Remote” on page 579.

# 4 About Business Components, Fields, Joins, and Links

This chapter describes business components, business component fields, and joins. It includes the following topics:



## About Business Components

This topic describes business components. It includes the following topics:



### Related Topics

For more information, see the following topics:

# Overview of Business Components

A business component provides the foundation for controlling how Siebel CRM chooses, inserts, and updates data in underlying tables. The information stored in a business component is usually specific to a functional area, such as a product, a contact, or an account. This information might or might not depend on other business components. A business component can exist in one or more business objects. It can include a default sort specification or search specification that allows you to display records in the Siebel client in a predetermined sort order and according to a set of selection criteria. Multiple users can instantiate copies of the same business component. Siebel CRM reflects data changes that one user makes in all instances of the business component. For more information, see "Business Component" on page 28 and "Options to Filter Data Displayed in an Applet" on page 120.

## How Business Component Fields Reference Base Table Columns

Siebel CRM derives the main data for a business component from a base table and one or more joined extension tables. For example, the Account business component references the S_PARTY table, but the S_ORG_EXT joined extension table stores most of the data that the Account business component retrieves.

Siebel CRM assigns a base table to each predefined business component. The base table for a non-party business component includes the most important columns that provide data to fields in the business component. The Table property of the business component references the base table. A single business component field references a single base table column.

Figure 11 illustrates an example of how fields in the Contact business component reference columns in the S_CONTACT table.

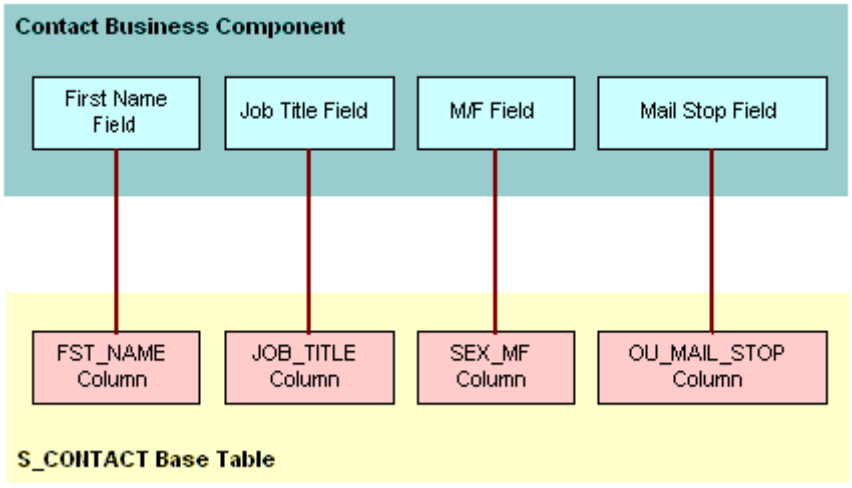



Figure 11. Example of How Fields in a Business Component Reference Columns in a Base Table

A business component does not always reference all columns in the base table, although typically it does reference most of them. Implied fields in the business component automatically represent system columns in the base table, such as ROW_ID, CREATED_BY and LAST_UPD_BY. A system column does not require a field object definition in the business component.

For more information, see "An Implicit Join Creates a Relationship Between a Base Table and a Business Component" on page 48.

## A Business Component Can Reference Data from a Joined Table

A business component can reference data from an extension table and a joined table. A *party business component* is a business component that references the S_PARTY table as the base table. The main data for a party business component comes from a joined table. A join defines the relationship between the business component and the additional table. For more information, see "How the S_Party Table Controls Access" on page 62.

A *joined table* provides rows on a one-to-one basis to the business component. The foreign key relationship between the joined table and the base table of the business component establishes this basis. For every record in the business component that corresponds to a row in the base table, there can be a corresponding row in the joined table. However, every record in the base table does not include a record in the joined table.

Figure 12 illustrates fields in a business component that reference columns in a base table and a joined table.

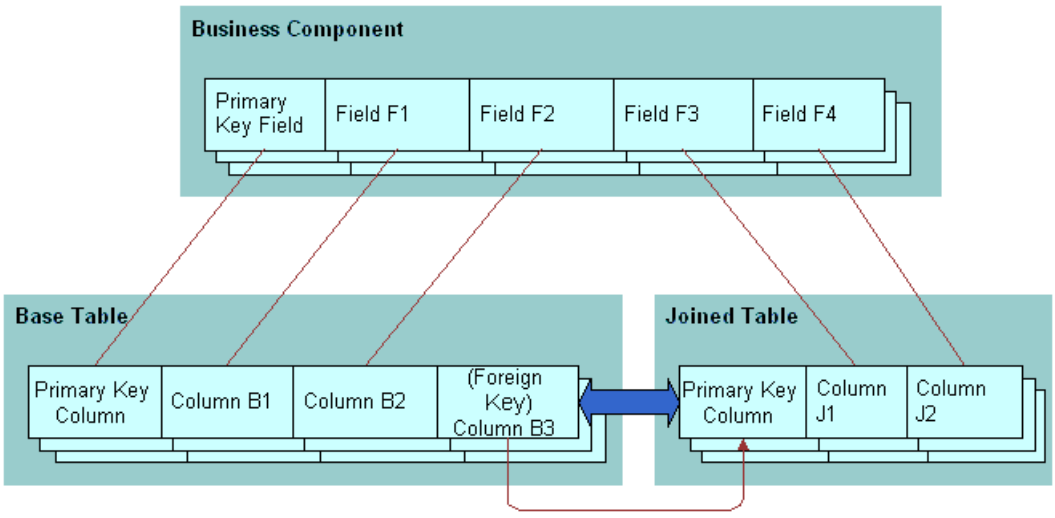



Figure 12. How Fields in a Business Component Reference Columns in a Base Table and a Joined Table

## You Can Reuse a Business Component

Figure 13 illustrates how you can create a business component once in terms of a logical collection of columns from one or more tables, and then use it in multiple business object contexts. For more information, see "About Business Objects" on page 107.

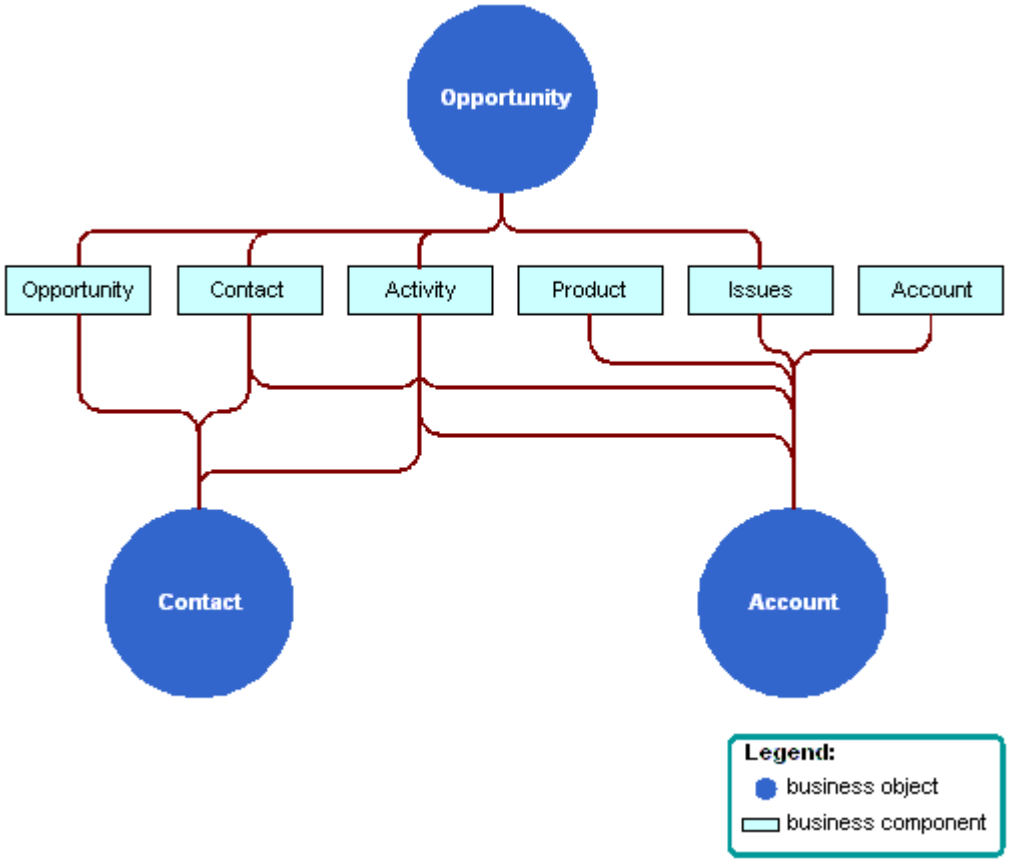



Figure 13. Example of How You Can Reuse a Business Component

# How a Business Component Obtains Data from an External Database

A *virtual business component* is a type of business component that references external data. This data is typically real-time information from an external database, although a virtual business component can reference any source that can supply data in response to a structured query. You can use a virtual business component if you must obtain data from a location other than a table in the Siebel database.

You can also use an *external business component* (EBC), which is type of business component that uses ODBC and SQL to supply data. The EBC allows for efficient development of federated data. For more information, see *Integration Platform Technologies: Siebel Enterprise Application Integration*.

A virtual business component allows you to do the following:

- Represent external data as a virtual business component in Siebel CRM. The business component definition specifies the DLL that Siebel CRM uses to access the data. Data in an SAP/R3 database is an example of external data.
- Use a business service to transfer data.

A virtual business component includes the following qualities:

- Supports single-value field.
- Supports field-level validation.
- Supports a predefined business component event model. For example, PreNewRecord, PreDelete, and so forth.
- Supports insert, delete, query, and update operations.
- Can be a stand-alone business component or a child business component in a business object.
- Supports dynamic applet toggles. For more information, see "Options to Toggle Between Applets in a View" on page 143.
- Can function as the parent of a link in a one-to-many relationship with another business component:
  - A virtual business component generates a Siebel row ID in the same way as a predefined business component.
  - Supports a many-to-many relationship to an external system that functions similarly to a one-to-many relationship. SAP is an example of an external system.
  - Does not support a many-to-many relationship to another virtual business component.
- Cannot be docked.
- Can be the basis for an applet.
- Can be accessed through an object interface.
- Can access all business component events for scripting.

For more information, see *Overview: Siebel Enterprise Application Integration*.

## Business Components That Hold Temporary Data for a Task UI

A *transient business component* (TBC) is a type of business component that provides a way to create data that Siebel CRM can display and that the user can edit in a task-based user interface (task UI). The data in a TBC is temporary. Siebel CRM uses this data during the life of the task, typically to control the flow or logic, then discards it when the task is complete. In some situations, Siebel CRM can store data in a TBC to long-term storage in the Siebel database. For more information, see *Siebel Business Process Framework: Task UI Guide*.

## Class Property of a Business Component

Siebel CRM contains a hierarchy of business component classes. CSSBusComp is at the top of the hierarchy. Siebel CRM derives all other specialized business component classes from CSSBusComp. You must set the class property for any new business component you create to CSSBusComp or CSSBCBase. The following functionality is common for a business component:

- Traverse records, which includes moving through the set of records that Siebel CRM returns from the Siebel database
- Get or set field values in records
- Create and delete records
- Commit changes
- Undo and redo
- Set a bookmark
- Perform a search
- Perform a sort

**NOTE:** Do not change the Class property of a predefined business component. If you copy a predefined business component to create a business component, then do not change the class property.

For more information, see *Siebel Developer's Reference*.

## How a Business Component Sorts Records

A *sort specification* is a property of a business component that impose a sort order on the records that Siebel CRM returns to an applet that is associated with this business component. For example, the predefined Account business component includes a sort specification property with the following value: Name(ASCENDING), Location. This value instructs Siebel CRM to do the following:

- Sort account records according to the account name in ascending order.
- If the name is the same for multiple accounts, then sort the records that contain the same name according to the Account Location.

A sort specification includes the following qualities:

- If the Sort Specification property is empty, then Siebel CRM returns the records in the order in which they occur in the table.
- If a predefined query exists, then it might override a sort specification that is defined on a business component.
- A sort specification can result in a negative effect on performance if Siebel CRM executes a sort on one of the following fields:
  - A field that references a join

- A field that references a new extension column that is not indexed

  For more information, see *Siebel Performance Tuning Guide*.

- Siebel CRM always displays empty records at the top of the record set if a sort specification is placed on a field that contains empty values.
- You cannot sort on a calculated field.
- You can sort values in a static list or pick applet differently than the default sort for the underlying business component. For more information, see "Creating a Sort Specification for a Static List" on page 458.

For more information, see the following topics:

- Determining How a Business Component Sorts Records on page 248
- Guidelines for Determining How a Business Component Sorts Records on page 81
- Customizing the Sort Order for Siebel CRM on page 305

## How Siebel CRM Sorts a Multi-Value Field

If you reference a multi-value field in a sort specification, then Siebel CRM does the following sort:

- Sorts on the initial value of the multi-value field. You must only use this configuration if the multi-value group references a primary foreign key.
- Does not sort the records in the underlying multi-value group. To sort the records of the underlying multi-value group, you must create a sort specification in the child business component of the multi-value link.

For more information, see "About the Multi-Value Field" on page 100.

## How Siebel CRM Sorts a Check Box Field

If a sort specification references a check box field, then Siebel CRM sorts the following values:

- Y
- N
- NULL

If a sort specification references a check box field, and if you define the sort in descending order, then Siebel CRM returns the records in the following order:

- NULL
- Y
- N

### How the Visibility Mode Affects a Sort Specification

Siebel CRM forces the sort in the All visibility mode to be on the primary key. The sort in Manager mode occurs on a column in the denormalized reporting relationship table. You can still sort records after the initial query. For better performance, you must sort records after you filter for a small record set.

You can use the All Mode Sort business component user prop to force Siebel CRM to use a custom sort specification or to ignore all sort specifications. For more information, see *Siebel Developer's Reference*.

## Guidelines for Creating a Business Component

This topic describes guidelines for creating a business component.

#### Related Topics

For more information, see the following topics:

- Guidelines for Naming an Object on page 192
- Guidelines for Reusing a Predefined Business Component on page 209
- Guidelines for Reusing a Predefined Business Object on page 211

### Guidelines for Naming a Business Component

For a business component that represents child entities, do not use the parent entity in the name of the child. For example, ABC Subsegment instead of ABC Account Subsegment. Similarly, only include the name of the business component in an applet that references these child business components. For example, ABC Subsegment List Applet instead of ABC Account Subsegment List Applet.

The exception to this requirement occurs if you require multiple variations of the same business component or applet. A multiple variation might be necessary if you display a specific entity as a top level applet and as a child applet on other views, and if the two applets are not the same. In this situation, place the name of the parent entity at the beginning of the name of the child applet. For example, the ABC Account Contact List Applet is a contact list that displays as the child of an account. It requires the word *Account* to distinguish it from the predefined ABC Contact List Applet, which is a different applet.

### Guidelines for Creating a Business Component That References a Specialized Class

If you must create a new business component, avoid copying a business component that references a specialized class, unless you do the following:

- Create a true copy of the original business component that contains the same functionality.
- Apply only minimal changes.

For example, create a Locked Service Requests business component that displays only those service requests that are locked. To do this, you use a business component user prop:

- Copy the Service Request business component, then reference the CSSBCServiceRequest specialized class from this new business component.
- Create the Lock Field business component user prop.
- Create the conditions in which a service request must be locked.
- Create a search specification for the business component that retrieves only those service requests that contain the conditions. For more information, see "Options to Filter Data Displayed in an Applet" on page 120.

The underlying behavior of the new business component remains the same as the original business component. Avoid copying a specialized business component to reproduce an isolated feature that is associated with that business component.

**NOTE:** If you set the Class property of a business component to CSSBCServiceRequest, then you must also add the Abstract field to this business component. If you do not add this field, and if an applet references a business component that is a child of the business component you add, then Siebel CRM might disable the New button in this applet.

## Guidelines for Determining How a Business Component Sorts Records

If you define the sort specification property of a business component, then use the following guidelines:

- The fields you use in a sort specification must be child objects of the business component.
- Use a comma to separate field names.
- To indicate that a field in the list sorts in descending order, include (DESCENDING) or (DESC) after the field name. For example, Start Date (DESCENDING). If you do not create a sort order, then Siebel CRM uses ascending order.
- Do not enclose the field name in square brackets. For example, [Account Name]. Siebel CRM accepts brackets in a search specification, but not in a sort specification. For more information, see "Options to Filter Data Displayed in an Applet" on page 120.
- Do not exceed 255 characters in the sort specification.

## Guidelines for Modifying a Predefined Business Component That Is Not Used

If you modify a predefined business component that is not used, then use the following guidelines:

- You must not delete, deactivate, rename, or modify any predefined object that is not used. Do not delete these objects because other objects might reference them.
- You can delete any custom business component you create that Siebel CRM does not use and that does not reference any other object that Siebel CRM uses, such as an applet.

# About Business Component Fields

This topic describes the field object type, which is a child of the business component object type. It includes the following topics:



## Overview of Business Component Fields

A business component field typically represents the following values:

- Information from a database column that the field obtains from a table column. The column can reside in the base table, an extension table, or a joined table of the business component.
- A calculated value that Siebel CRM derives from the values in other fields but that it does not store in the Siebel database. For more information, see "How a Business Component Field Calculates a Value" on page 84.

For more information, see "Business Component Field" on page 28.

### How a Business Component Field Provides Data to a Control or List Column of an Applet

Table 11 describes several examples of how a business component field provides data to a control or list column in an applet.

Table 11. Examples of How a Business Component Field Provides Data to a Control or List Column in an Applet

| Data in This Business Component Field | Provides Data to This Applet Control or List Column |
|---|---|
| Name field of the Opportunity business component. | Name control of the Opportunity Form Applet - Child |
| Account field of the Opportunity business component. | Account control of the Opportunity Form Applet - Child |
| Primary Revenue Amount field of the Opportunity business component. | Revenue control of the Opportunity Form Applet - Child |

Table 11. Examples of How a Business Component Field Provides Data to a Control or List Column in an Applet

| Data in This Business Component Field | Provides Data to This Applet Control or List Column |
|---|---|
| Name field of the Account business component. | Name list column of the Account List Applet |
| Main Phone Number field of the Account business component. | Main Phone Number list column of the Account List Applet |

Figure 14 illustrates how properties of a business component field and an applet reference each other when referenced from a form applet in comparison to a list applet. If a business component field is not a calculated field, then the Join and Column properties together define the table and column from which Siebel CRM obtains the data for the field. For more information, see "An Implicit Join Creates a Relationship Between a Base Table and a Business Component" on page 48.

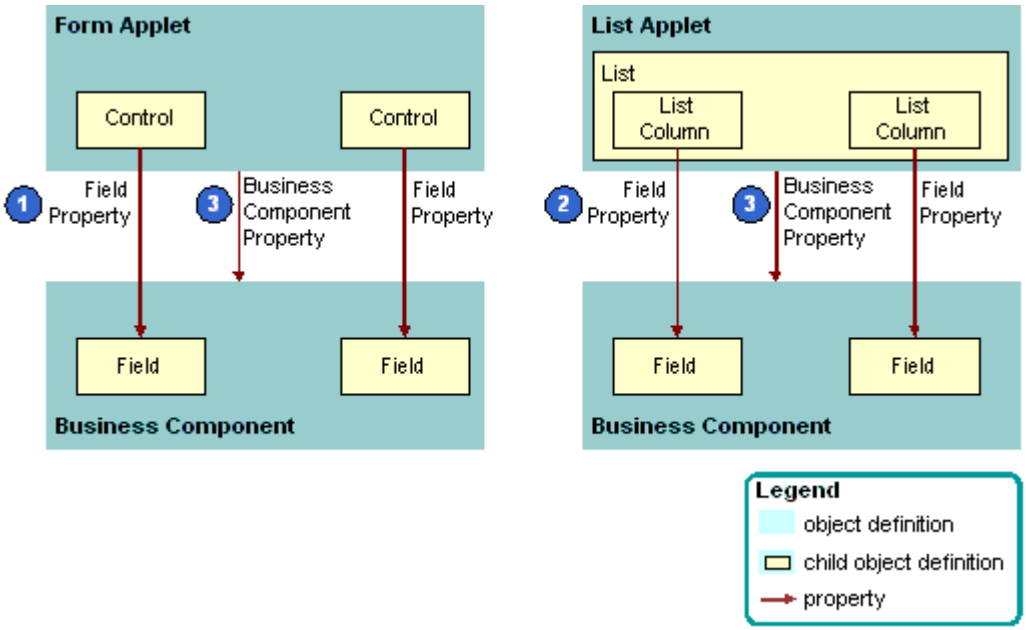



Figure 14. Comparison Between How a Form Applet and a List Applet Reference a Business Component

The following properties of a business component field and an applet reference each other:

1. **Field property of a control.** The Field property of a control references a business component field.
2. **Field property of a list column.** The Field property of a list column references a business component field.

3 **Business Component property.** The Business Component property of an applet references the business component.

## How a Business Component Field Identifies the Type of Data

The Type property of a business component field identifies the type of data that Siebel CRM retrieves from and sends to the Siebel database. Siebel CRM does not map these data types to the physical data types that are defined for the database. The data type of the field is generally more specific than the data type of the underlying column. For example, the DTYPE_NUMBER (decimal) and DTYPE_INTEGER field data types reference the Number physical data type in the column. For more information, see "Type Property of a Business Component Field" on page 672.

Just as the data type of the underlying table column restricts the set of field data types that work correctly, the data type of a business component field restricts the set of format options in the control or list column that reference the field.

It is recommended that you do not map a field to a different table column type. For example, do not map a DTYPE_NUMBER business component field to a Varchar table column.

Most formats are defaulted from the Microsoft Windows Control Panel. Overriding the default format in the Siebel repository but might cause confusion. For example, overriding a number format to display more or fewer decimal places is useful, but overriding a date format to DD/MM/YY is confusing to a user who set the date format to MM/DD/YY in the Control Panel. For more information, see "How Siebel CRM Handles Certain Date Formats" on page 677.

The Type property of a multi-value field is empty because Siebel CRM defines the data type of the field in the child business component that enters data in the multi-value field. For more information, see "About the Multi-Value Field" on page 100.

## How a Business Component Field Calculates a Value

A *calculated field* is a type of business component field that obtains values from other fields in the same business component, or from the parent business component in an active link in which the current business component is the child business component. The Calculated property of a calculated field contains a check mark and the Calculated Value property contains a value that is not empty.

The Calculated Value property contains an expression built from field names, predefined functions, and string, numeric, and logical operators. For example, the Full Name field in the Contact business component includes the following value in the Calculated Value property:

```
IIf (Language () = "JPN", [Last Name] + ' ' + [First Name],
[First Name] + ' ' + [Last Name])
```

The natural language translation for this expression is as follows:

- If the active client language is Japanese, then construct the Full Name from the Last Name, an empty space, and the First Name.

- If the active client language is not Japanese, then construct the Full Name from the First Name, an empty space, and the Last Name.

If you create a calculated field, then consider the following:

- By default, if the calculated value of a field changes, then Siebel CRM does not automatically refresh the calculated field. Siebel CRM only refreshes a calculated field after Siebel CRM commits the record. You can make sure the Immediate Post Changes property of the field contains a check mark to refresh the field immediately after Siebel CRM changes the field.
- A calculated field cannot reference itself in the Calculated Value property. For example, you cannot use Last Name in a calculation expression for the Last Name field.
- If the Cache Data property of the business component contains a check mark, then Siebel CRM does not support a query on a calculated field in that business component.
- You cannot use a script on a calculated field.

For more information, see *Siebel Developer's Reference*.

## How a Business Component Field Sequences Records

A situation might occur where you must create a field that provides sequential numbering for the parent business component. For example, you might need to number line items in an Order or products in an Opportunity. The sequence field behaves as follows:

- It is editable and can be set to any number.
- When Siebel CRM generates a new record, the initial sequence number is the maximum sequence number of the existing child records, incremented by one.
- Siebel CRM does not renumber records to resolve the gap that results when Siebel CRM deletes a record. The user must perform this work manually.

For more information, see Determining How a Business Component Sequences Records on page 248.

## How Siebel CRM Constructs a Sequence Field

Figure 15 illustrates how Siebel CRM constructs a sequence field.

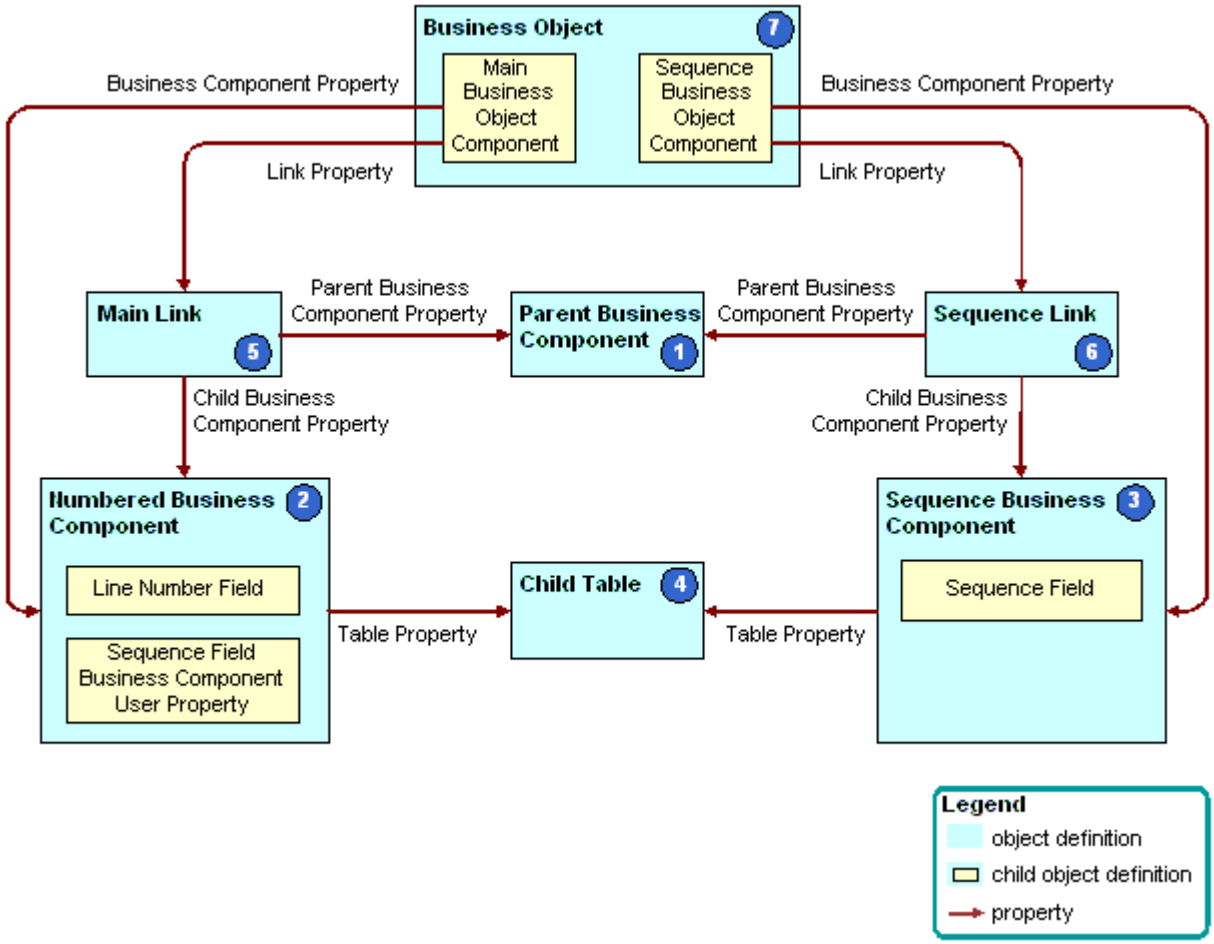



Figure 15. How Siebel CRM Constructs a Sequence Field

Siebel CRM uses the following objects to construct a sequence field:

1. **Parent business component.** The business component that contains the parent records in the parent-child relationship in which the child records are numbered. For example, the Opportunity business component is the parent in the parent-child relationship with Opportunity Product.
2. **Numbered business component.** The business component that contains the child records in the parent-child relationship. For example, the Opportunity Product business component is the detail in the parent-child relationship with Opportunity. The numbered business component includes the following important child object definitions:
   - **Sequence value field.** A DTYPE_NUMBER field that contains the resulting sequence value. Line Number and Order are examples of a sequence value field.

- **Business component user prop.** The Sequence Field business component user prop must be present, with the Value property set to the name of the sequence value field.

3 **Sequence business component.** This business component is named xx.yy.

where:

- *xx* is the name of the numbered business component.
- *yy* is the name of the sequence value field.

It references the CSSSequence specialized class, and it contains the following fields:

- **Sequence field.** This field is named Sequence and is a DTYPE_NUMBER field.
- **Foreign key field.** A foreign key field that references a foreign key column in the detail table. The foreign key column references the primary key of the base table of the parent business component. You can use it to create the link between the parent business component and the sequence business component.

4 **Detail table.** The base table for the numbered business component and the sequence business component.

5 **Main link.** The parent-child relationship between the parent business component and the numbered business component. This link is usually predefined, such as Opportunity or Opportunity Product.

6 **Sequence link.** The parent-child relationship between the parent business component and the sequence business component. You must usually add this link, except when a predefined Siebel application includes the sequence configuration. Opportunity and Opportunity Product.Line Number (Sequence) are examples of a link to a sequence business component.

7 **Business Object.** Includes the main link and the sequence link.

**TIP:** You can view an example configuration of a sequence field in a predefined Siebel application in Siebel Tools. For example, examine the Sales Assessment Attribute numbered business component, and the Sales Assessment Attribute Value.Order (Sequence) sequence business component.

## How Siebel CRM Defines Read-Only Behavior for a Business Component Field

This topic describes how Siebel CRM defines read-only behavior for a business component. It includes the following topics:

You can turn on or turn off the read-only status of a business component or business component field while Siebel CRM is running, depending on the value in a specific field in the current record. For more information, see "Example of Defining Read-Only Behavior for a Business Component" on page 250.

Table 12 describes the business component user props that you can use to define read-only behavior. For more information about user properties, see *Siebel Developer's Reference*.

Table 12. Business Component User Props That You Can Use to Define Read-Only Behavior

| Business Component User Prop | Description |
|---|---|
| BC Read Only Field | Defines a TRUE or FALSE field in the record. If TRUE, then the current record is read-only. For more information, see "How the BC Read Only Field User Property Functions" on page 88. |
| Field Read Only Field: *fieldname* | Defines a TRUE or FALSE test field and a target field in the same business component. If TRUE, then the target field is read-only.<br><br>The format for FieldName works if FieldName is not a join field. If FieldName is a join field to another table, then this format does not update the field that uses this format in the Pre Default Value property of the field.<br><br>For more information, see "How the Field Read Only Field User Property Functions" on page 89. |
| Parent Read Only Field | Defines a TRUE or FALSE test on a field in the parent business component. If TRUE, then the target business component is read-only. For more information, see "How the Parent Read Only Field User Property Functions" on page 89. |
| Parent Read Only Field: *business component name* | Defines a TRUE or FALSE test on a field in the parent business component. This functions similar to the Parent Read Only Field business component user prop, except the parent business component is in the name of the user property, rather than in the value. For more information, see "How the Parent Read Only Field: Business Component Name User Property Functions" on page 90. |

## How the BC Read Only Field User Property Functions

The BC Read Only Field user property specifies a Boolean field that, if TRUE, changes all fields in the current record to read-only. This property also prevents the user from updating or deleting the record, but does not prevent the user from adding new records to the business component.

The BC Read Only Field user property includes the following important properties:

- **Name.** Contains the literal text BC Read Only Field.
- **Value**. Contains the name of a field in the parent business component of this business component user prop. This field must be a TRUE or FALSE field.

### Example of Using the BC Read Only Field User Property

Assume you must prevent the user from updating an inactive account. The Inactive Account field in an account record is a TRUE or FALSE field that, if TRUE, indicates that the account is inactive. To configure dynamic read-only behavior for the Account business component, you can add a business component user prop to the Account business component. This example business component user prop contains the following properties:

- **Name**. BC Read Only Field.
- **Value**. Inactive Account.

## How the Field Read Only Field User Property Functions

The Field Read Only Field user property is similar to the BC Read Only Field user property because it tests the field that you define in the Value property and enforces a read-only restriction if the value of the test field is TRUE for the current record. Unlike the BC Read Only Field user property, the Field Read Only Field user property restricts only one field in the business component record rather than restricting all fields in the entire business component record.

The Field Read Only Field user property includes the following important properties:

- **Name**. Contains an expression in the following format:

  Field Read Only Field: *fieldname*

  where:

  *fieldname* is the name of the field on which a read-only restriction is applied

  For example:

  Field Read Only Field: Account Status

  You must include only a single space between the colon and the field name.

- **Value**. Contains the name of the test field. This is a TRUE or FALSE field in the parent business component of the user property.

You must create one Field Read Only Field user property for each field that you must make conditionally read-only.

## How the Parent Read Only Field User Property Functions

The Parent Read Only Field user property, like the BC Read Only Field user property, places a read-only restriction on an entire business component rather than on a single target field. This restriction occurs if a TRUE or FALSE test field includes a TRUE value. Unlike the BC Read Only Field and Field Read Only Field user properties, the Parent Read Only Field user property places a restriction on a child business component of the business component that contains the test field. In the other user properties, Siebel CRM places the read-only restriction on the business component that contains the test field, or on another field in the same business component.

You use the Parent Read Only Field user property to accomplish the following:

- Restrict the child records that Siebel CRM includes in a multi-value group.

- Restrict the child records in a master-detail view. You must make sure that Siebel CRM does not also use the restricted business component in the context of some other business object.

The Parent Read Only Field user property includes the following important properties:

- **Name.** Contains the literal text Parent Read Only Field.
- **Value.** Contains an expression in the following format:

  *business component name.field name*

  where:

  - *business component name* is the name of the business component in which the test field is located. For example, Account.Inactive Account.
  - *field name* is the name of the test field. This is the TRUE or FALSE field that Siebel CRM evaluates.

You add the user property as a child of the business component that is conditionally restricted. The business component that contains the test field must be a parent of the restricted business component through a link or through a series of link relationships.

**NOTE:** If you use the Parent Read Only Field user property, then the value of the Link Specification property of the test field must be TRUE. Otherwise, the dynamic read-only functionality does not work. However, if the child record displays in the multi-value field in the parent business component, then the Link Specification property of the field does not have to equal TRUE.

### Example of Using the Parent Read Only Field User Property

Assume you must disable the update of the Account Address Mvg Applet if the account record includes a Type of Competitor. To accomplish this, you add the same calculated field as described in "Example of Using the BC Read Only Field User Property" on page 89. You then add a user property to the Business Address business component with the following values:

- **Name.** Parent Read Only Field.
- **Value.** Account.Competitor Calc.

This configuration causes the Account Address Mvg Applet to be read-only if the account record is for a competitor.

## How the Parent Read Only Field: Business Component Name User Property Functions

The Parent Read Only Field: *business component name* user property allows a child business component to perform a TRUE or FALSE test on multiple parent business components. The behavior of the Parent Read Only Field: *business component name* user property is similar to the behavior of the Parent Read Only Field user property. However, the name rather than the value specifies the parent business component. If the calculated value of the field is TRUE or Y, then the child business component is read-only. For more information, see *Siebel Developer's Reference*.

### Guidelines for Using a Business Component User Prop with the Admin Mode Property

Do not use a business component user prop with an applet that resides in a view where the Admin Mode Flag property of the view contains a check mark. If Admin Mode Flag contains a check mark, then Siebel CRM turns off all insert and update restrictions for the business components that the view uses, including those that the business component user prop defines. Siebel CRM ignores the Sales Rep and Personal visibility modes of the business component. Records that do not include a primary team member are also visible. However, Siebel CRM does not override pop-up visibility.

You must only set the Admin Mode Flag property to contain a check mark in a view that is part of a screen that contains only administration views. Do not use the Admin Mode Flag property for a view in a screen that contains any views that are not administration views. You can create a list view where the Admin Mode Flag property contains a check mark if this list view drills down to a detail view that is not marked as an administration view. This technique allows you to share a detail view with a list view that is not an administration view.

**CAUTION:** All views and drilldowns in a screen that is granted Admin Mode behave in Admin Mode due to their subordinate relationship to the screen. If a view is a child of a screen that is in Admin Mode, and if the Admin Mode flag for the view does not contain a check mark, then Siebel CRM still displays the view in Admin Mode.

## System Fields of a Business Component

A *system field* is a field in a business component that represents the data from a system column. All business components in Siebel CRM include system fields. You are not required to perform any special configuration to display or manipulate a system field. You do not need to define it as a business component field. For example, you can reference a system field in the Field property of a control, list column, or in another object.

**NOTE:** Do not change a system field. For example, by renaming it. Siebel CRM does not support changing a system field.

For more information, see "System Columns of a Siebel Table" on page 60, and."Displaying a System Field in an Applet" on page 361.

### Relationship Between a System Field and a System Column

The Id field that represents the ROW_ID column in a business component is an implicit field, and Siebel Tools does not display it in the Object Explorer as a child field of a business component. However, every business component includes an Id field that represents the ROW_ID column of the base table of the business component, as defined in the Table property of the business component. The Siebel schema references the Id field in various properties throughout Siebel CRM. For example, in the Source Field property of a link in which an empty value also indicates the Id field.

You must not explicitly create a system field for a business component. If you create a business component field that references a system column, then Siebel CRM attempts to write a value to the column twice in the insert statement, which causes a duplicate column SQL error.

Table 13 describes the relationship between a system field and a system column. Because each field is predefined, you do not explicitly define it. You can reference a system field in the Field property of a control, list column, or other object, even though the field does not display in the Business Components list in Siebel Tools.

Table 13. Relationship Between a System Field and a System Column

| System Field Name | System Column Name | Description |
|---|---|---|
| Id (or empty) | ROW_ID | Stores the primary key for the table. |
| Created | CREATED | Stores the date and time of when the row was created. |
| Created By | CREATED_BY | Stores the ROW_ID of the row from the S_USER table that references the person who created the record. |
| Updated | LAST_UPD | Stores the date of the most recent update that was performed on the row. |
| Updated By | LAST_UPD_BY | Stores the ROW_ID of the row from the S_USER table that references the person who last updated the record.<br><br>In some situations, Siebel CRM updates this field even though the user does not actively update the record. For example, if a multi-value link is configured with a primary join. For more information, see "Improving Performance by Defining the Primary ID Field of a Multi-Value Link" on page 560. |
| (varies) | DB_LAST_UPD | Stores the date of the most recent update that was performed on the row in the Siebel database. The system field name varies. |

## Guidelines for Defining the Name of a Business Component Field

If you define the name of a business component field, then use the following guidelines:

- Do not use parentheses in a field name. If you perform a query on a field name that contains parentheses, then you might receive an SQL error because SQL expects a valid SQL expression in the parentheses.
- Apply the following requirements if each field is the only such field in the business component:
  - If you name a currency code, then name it Currency Code.
  - If you name a currency date, then name it Exchange Date.

  If there are multiple instances of a similar field, then prefix each field with the name of the corresponding Amount column. For example, Revenue Currency Code for revenue, or Budget Currency Code for budgets. The reason for this technique is that other fields reference these fields when you define the Currency Code Field property and the Exchange Date field. This technique makes sure Siebel CRM can understand the reference.

- For a link, you must name the URL field URL. You must set the class of the Business Component to CSSBCBase.

For more information, see the following topics:

- Guidelines for Naming an Object on page 192
- Chapter 10, “Reusing Predefined Objects”
- Guidelines for Reusing a Predefined Object on page 206

# About Joins

A join establishes a relationship between a business component and a table that is not the base table of the business component. For more information, see “Join” on page 28.

To observe how a join works, in the Siebel client, navigate to the Service Request screen, and then examine the Service Request List Applet. This applet includes the Account field. A join brings the Account field to the Service Request business component and the Service Request List Applet displays the data in the Siebel client.

Figure 16 illustrates how a foreign key column in the detail table defines the parent-child relationship. Multiple rows in the detail table include the same foreign key value that references back to the same row in the parent table. After you create a join, you can define more fields in the business component that reference columns in the joined table.

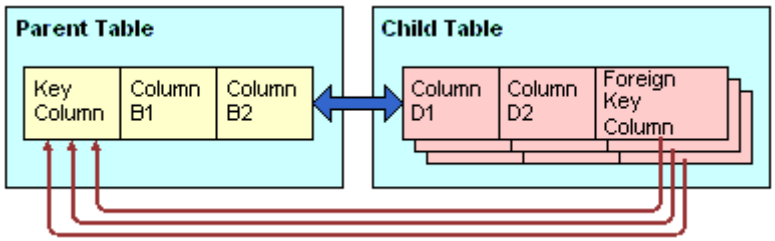



Figure 16. Parent-Child Relationship in a Join

**NOTE:** You can use a joined field as the Source Field on the join specification. For example, if you must join grandparent data through the parent ID field on the parent business component.

For more information about implicit joins, see “How an Extension Table Stores Custom Data” on page 47.

## How Siebel CRM Constructs a Join

Figure 17 illustrates how Siebel CRM constructs a join.

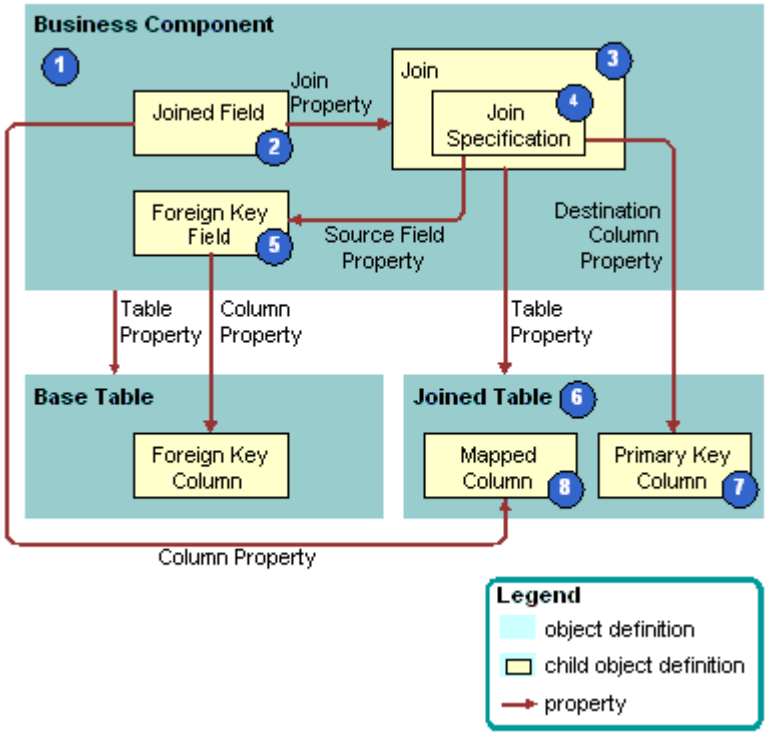



Figure 17. How Siebel CRM Constructs a Join

Siebel CRM uses the following objects to construct a join:

1 **Business Component.** The business component is the parent of the join. Because of the join, a field in the business component that is joined can represent a column from the joined table.

2 **Joined field.** A *joined field* is a field in a business component that represents a column from a table other than the base table of the business component. For more information, see "How Siebel CRM Uses a Joined Field" on page 95.

3 **Join.** A join is a child of the business component. The join uniquely identifies a join relationship for the parent business component and provides the name of the joined table. The Table property of the join identifies the joined table. The join includes a child *join constraint*, which is an object type that contains a constant value search specification that Siebel CRM applies to a column during a join. Siebel CRM uses it with an outer join. For more information, see "Options to Filter Data Displayed in an Applet" on page 120.

**NOTE:** If Siebel CRM must retrieve all records in the business component even if the joined fields are empty, then you must make sure the Outer Join Flag contains a check mark.

4 **Join Specification.** The join specification is a child of the join. It identifies the foreign key field in the business component and the primary key column in the joined table. For more information, see "How Siebel CRM Uses the Join Specification" on page 95.

5 **Foreign key field and foreign key column.** The Source Field property of the join specification identifies the foreign key field. It represents a foreign key column in the base table, and it references rows in a specific table that Siebel CRM uses in a join. For example, in the Contact business component, the foreign key field to the join on accounts data is the Account Id field, which represents the PR_DEPT_OU_ID column in the base table.

6 **Joined table.** The joined table is the parent table in the parent-child relationship. It provides columns to the business component through the join. The Table property of the join identifies the joined table.

7 **Primary key column.** The Destination Column property of the join specification identifies the primary key column in the joined table. Tables in Siebel CRM include a ROW_ID column that uniquely identifies rows in the table. ROW_ID is the destination in most joins.

8 **Mapped column.** Columns in the joined table are available for use in fields in the business component.

## How Siebel CRM Uses a Joined Field

A joined field obtains values through a join. The name of the join is included in the Join property of the field. The Join property and Column property together identify the column and how to access it. If you create a joined field in a business component, then you can change the Type property from the default DTYPE_TEXT to a more appropriate type. For example, if you join a table column that contains phone numbers, then you can change the Type field to DTYPE_PHONE.

## How Siebel CRM Uses the Join Specification

The Source Field property of the join specification identifies the foreign key field in the business component. If left empty, then the Source Field is the Id field, which indicates a one-to-one relationship between the business component and the joined table. Siebel CRM sometimes defines a system field as the foreign key field in the Source Field property. The Created By and Updated By fields are examples of system fields. For more information, see "System Fields of a Business Component" on page 91.

The Destination Column property identifies the primary key column in the joined table. If the join occurs on a column other than ROW_ID, then the Destination Column property must not be empty. An empty value in the Destination Column property indicates that the destination column is ROW_ID, which is typically the primary key in a table.

In rare situations, multiple join specifications can exist in a single join. For example, the Sub Campaign business component includes a join to the S_LANG table with two join specifications. In these situations, the source fields in the join specifications must reference the same table. For more information, see "Join Specification" on page 28.

### How Siebel CRM Filters Duplicate Records from a Join in an Applet

A join between two business components can return one or more records. For example, if the joined table is an intersection table. However, in the applet, Siebel CRM displays only the first record in the result set. An applet that references a business component cannot display duplicate records from the base table of the business component.

For example, in Siebel CRM, there is a many-to-many relationship between the Service Request and Organization business components. The link between these business components is Service Request/Organization, and the link uses the S_SRV_REQ_BU table as the intersection table. In the Service Request business component, you can add a join to the S_SRV_REQ_BU table and a related joined field. If you query the business component to retrieve a service request, then the SELECT statement retrieves all the organizations that are associated with the service request. However, Siebel CRM displays only one service request record in the Siebel client. To view all the organizations that are associated with the service request, the user can open the multi-value group applet that references the Organization business component.

For more information, see "Guidelines for Naming an Object" on page 192.

## Guidelines for Creating a Join

If you create a join, then use the following guidelines:

- Only use a join if the join retrieves no records or only one record. For example, use a join to retrieve the primary Account for an Opportunity.
- Only create a join if the business component does not already include a join to a specific table that includes the data you require, and if a foreign key value exists between the base table of the business component and the joined table.
- Only create a join if the foreign key value is stored in a field that is not already defined as a source in a predefined join.
- If you use the Alias property to create an alias for each join, then a business component can include more than one join that references the same destination table. For example, the Action business component includes two joins that reference the S_CONTACT table. The Owner join retrieves the person who created the activity. The Primary Contact join retrieves the contact that is associated with the activity.
- Make sure the Alias property of the join is unique even though the destination table is the same. Do not use the table name as the Alias name, even though this is common in the predefined Siebel repository. An implicit join uses the table name as the Alias to make sure that the name of the explicit join is not used. To make sure that no conflict exists, you must always create a unique alias name for the join.

### Guidelines for Creating a Join That Does or Does Not Involve a Party Table

If you create a join that does or does not involve a party table, the use the following guidelines:

- If you bring party data to a non-party business component, then create a new join where the join specification references PAR_ROW_ID.

- If you bring party data to a party business component, then use the appropriate explicit join.
- If you map fields in a party business component, then use the implicit join for the extension table.
- If a join references a table that is a party table, then you must display the foreign key value as the source field. However, unlike a join to a table that is not a party table, the destination column must reference the PAR_ROW_ID column in the joined table.
- If a join references a table that is not a party table, then you can update only the column that the field in the parent business component that contains the foreign key value references. You must define the following objects:
  - The joined table.
  - The join specification. The source field property must reference the parent business component that stores the foreign key value. The destination column property must reference the child table, which is usually ROW_ID.

For more information, see "How the S_Party Table Controls Access" on page 62.

# About Multi-Value Links

This topic describes the multi-value link. It includes the following topics:



A multi-value link is a child object of a business component. It describes the link that provides field values from the child business component that the multi-value group applet references. The multi-value link fulfills the following roles:

- Defines the parent-child relationship Siebel CRM uses to display fields from the child business component directly in the parent business component.
- Provides a field in the parent business component with access to the values in the primary record of a multi-value group.

A parent-child relationship exists between the business component that the originating applet references and the business component that the multi-value group applet references. A link defines this parent-child relationship. The relationship between the two business components is one-to-many in the context of the multi-value link and multi-value group. A many-to-many relationship can also exist. For example, between opportunities and positions. However, in the context of the multi-value group, only one parent-child relationship is presented.

For more information, see "Multi-Value Group, Multi-Value Link, and Multi-Value Group Applet" on page 29.

## How Siebel CRM Constructs a Direct Multi-Value Link

Figure 18 illustrates how Siebel CRM constructs a direct multi-value link.

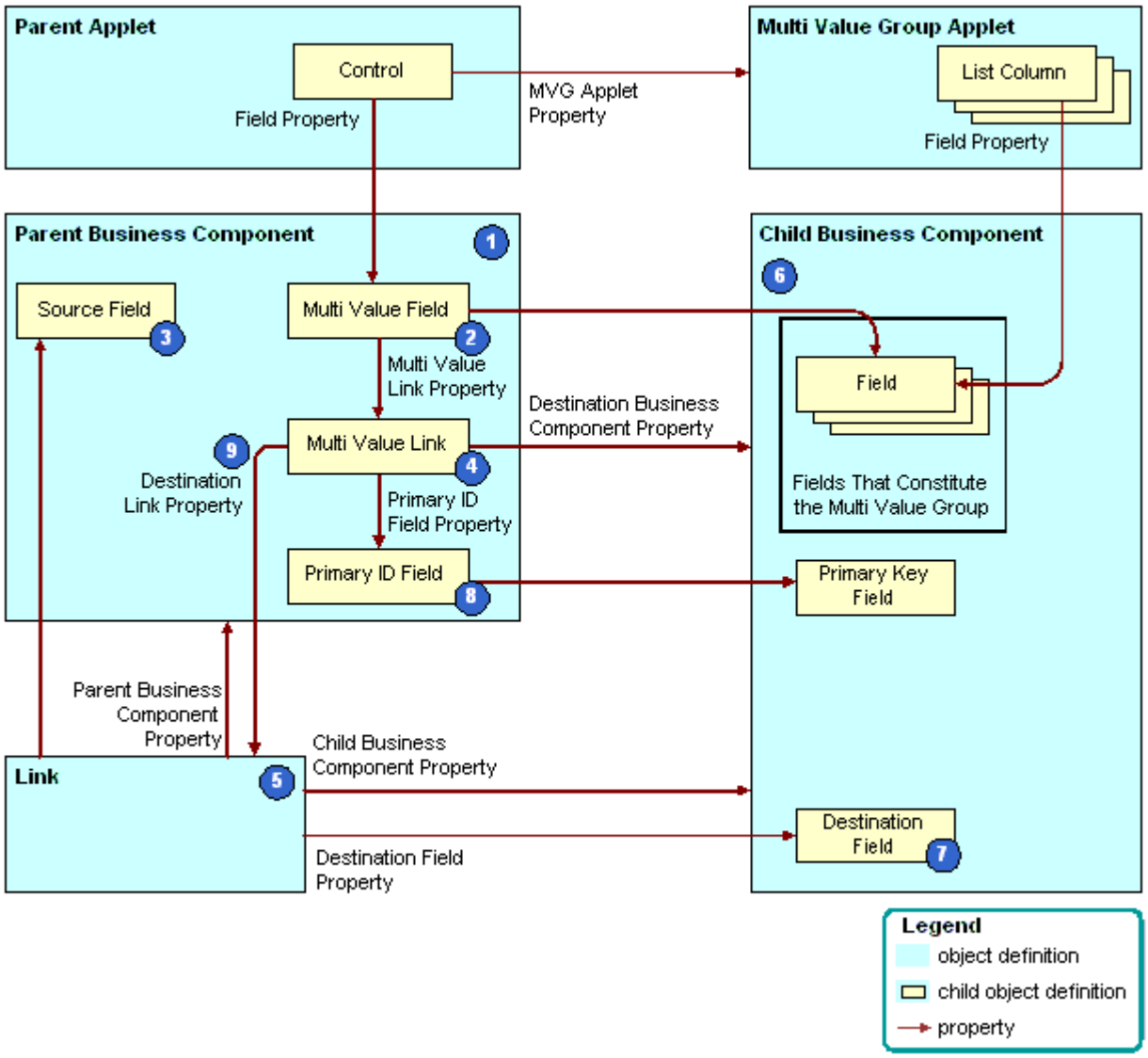



Figure 18. How Siebel CRM Constructs a Direct Multi-Value Link

Siebel CRM uses the following objects to construct a direct multi-value link:

1 **Parent business component.** The parent in the parent-child relationship that is defined in the link. Siebel CRM displays fields from this business component in the applet from which the user opens the multi-value group applet. In "Viewing an Example of a Multi-Value Group Applet" on page 472, the Account business component is the parent from which Siebel CRM opens the Account Address Mvg Applet.

2 **Multi-value fields.** For more information, see "About the Multi-Value Field" on page 100.

3 **Source field.** Defines the primary key in the parent business component that uniquely identifies records in the business component. It typically represents the ROW_ID column from the base table of the business component, and fulfills the role of the primary key field. If the Source Field property is empty, then the source field references the ROW_ID column.

4 **Multi-value link.** Defines the relationship between the link and fields in the parent business component.

5 **Link.** Defines a parent-child relationship between the parent business component and the child business component. You can use the link in multiple ways, such as with a master-detail view or another multi-value link. In "Viewing an Example of a Multi-Value Group Applet" on page 472, the name of the link is Account/Business Address.

6 **Child business component.** Supplies the child records in the parent-child relationship. It is the business component that contains the records that constitute a multi-value group. In "Viewing an Example of a Multi-Value Group Applet" on page 472, this is the Business Address business component.

**NOTE:** Do not use the Calendar business component as the parent or child business component in a link.

7 **Destination field.** Contains row ID values that reference back to records in the parent business component and uniquely identify the parent for each child business component record. The link identifies the foreign key field in the Destination Field property. In "Viewing an Example of a Multi-Value Group Applet" on page 472, the foreign key field is Account Id. For more information, see "About the Destination Field" on page 99.

**NOTE:** No foreign key field is defined in a link that references an intersection table.

8 **Primary ID Field.** Identifies the foreign key field in the parent business component. For more information, see "About the Primary ID Field" on page 100.

9 **Destination Link.** Identifies the link that defines the parent-child relationship between the parent business component and the child business component.

## About the Destination Field

The Destination Field is a foreign key that references back to the parent business component. It identifies the field in the child business component that contains the data that constitutes the multi-value group. This field identifies the master record for each detail record. A foreign key field represents a foreign key column from the base table of the child business component. Account Id and Opportunity Id are typical foreign key fields.

The Destination Field property must contain the name of a field in the base table of the business component that does not reference a join, and this field must be updated. The exception to this requirement occurs if a link references an intersection table, which is indicated if the Inter Table, Inter Parent Column, and Inter Child Column properties are not empty. In this situation, the Source Field and Destination Field properties are not defined.

If you add a record to the child business component in a link, then Siebel CRM automatically initializes a link destination field. You can create a source field for a many-to-many link. The destination always defaults to Id, even if you create another value.

## About the Primary ID Field

The *Primary ID Field* is a field in the parent business component that includes the following:

- Contains the row ID value of the primary record for each record of the multi-value group in the child business component.
- Identifies the field in the child business component that designates which record is the primary.
- Identifies the foreign key field in the parent business component.
- Is identified in the Primary Id Field property of the multi-value link.

For more information, see "Improving Performance by Defining the Primary ID Field of a Multi-Value Link" on page 560 and "Determining If You Can Reuse a Predefined Business Component Field" on page 219.

## About the Multi-Value Field

The *multi-value field* is a business component field that contains the name of the multi-value link in the Multi Value Link property and a check mark in the Multi Valued property. All other business component fields are single-value fields. A multi-value field contains data from a record in the child business component because of the multi-value link.

**NOTE:** If you must query the parent applet for all parent records that contain a child record that holds a specific field value, then you must use a multi-value field.

Table 15 describes the important properties of the multi-value field.

Table 14. Important Properties of the Multi-Value Field

| Property | Description |
|---|---|
| Multi Value Link | Identifies the multi-value link that provides values through the link from the child business component. A multi-value field in the parent business component contains data that Siebel CRM derives from the current record in the child business component through the multi-value link and link. The Column property of a multi-value field is empty because Siebel CRM obtains values from the current record in the child business component rather than from the base table of the parent business component. |
| Field | Identifies the field in the parent business component that provides values for the field in the child business component. Siebel CRM provides these values through the multi-value link object type and the link object type. |

In "Viewing an Example of a Multi-Value Group Applet" on page 472, the Street Address multi-value field in the Account parent business component contains data from the primary record of the multi-value field in the child business component.

For more information, see "How Siebel CRM Sorts a Multi-Value Field" on page 79 and "Activating a Multi-Value Field" on page 254.

## How Siebel CRM Constructs an Indirect Multi-Value Link

An *indirect multi-value link* is a type of multi-value link where a join relates the business component on which the multi-value link is defined to the parent business component. The source field of an indirect multi-value link references a column that is joined from another table and not a column in the base table.

Figure 19 illustrates how Siebel CRM constructs an indirect multi-value link.

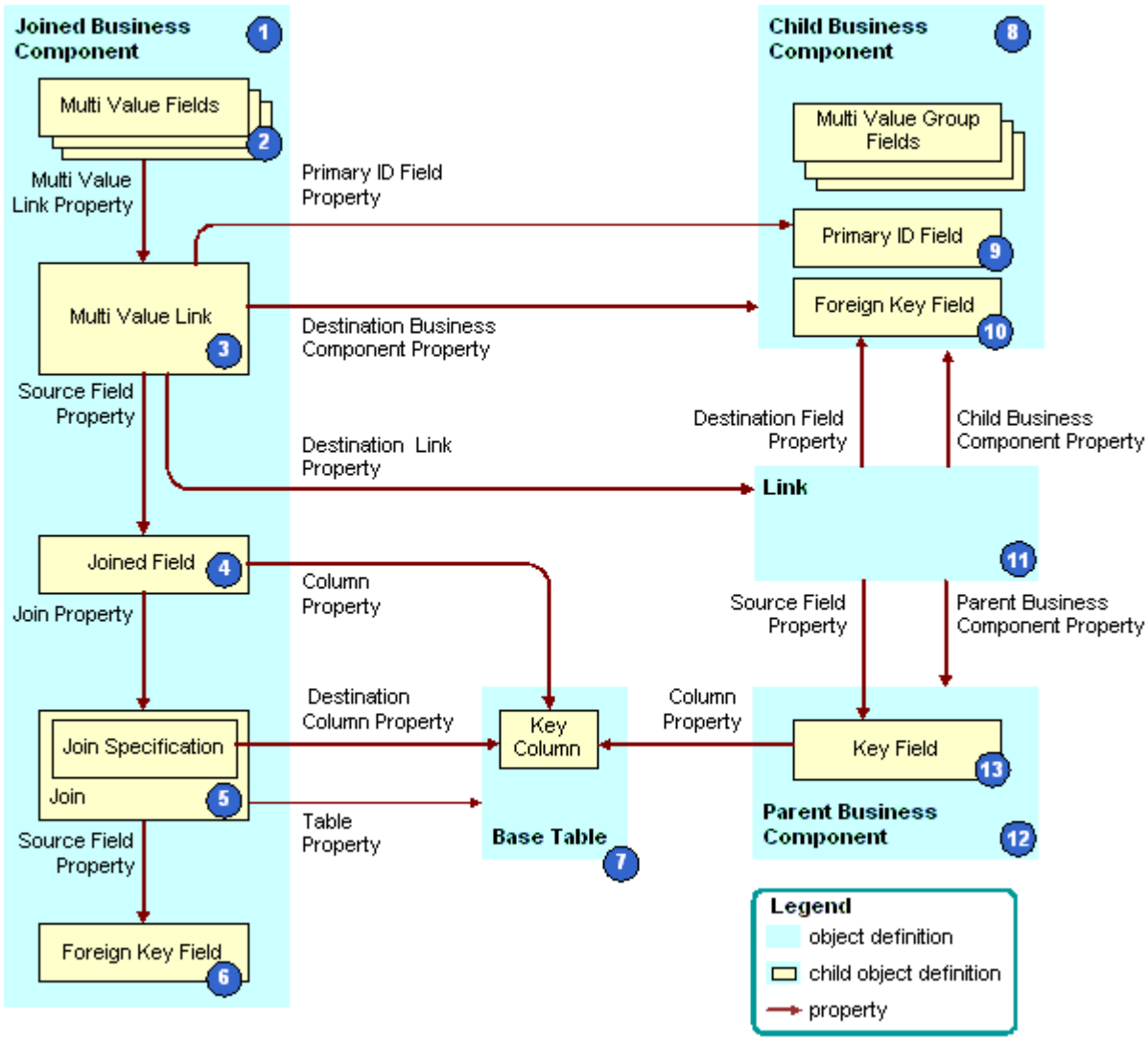



Figure 19. How Siebel CRM Constructs an Indirect Multi-Value Link

Siebel CRM uses the following objects to construct an indirect multi-value link:

1 **Joined business component.** Fulfills the child role in a parent-child relationship with the parent business component in the link. Siebel CRM establishes the indirect multi-value link as a child of the join business component.

2 **Multi-value fields.** For more information, see "About the Multi-Value Field" on page 100.

3 **Multi-Value link.** The multi-value link uses the following properties to create the relationship between the link and fields in the parent business component:

- **Primary Id Field property.** Identifies the field from the business component to which the multi-value link belongs. For more information, see "About the Primary ID Field" on page 100.
- **Destination Business Component property.** Identifies the child business component.
- **Destination Link property.** Identifies the link.

4 **Joined field.** In a multi-value link, the Source Field property of the multi-value link is empty. In an *indirect* multi-value link, the Source Field property defines a joined field in the same business component as the multi-value link. The joined field represents the ROW_ID column from the base table of the parent business component. Siebel CRM obtains the ROW_ID column through a join.

**NOTE:** Do not use a column other than ROW_ID. If you use a column other than ROW_ID, then you might experience unpredictable application behavior.

5 **Join and join specification.** Provides a way to bring data into the joined field. For more information, see "About Joins" on page 93.

6 **Foreign key field in the joined business component.** Represents a foreign key column in the base table. The foreign key field references rows in the joined table. In this situation, this table is the base table of the parent business component. Siebel CRM uses the foreign key field to create the join.

7 **Base table.** The join, join specification, and foreign key field in the join business component access the base table of the parent business component. This makes possible a join relationship that provides a parent business component record and, indirectly, a set of child business component records for each join business component record.

8 **Child business component.** Supplies the child records in the parent-child relationship.

9 **Primary ID Field.** Identifies the foreign key field in the parent business component. For more information, see "About the Primary ID Field" on page 100.

10 **Foreign key field in the child business component.** Contains row ID values that reference back to records in the parent business component. These row ID values uniquely identify the parent for each record in the child business component.

11 **Link.** Specifies the parent-child relationship between the parent business component and the child business component.

12 **Parent business component.** The parent in the parent-child relationship that is defined in the link.

13 **Key field.** The primary key for the parent business component.

## Example of How Siebel CRM Constructs an Indirect Multi-Value Link

Table 15 describes some of the objects that Siebel CRM uses to construct an indirect multi-value link that involves the Business Address in the Contact business component. The Contact business component and the Account business component each contain the Business Address multi-value link.

Table 15. Example of How Siebel CRM Constructs an Indirect Multi-Value Link

| Object | Name of Object Definition |
|---|---|
| Joined Business Component | Contact |
| Multi Value Link | Business Address |
| Joined Field | Joined Account Id |
| Join | S_ORG_EXT |
| Join Specification | Account Id |
| Foreign Key Field | Account Id |
| Base Table | S_ORG_EXT |
| Child Business Component | Business Address |
| Link | Account Address |
| Parent Business Component | Account |

### How Siebel CRM Uses the Source Field Property

The Source Field property in a multi-value link is empty, which instructs Siebel CRM to use the Id field in the current business component. This field corresponds to the ROW_ID in the base table. However, in the *indirect* multi-value link for the Contact business component, the Source Field property specifies the Joined Account ID field that resides in the S_ORG_EXT table. The Joined Account ID field provides the Account Id of the Account that corresponds to the current Contact.

The parent business component of a multi-value link is usually the same as the business component in which the multi-value link is defined. However, you can use the Source Field property of the link to create a multi-value link whose parent business component is related to the current business component indirectly through a join or another multi-value link.

### How a Multi-Value Link References a Link

A link defines a one-to-many relationship between two business components. Typically, the business component in which the multi-value link is defined is the same as the parent business component of the underlying link that the multi-value link references.

For example, Table 16 lists some of the properties that are defined for the Business Address multi-value link in the Account business component.

Table 16. Properties of the Business Address Multi-Value Link in the Account Business Component

| Property | Value |
|---|---|
| Destination Business Component | Business Address |
| Destination Link | Account/Business Address |
| Primary Id Field | Primary Address Id |
| Check No Match | TRUE |
| Popup Update Only | TRUE |

The Destination Link property indicates that this multi-value link references the Account/Business Address link. Table 17 lists some of the properties that are defined for the Account/Business Address link.

Table 17. Properties of the Account/Business Address Link

| Property | Value |
|---|---|
| Name | Account/Business Address |
| Parent Business Component | Account |
| Child Business Component | Business Address |
| Destination Field | Account Id |
| Cascade Delete | Delete |

The parent business component of the Account/Business Address link is the Account business component, which is also the business component in which the multi-value link is defined. To update the multi-value group applet, Siebel CRM uses data from the children business address records for the account record that is currently chosen in the Account business component.

## Usage of a Predefined Indirect Multi-Value Link

If there is a predefined link that is appropriate for use in a multi-value link, and if the originating business component is different from the parent business component, then you can use an indirect multi-value link instead of a conventional multi-value link. If a predefined join exists that joins the desired parent business component to the parent business component of the link, then you can use the predefined link in the multi-value link.

# About Links

A link defines a one-to-many relationship between two business components. For more information, see "Link" on page 29, and "How Siebel CRM Handles a Hierarchy of Search Specifications" on page 122.

## How a Business Object Uses a Link

Figure 20 illustrates how a business object uses a link. For background information, see "Hierarchy of Object Types and Relationships" on page 30.

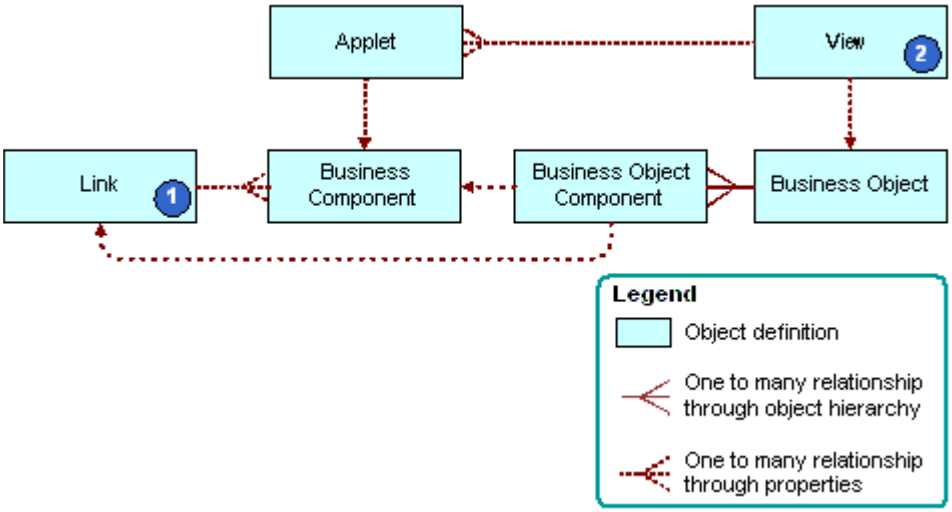



Figure 20. How a Business Object Uses a Link

A link that Siebel CRM uses with a business object includes the following objects:

1. **Link.** In a master-detail view, to establish the parent-child relationship, Siebel CRM incorporates a link to a business object. This relationship applies to any use of the two business components in the context of the business object.
2. **View.** Each view references the business object that it uses in the Business Object property of the view. This configuration forces the view to operate as a master-detail view, as defined in the link, without more configuration of the view. For more information, see "About Views" on page 132.

## Visibility Rule Property of a Link

The Visibility Rule property of a link determines if Siebel CRM does or does not display the link. You can define the following values:

- **Always.** Allows visibility rules in the child records when the current master-detail view references this link. This situation is true even if the Visibility Applet and Visibility Applet Type properties of the view are not defined.

- **Never.** Disables visibility rules in the child records if the current view references this link.

# 5 About Business Objects

This chapter describes business objects and how to configure them. It includes the following topics:



## About Business Objects

A business object represents a major functional area of the enterprise. An opportunity, account, or contact is each an example of a business object. For more information, see "Business Object" on page 28. For an introduction to the relationships described in this topic, see "Hierarchy of Object Types and Relationships" on page 30.

Figure 21 illustrates an example of how a business object groups business components into a logical unit. For example, the Opportunity business object groups together the Opportunity, Contact, and other business components.

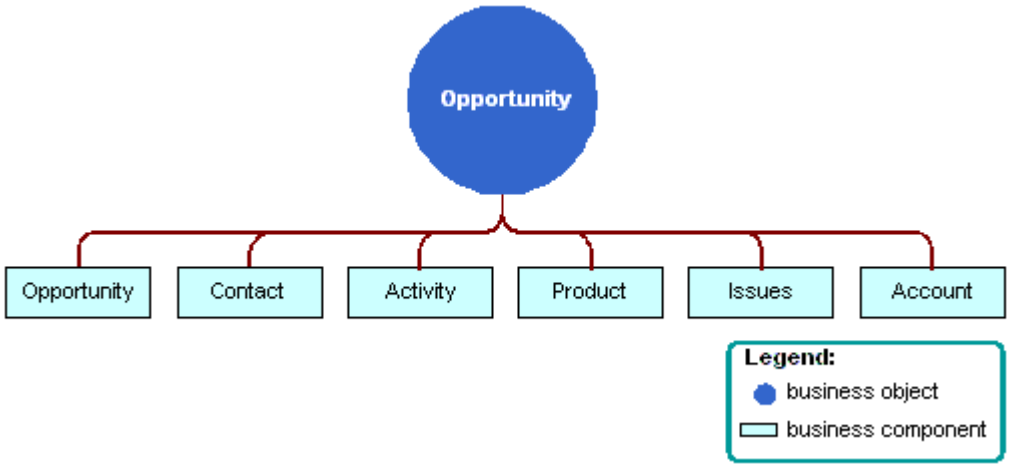



Figure 21. How The Opportunity Business Object Groups Business Components

Each business object includes one business component that serves as the parent business component. In Figure 21 the parent business component is Opportunity. A link establishes a relationship between the parent business component and other child business components, such as Contact and Product. For example, the link allows the business object to display products that are related to an opportunity or contacts that are related to an opportunity.

## Relationship Between a View or Screen and a Business Object

A business object provides the foundation for a view and a screen. Typically, each view that a screen references uses the same data for the view when Siebel CRM derives the data from the same business component. For example, the Opportunities Screen references the following views:

- All Opportunity List View
- Opportunity Detail - Contacts View
- Opportunity Detail - Products View

Siebel CRM derives the data for each of these views from the Opportunity business component. Therefore, the Siebel schema groups views that derive most of their data from an opportunity into the Opportunity screen. Because views in a screen usually derive their data through the same business object, a screen is indirectly related to the business object.

Figure 22 illustrates the relationships and objects that Siebel CRM uses with a business object, screen, and view.

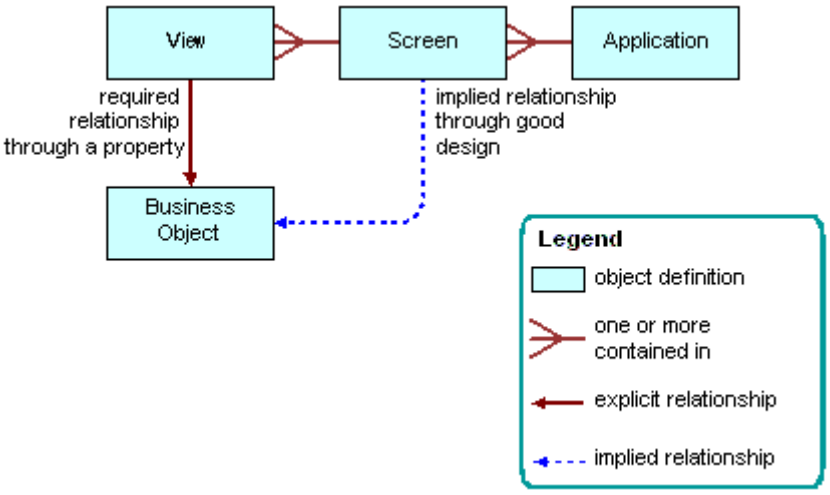



Figure 22. Relationships and Objects That Siebel CRM Uses with a Business Object, Screen, and View

A one-to-one relationship usually exists between a screen and a business object. A view references a business object through a formal property of the view. However, a screen does not reference a business object through a formal property. An informal relationship exists between a business object and a screen. Siebel CRM applies desired design principles to establish this informal relationship. Siebel Tools does not formally enforce this relationship. In general, all the views in a screen are informally related to the same business object.

**NOTE:** Not all business components that a business object references participate in a parent-child relationship. A business object can reference a business component that is not part of the business model.

Multiple business objects can reference a business component or a link. For example, two business components can each possess a one-to-many relationship in one business object, but can also possess a many-to-one relationship or no relationship in another business object. However, in the context of one business object, there is an unambiguous set of relationships between the business components that a business object references.

## Example Parent and Child Relationships in a View That References a Business Object

Each view references a business object. A master-detail view can define only a one-to-many relationship that the business object that the view references supports. To examine an example of this relationship, in the Siebel client, navigate to the Contacts List, drill down on the Last Name field of a contact, and then click the Opportunities tab. The parent Contact form displays above the Opportunities list. This contact to opportunities relationship is a one-to-many relationship that Siebel CRM defines in the Contact business object. To examine this relationship in Siebel Tools, locate the Contact Detail - Opportunities View in the Views list. This view references the Contact business object.

To implement a view that displays a many-to-one relationship between contacts and an opportunity, where many contact child records are related to one parent opportunity, a view references the Opportunity business object. To view this relationship in the Siebel client, navigate to the Opportunities List, drill down on the Opportunity Name field, and then click the Contacts tab.

# How Siebel CRM Constructs a Business Object

Figure 23 illustrates how Siebel CRM constructs a business object.

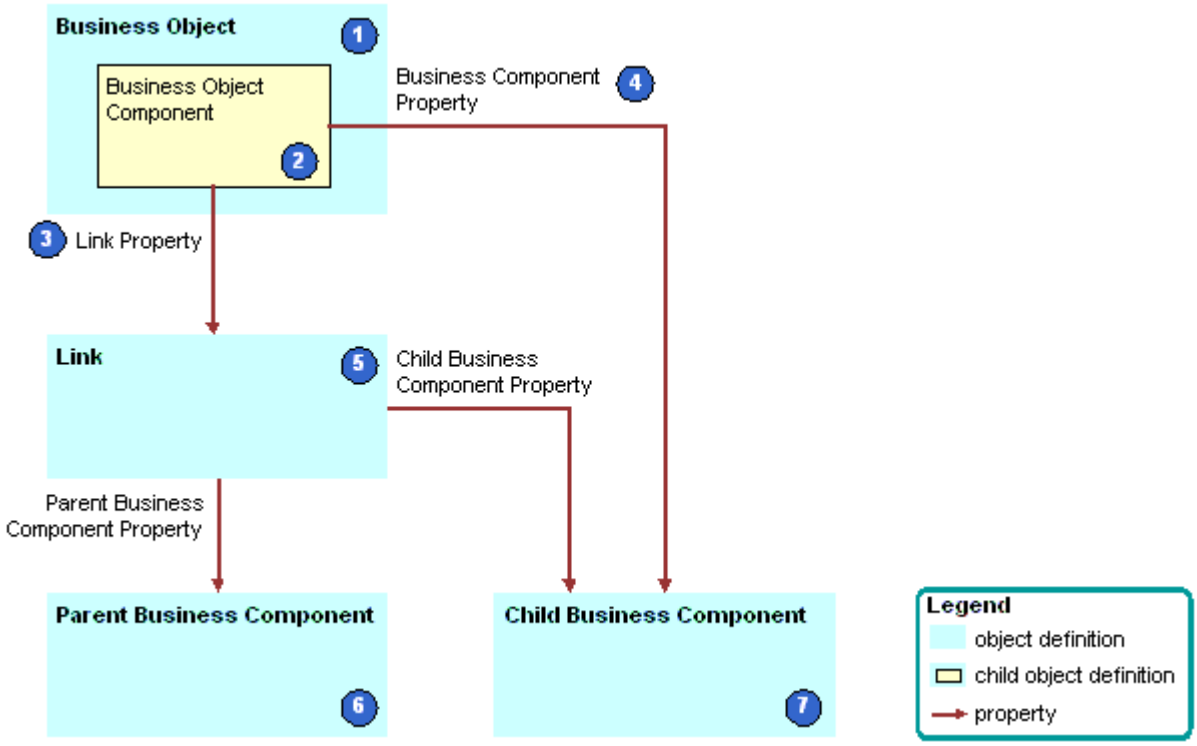



Figure 23. How Siebel CRM Constructs a Business Object

Siebel CRM uses the following objects and properties to construct a business object:

1. **Business object.** The parent for multiple business object components. Each business object component specifies a parent-child relationship. A view references the business object in the Business Object property of the view.
2. **Business object component.** A child object of the business object. Typically, each business object component defines one parent-child relationship in the parent business object. The Link property and the Business Component property of the business object component establish this relationship.
3. **Link property.** Identifies the link.

4 **Business Component property.** Identifies the child business component. You can use a business object component to reference a business component in the business object without using a link. To accomplish this, you make sure the value in the Link property of the business object component is empty. This technique allows you to incorporate a business component in the business object for use in a view that references the business object, even though the business component does not possess a one-to-many relationship with another business component in the context of that business object.

5 **Link.** Each business object component references one link. The link specifies the parent-child relationship that is included in the business object. For more information, see "About Links" on page 105.

6 **Parent business component.** The *one* in the one-to-many relationship that is defined in the link. The Parent Business Component property of the link specifies the parent business component.

7 **Child business component.** The *many* in the one-to-many relationship that is defined in the link. The child business component is defined in the following properties:

- The Child Business Component property of the link
- The BusComp property of the business object component

# Guidelines for Creating a Business Object

You only rarely need to create a new business object. The following situations might require you to create a business object:

- You require a new screen that groups several new business components together.
- You require a group of predefined business components that a predefined business object does not already support.

If you create a business object, then use the following guidelines:

- You can include a business component only one time in each business object.
- You can link a business component to only one other business component in the business object. For more information, see "An Applet Can Only Be Linked to One Other Applet in a View" on page 112.
- If you create a new business component to support an administration or system activity, then you do not need to create a new business object. Make sure the new business component is part of the predefined business object that Siebel CRM uses to support administration views, then assign the view to the Marketing Administration or System Administration screen.
- Delete any custom business object that is not used and that does not reference any other object definition, such as a view.
- Because other objects might reference an unused business object, do not delete, deactivate, or rename any predefined business object that is not used.

## Guidelines for Defining the Link Property of a Business Object Component

You can define the Link property of a business object component if any of the following situations exist:

- If the business component can be linked to more than one business component in the business object. For example, in the Opportunity business object, the Action business component can be linked to the Opportunity, Account, or Contact business component.
- If the relationship between the parent business component and the child business component is a many–to–many relationship and where either business component can be the parent. For example, in the Opportunity business object, a relationship exists between the Opportunity business component and the Contact business component. Because either business component can be the parent, you can define the configuration so that Siebel CRM uses the Opportunity/ Contact link. This configuration makes sure the Opportunity business object is the parent.

If you do not define the Link property, then Siebel Tools uses the Parent Business Component/Child Business Component link as a default. Siebel Tools sets the following properties for this link:

- The Parent Business Component property is the name of the source business object.
- The Child Business Component property is the value of the destination business component property.

If Siebel Tools cannot find a suitable link, then Siebel Tools displays the business component without a link to any other business component in the parent business object. In this situation, Siebel CRM displays all records that satisfy the search specification of the business component that are independent of the parent business component. This situation could create a problem because the user might not realize that the values in the child business component are not directly related to the parent business component. In reality, these values represent all data for the child business component. Therefore, if you must display records that possess a parent-child relationship, then you must enter a value for all links. For more information, see “Options to Filter Data Displayed in an Applet” on page 120.

## An Applet Can Only Be Linked to One Other Applet in a View

Because you can link a business component to only one other business component in the business object, you can link an applet to only one other applet in a view. Except for the Home dialog box view, each view includes a parent applet that derives data from the parent business component in the business object. This parent applet can include related applets that derive data from other business components. However, these applets are always child applets of the parent applet. Therefore, a business component in the business object is the parent business component for the business object or it includes data that is related to the parent business component.

For example, to display contacts that are related to an opportunity, a business object component that references the Contact business component must be defined as part of the Opportunity business object. To display the Contacts that are related to an Account, a business object component that references the Contact business component must be defined as part of the Account business object.

For more information, see “Guidelines for Naming an Object” on page 192.

# 6 About Applets, Controls and List Columns

This chapter describes applets, controls and list columns. It includes the following topics:



## About the Form Applet and List Applet

An applet allows the user to view, enter, and modify data that the applet derives from a single business component. For more information, see "Applet" on page 25.

This topic describes the form applet and list applet, which are the most common types of applets. There are many other types of applets. Some of the properties and concepts that the form applet and list applet use are also found in other types of applets. For more information, see the following topics:

- Chapter 17, "Configuring Special-Purpose Applets"
- Chapter 19, "Configuring Multi-Value Group, Association, and Shuttle Applets"

The applet user property allows you to define functionality beyond what is available as part of the applet class. For more information, see *Siebel Developer's Reference*.

### How Siebel CRM Constructs a Form Applet

A *form applet* is a type of applet that uses a form to present data from a business component. It includes the following qualities:

- Displays many fields for a single record.
- Provides a complete view of a record and are useful for data entry because the user can access all the necessary fields at once.
- Associated with a single business component.

Figure 24 illustrates how Siebel CRM constructs a form applet. For more information, see "Hierarchy of Object Types and Relationships" on page 30.

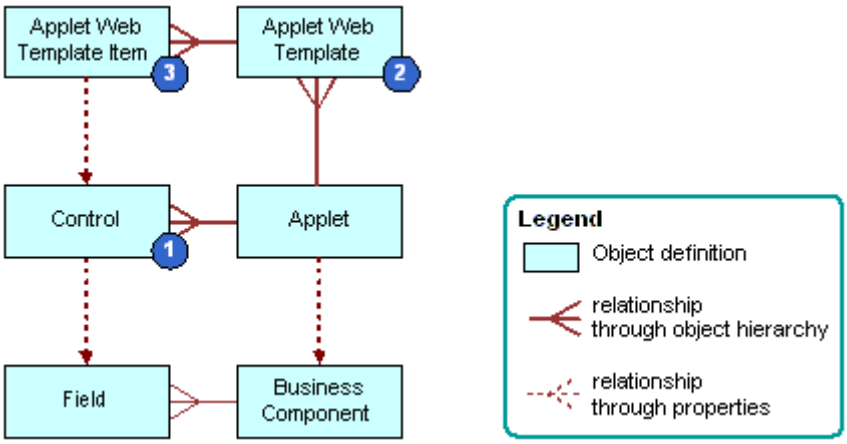



Figure 24. How Siebel CRM Constructs a Form Applet

Siebel CRM uses the following objects to construct a form applet:

1. **Control.** Defines controls on the applet, such as a text box, check box, button, or link. For more information, see "About Applet Controls and List Columns" on page 115.
2. **Applet web template.** Associates an applet to a web template. A web template determines the layout and format of the applet when Siebel CRM renders the applet in the Siebel client. To display an applet in a different mode, you create an applet web template for each mode. For more information, see "About Siebel Web Templates" on page 147 and "Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data" on page 118.
3. **Applet web template item.** A child object of an applet web template. It references a control and identifies a placeholder tag or location in a web template. The placeholder determines where the control is located in the Web page. If you use the Applet Layout Editor to drag and drop a control on to a web template, or if you use an applet wizard to create an applet, then Siebel Tools automatically creates an applet web template item.

For more information, see "How a Business Component Field Provides Data to a Control or List Column of an Applet" on page 82 and *Siebel Object Types Reference*.

## How Siebel CRM Constructs a List Applet

A *list applet* is a type of applet that displays multiple records at one time. It includes the following qualities:

- Uses multiple columns to present data in table format. Each row of the table represents a record from the business component that the applet references.
- Allows the user to scroll through multiple records of data and view several fields for each record.

- Associated with a single business component.
- A list column establishes a relationship between the business component field and the applet web template item.

Figure 25 illustrates how Siebel CRM constructs a list applet. Siebel CRM constructs a list applet in a way that is similar to how it constructs a form applet. For more information, see "How Siebel CRM Constructs a Form Applet" on page 113. For background information, see "Hierarchy of Object Types and Relationships" on page 30.

a

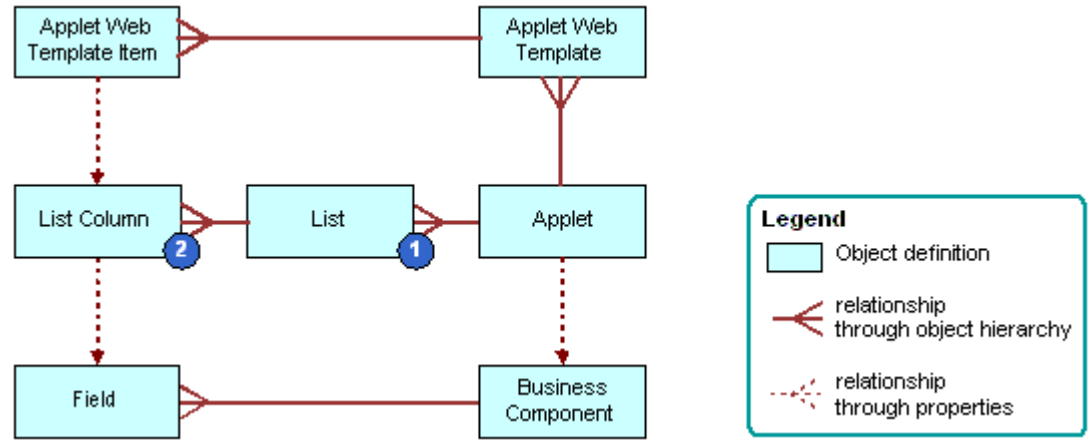



Figure 25. How Siebel CRM Constructs a List Applet

Siebel CRM uses the following objects to construct a list applet:

1. **List**. Includes properties that affect the list. It serves as a parent object for all the list columns in the applet. A list applet includes one list object definition, named List.
2. **List column.** Identifies one column in the list. It references one field in the business component.

For more information, see "About Applet Controls and List Columns" on page 115.

# About Applet Controls and List Columns

A *control* is an object type that defines a user interface element, such as a text box, check box, or a button. Siebel CRM displays this element in the Siebel client. In a form applet, a control references a field in the business component that the applet references. A control establishes a relationship between the business component field and the applet web template item.

A *list column* is an object type that identifies one column in the list. It references one field in the business component. The user enters data in a list applet in a cell that is at the intersection of a row and list column. A cell in a different list column can function in a different way, depending on the properties of the list column of the cell. The following examples describe cell behavior that references the properties of a list column:

- A cell can function similar to a text control in a form applet. This type of cell allows the user to view and edit text, numeric data, a date, or a currency. If the list column is not read-only, then the user can click the cell to edit the text.
- A cell can function in a way that is similar to how a check box control functions in a form applet. A check mark in the check box indicates that the value for the check box is TRUE. An empty check box indicates that the value for the check box is FALSE. If TRUE, then a check box in a list column contains a check mark symbol, and a check box in a control in a form applet contains an X symbol.
- A cell that contains underlined, colored text is a drilldown field. For more information, see "Options to Drill Down to Another View" on page 140.

**NOTE:** A form applet uses the control object type to display Siebel CRM data in the applet. A list applet uses the list column object type to display Siebel CRM data in an applet.

For more information, see "How a Business Component Field Provides Data to a Control or List Column of an Applet" on page 82.

You use the New Applet Wizard to create controls and list columns for a new applet. For a predefined applet, you use the Applet Layout Editor to add, remove, or modify a control or list column. For more information, see "Adding a Control or List Column to an Applet Layout" on page 313 and "Adding a Control or List Column to an Applet Layout" on page 313.

# Types of Applet Controls and List Columns

There are many types of applet controls and list columns that you can define in the HTML Type property of the control or list column. This topic describes some of the types that Siebel CRM commonly uses. For more information, see "Types of Applet Controls and List Columns" on page 685, and *Siebel Object Types Reference*.

**NOTE:** Siebel CRM does not support the.NET control type.

## MiniButton Control and MiniButton List Column

You can use a MiniButton with a control or list column on which the Method Invoked property is defined. If the user clicks the button, then Siebel CRM calls the method. This method can be predefined in Siebel CRM or you can create a custom method that you program in Siebel Visual Basic or Siebel eScript. Siebel CRM commonly uses the following types of MiniButtons:

- **MiniButton.** Displays a button.
- **MiniButtonEdit.** Displays a button if the applet is in Edit mode.
- **MiniButtonEditNew.** Displays a button if the applet is in Edit or New mode.
- **MiniButtonEditQuery.** Displays a button if the applet is in Edit or Query mode.

You must set the Runtime property of the button to TRUE. If the Runtime property is FALSE, then Siebel CRM does not execute the method.

You can define the appearance and functionality of a minibutton in the CCHtmlType.swf file, which is located in the WEBTMPL folder of your Siebel installation folder. For more information, see "Customizing an HTML Control Type" on page 534.

For more information, see "Improving Performance by Using Declarative Configuration to Enable a Button" on page 562.

### Text Control and Text List Column

A text control or list column displays text in a rectangular box. To view an example of a text list column in a Siebel application, such as Siebel Call Center, navigate to the Opportunities list. Note the Opportunity Name text list column in the opportunity list. For more information, see "Defining the Properties of a Control or List Column If HTML Type Is Text" on page 351 and "TextArea" on page 688.

A text control or list column includes the following qualities:

- Allows the user to enter and edit text. If a text control or list column is read-only, then the user cannot enter text. A read-only text control or list column includes a gray background and displays text that the user cannot edit.
- Displays as a list, multi-value group, calculator, or calendar icon, depending on the business component field that the control or list column references.
- Displays data of a specific data type, such as alphanumeric, numeric, date, or currency.
- The HTML Height property of the control determines the number of rows of text that Siebel CRM displays in the text box.
- Automatically displays a select icon on the right edge of the text control if the MVG Applet property includes a value that is not empty or if the Pop-up Edit property is TRUE. This functionality allows the user to call up a multi-value group applet or a calendar or calculator widget.

  **NOTE:** If the field must be a pop-up calendar or calculator control, then the Runtime property must equal TRUE.
- Automatically displays a select icon on the right edge of the text control if the Pick Applet property references a pick applet. If the user clicks the select icon, then Siebel CRM displays the list. For more information, see "About Static Lists" on page 437.

**NOTE:** If data includes trailing spaces, then Siebel CRM truncates the data if Siebel CRM displays it in a Siebel application or in Siebel Tools. This truncation includes full width spaces in Japanese.

# Options to Create an Applet

This topic describes some key options that are available if you create an applet. It includes the following topics:

■ Options to Determine How Siebel CRM Displays Controls and List Columns in a Siebel Application on page 124

# Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data

The *applet mode* is a type of behavior for an applet web template that determines if the user can or cannot create, edit, query, or delete Siebel CRM records in an applet. For more information, see "Controlling How the User Creates, Edits, Queries, and Deletes CRM Data" on page 354.

Table 18 describes the types of applet modes.

Table 18. Types of Applet Modes

| Applet Mode | Description |
|---|---|
| Edit | Allows the user to edit a record, create a new record, and query while working in a form applet. Siebel CRM uses the Edit and Edit List applet modes most frequently.<br><br>If a New or Query applet template does not exist, then Siebel CRM uses Edit if the user creates or queries data. For more information, see "Types of Siebel Web Templates" on page 148. |
| Edit List | Allows the user to edit a record, create a new record, and query while working in a list applet. You use the Edit List mode to allow the user to edit, create, and query in an employee application that runs in high interactivity mode.<br><br>Because a standard interactivity application does not use the Edit List mode, you must create an Edit mode template even if Edit, New, and Query templates are defined. A customer or partner application is an example of a standard interactivity application. For more information, see "Types of Siebel Web Templates" on page 148.<br><br>Edit List mode renders a list applet as persistently editable. The purpose of an editable list applet is to provide the user a way to modify the records in a list applet without switching to an edit page. |
| Base | Displays fields in read-only mode. Use this mode to display the applet in read-only mode until the user takes an action, such as clicking the Edit button. Siebel CRM displays a view in Base mode by default.<br><br>**NOTE:** The user cannot edit or update a field in an applet that is in Base mode. The user can use the applet menu or right-click and use the pop-up menu to create a new record. The user can then edit or delete the new record, unless these operations are disabled at the applet or business component level.<br><br>You can also use the Read-Only field in the Responsibility Administration View to make a view read-only. For more information, see *Siebel Security Guide*. |

Table 18. Types of Applet Modes

| Applet Mode | Description |
|---|---|
| New | Allows the user to create a new record where the requirements for the new mode are different from the edit or edit list mode.<br><br>Only use the New and Query modes if the Edit mode does not meet your required functionality. |
| Query | Allows the user to query if the requirements for the Query mode are different from the requirements for the Edit or Edit List mode. Allows the user to perform a query-by-example (QBE). |

## Qualities of the Applet Mode

The applet mode includes the following qualities:

- Is a property of the applet web template object type, which is a child of the applet object type.
- Applies only to the active applet. For example, if the parent top applet in a view active and is in Query mode, then the child bottom applet is not in Query mode.
- Siebel CRM associates each mode with a web template.
- An applet can use one or more applet modes.
- You can use the Mode list in the Controls/Columns window of the Applet Layout Editor to modify the applet mode. The applet web templates that are defined for the applet determine the modes that are available in the Mode list. For more information, see "Adding a Control or List Column to an Applet Layout" on page 313.
- Controls appearance of the minibutton. For more information, see "MiniButton Control and MiniButton List Column" on page 116.
- A multi-value group applet typically uses the Popup List template. If you define base, edit, or edit list mode for a multi-value group applet, then Siebel CRM references the mode from the parent applet. If you define only the base mode for a multi-value group applet, then Siebel CRM uses the base mode for the multi-value group applet regardless of the mode of the parent applet. For more information, see "Creating a Multi-Value Group Applet" on page 480.

### Related Topics

For more information, see the following topics:

- Guidelines for Configuring an Object for High Interactivity on page 39
- Process of Using the Applet Layout Editor on page 311
- Process of Creating a Screen Home Page View on page 288
- Pick Applet Usage in Query Mode on page 443
- About Siebel Web Templates on page 147

# Options to Filter Data Displayed in an Applet

A *search specification* is an expression you can define in the Search Specification property that filters the set of CRM data that Siebel CRM displays in an applet. Although this topic describes a search specification for an applet, in general this information also applies to the search specification for a business component, link, or list.

For more information, see the following topics:

- Filtering Data That Siebel CRM Displays in an Applet on page 355
- Improving Performance by Modifying Custom Search Specifications on page 562
- *Siebel Object Types Reference* and *Siebel Developer's Reference*

The search specification contains the names of one or more fields in the business component and various operators. These items constitute a logical condition that determines which Siebel CRM records Siebel CRM displays in the applet:

- If the result of the search specification is TRUE for a Siebel CRM record, then Siebel CRM displays the record in the applet.
- If the result of the search specification is FALSE for a Siebel CRM record, then Siebel CRM does not display the record in the applet.

The following search specification illustrates how you can filter CRM data so that Siebel CRM only displays records that contain a revenue that is greater than 5000:

```
[Revenue] > 5000
```

The following search specifications provide more examples of how you can filter CRM data:

```
[Type]= "COST LIST"

[Competitor] IS NOT NULL and [Competitor] <>  "N"

[Type] = LookupValue ("TODO_TYPE", "In Store Visit")
```

## Major Elements of a Search Specification

Table 19 describes the major elements of a search specification.

Table 19. Major Elements of a Search Specification

| Element | Description |
|---|---|
| Comparison Operator | Compares the value in a field to a constant, or the value in one field to the value in another field. Siebel CRM allows the following operators:<br>■ = (equal to)<br>■ <> (not equal to)<br>■ > (greater than)<br>■ < (less than)<br>■ >= (greater than or equal to)<br>■ <= (less than or equal to)<br>The following is an example search specification that uses the greater than comparison operator:<br>`[Revenue] > 5000` |
| String Constant | The string constant is enclosed in double quotation marks. Because a string value is case sensitive, uppercase and lowercase letters in a string constant must match exactly the string in the CRM record. The following is an example search specification that uses the COST LIST string:<br>`[Type] <> "COST LIST"` |
| Logical Operator | The logical operators AND, OR, and NOT negate or combine elements in a search specification. Case is ignored in these operators. For example, *and* performs the same operation as AND. The following is an example search specification that uses the AND logical operator:<br>`[Competitor] IS NOT NULL and [Competitor] <> "N"` |
| Field Name | A field name in a search specification is enclosed in square brackets. The following is an example search specification that references the Conflict Id field:<br>`[Conflict Id] = 0` |

Table 19. Major Elements of a Search Specification

| Element | Description |
|---|---|
| LIKE Operator | The LIKE operator creates a text string search specification in which the specification compares the value of a field to a constant, or compares the value of a field to the value of another field. A match on only the first several characters in the string is required. The LIKE operator uses the following wildcard characters:<br>■ *** (asterisk).** Indicates any number of characters.<br>■ **? (question mark).** Indicates a single character.<br>The following is an example search specification that uses the LIKE operator:<br>`[Last Name] LIKE "Sm*"`<br>In this example, the Last Name values of Smith, Smythe, Smallman, and so forth causes the search specification to evaluate to TRUE. |
| Length | The search specification must not exceed 255 characters. |

## How Siebel CRM Handles a Hierarchy of Search Specifications

Because you can define a separate search specification on an applet, business component, link, or list, Siebel CRM uses specific logic to handle a situation where a hierarchy of search specifications exists. For example, if a search specification is defined on the applet and on the business component, then Siebel CRM does the following:

1. Appends the search specification on the applet to the search specification on the business component. Siebel CRM does not override the search specification on the business component. You cannot use a search specification on an applet to override a search specification that is defined on the underlying business component.
2. In the Siebel client, Siebel CRM converts the search specification on the applet to a WHERE clause.

### How Siebel CRM Executes a Search Specification That Is Defined on a Child Applet

If a search specification is defined on a child applet, then Siebel CRM does the following:

- If a child applet references the same business component as the parent applet, then Siebel CRM does not execute the search specification that is defined on the child applet.
- If a child applet does not reference the same business component as the parent applet, then Siebel CRM does the following:
  - To maintain the context for the search specification with the parent applet, amends the search specification that is defined on the child applet with a WHERE clause.
  - Executes the search specification that is defined on the child applet.

### How Siebel CRM Executes a Search Specification That Is Defined on a Link or List

If a search specification is defined on a link, then Siebel CRM does the following:

- The Search Specification property of a link applies to the child business component. If a search specification also exists in the applet, then Siebel CRM uses an AND query operator to add the search specification on the applet to the search specification on the link.

  **NOTE:** A sort specification on a link only applies to an association list.

If a search specification is:

- Defined on a list, then Siebel CRM does overrides any search specification that is defined on the business component.
- Not defined on the list, then Siebel CRM uses the search specification that is defined on the business component.

## How Siebel CRM Handles a Search Specification if Multiple Applets Are Involved

If two applets reference the same business component, and if these two applets are included in the same view, then Siebel CRM generates one query against the Siebel database to update these applets. Because a database SELECT statement only supports one WHERE clause, the following conditions apply:

- Only one of the applets can contain a search specification.
- If multiple applets each contain a search specification, then each search specification on each applet must be identical.

For example, Siebel CRM displays the Account List Applet and the Account Entry Applet in the Account List View. In the Account Entry Applet, Siebel CRM also displays the record that is chosen in the Account List Applet. If the user chooses a different row in the list or scrolls through the list, then Siebel CRM updates the Account Entry Applet to make sure the same record is chosen in the Account List Applet. Because Siebel CRM enters data into these applets from the same query, the applets display the same record set.

Do not define the same search specification on the business component and on the applet. If you define the same search specification on the business component and on the applet, then duplicate joins might result.

If a view must include two applets that must not display master detail relationships, then make sure each applet references a different business component. If these applet reference the same business component, then Siebel CRM might automatically synchronize them in the Siebel client because of links defined in the business objects.

## How the Applet Visibility Type Property Affects a Search Specification

If the Applet Visibility Type property of the view web template item includes a value that is not null, then Siebel CRM might ignore a search specification that is defined for the applets in that view. It is recommended that you use this property for applets in a view that reference a different business component. If you use this property, test it thoroughly for functionality.

# Options to Determine How Siebel CRM Displays Controls and List Columns in a Siebel Application

You can determine how Siebel CRM displays a control or list column only in a specific Siebel application. For example, for a given Siebel application, you can display or hide a control, or reposition it in the applet layout. The following values in the Application list of the Configuration Context toolbar determines how Siebel Tools maps a control or list column that you add, move, or delete:

- **All Applications.** By default, the layout editor uses the All Applications option, which leaves the controls that you add or delete unmodified.
- **A specific application.** Siebel Tools applies any add, move, or delete of a control or list column only to the chosen application.

If you choose a different application in the Application list of the Configuration Context toolbar during an editing session, then Siebel Tools changes the appearance of the Applet Layout Editor to reflect the set of controls and list columns that are defined for that application. Siebel Tools displays the following controls and list columns:

- Controls and list columns defined for All Applications
- Controls and list columns defined for the current Siebel application

Siebel CRM does not display controls and list columns that are negated for this Siebel application. For more information, see "Setting the Configuration Context" on page 311.

## How an Application-Specific Mapping Affects the Applet Web Template Item

The Expression property of the applet web template item for the control or list column defines a condition that is specific to a Siebel application. The Expression property functions as a search specification or query. It limits the display of the control or list column that matches the outcome of the expression:

- If the Expression property is empty, which is the default, then Siebel Tools displays the control or list column in all Siebel Business Applications.
- If Siebel CRM displays the name of a single Siebel application in the expression, such as eSales, then Siebel CRM restricts the control or list column to display only in the defined Siebel application. A negation expression, such as NOT eSales, specifies that Siebel CRM does not display the control or list column in the eSales application.

Do not define the Expression property directly. If you choose a specific Siebel application in the Application list of the Configuration Context toolbar, and then modify the applet in the Applet Layout Editor, then Siebel Tools automatically defines the Expression property.

## How Siebel Tools Modifies the Expression Property of the Applet Web Template Item

If you choose a specific Siebel application in the Application list of the Configuration Context toolbar, then Siebel Tools implements the following changes on the applet web template item:

- If you add a control or list column to an applet, then Siebel Tools automatically enters the name of the Siebel application in the Expression property for the applet web template item. Siebel CRM displays the control only in the chosen Siebel application.
- If you delete a mapped control or list column from the applet layout, then Siebel Tools does the following:
  - Creates a new applet web template item.
  - Sets the Expression property of this new item to NOT *application*. For example, NOT Siebel Financial Services.
  - Sets the value in the Item Identifier property of this new item to the value in the Item Identifier property of the deleted control.

  At run-time, Siebel CRM displays the control in every application except *application*. For example, it displays the control in every application except Siebel Financial Services.
- If you move a mapped control or list column in the applet layout, then Siebel Tools creates a duplicate applet web template item named *Name2*. This new item includes an Expression property of *application* and a different Item Identifier property. Siebel Tools also creates a NOT *application* object. Siebel CRM displays the control in a different location in that application.

If you delete the NOT *application* object, then the behavior reverts to All Applications.

### How an Application-Specific Mapping Affects Wizards

Unlike a target browser-specific mapping that you create by using the Target Browser list of the Configuration Context toolbar, wizards do not affect an application-specific mapping. If you use a wizard to create an object, then Siebel Tools creates the object for all applications.

# Guidelines for Creating an Applet

This topic describes guidelines for creating an applet. It includes the following topics:



For more information, see "Guidelines for Reusing an Applet" on page 211.

## Overview of Guidelines for Creating an Applet

If you create an applet, then use the following guidelines:

- Keep the user interface consistent and intuitive.
- If possible, modify a predefined applet instead of creating a new applet. This technique often requires less work and helps to minimize the objects in the Siebel repository that you must maintain.

- If you do require a new applet, then set the Upgrade Ancestor property on each custom applet that you clone from another applet. For more information, see "Guidelines for Using the Upgrade Ancestor Property" on page 194.
- To avoid unnecessary duplication, reuse an applet in multiple views and screens.
- To reduce complexity, keep applet design simple.
- Avoid inactive objects.
- Give duplicate applets that do not contain drilldowns the same name as the original applet but add the phrase Without Navigation to the name immediately before the word Applet. For example, ABC Selective Account List Without Navigation Applet.
- Add the phrase Administration Applet to the end of the name of each applet that specifically fulfils an administration function. For example, Master Forecast Administration Applet.
- Define the required applet modes:
  - If the applet is in read-only mode, then you only define it in Base mode.
  - If the applet is editable, then you must define it in Edit and Edit List modes.
- Do not display a field that no applet uses.

## Guidelines for Naming an Applet

If you name an applet, then use the following guidelines:

- Name each new applet with a prefix that identifies your company. For example, if your company name is ABC Incorporated, then name the new applet ABC Opportunity List Applet.
- Include the type of applet in the name just before the word *applet*.
- Capitalize the first letter of each word. For example, Account List Applet rather than account list applet.
- Avoid using a special character in an applet name. Use only alphanumeric characters.
- Make sure the applet name is meaningful. Avoid adding a number suffix to an applet name, such as ABC Opportunity List Applet 2. For example, if the applet differs because it does not allow drill down, then indicate this situation in your applet name. For example, ABC Opportunity List Applet - Without Drill Down.

Table 20 describes the naming formats for an applet. In Table 20, *business component* is the name of the business component that the applet references in the Business Component property.

Table 20. Naming Formats for an Applet

| Type of Applet | Name Format | Example |
|---|---|---|
| Association applet | *description* Assoc Applet | Opportunity Assoc Applet |
| multi-value group applet | *business component* Applet | Fulfillment Position Mvg Applet |
| Pick applet | *description* Pick Applet | Order Status Pick Applet |

Table 20. Naming Formats for an Applet

| Type of Applet | Name Format | Example |
|---|---|---|
| List applet | *business component name* List Applet | Account List Applet |
| Form applet | If the applet does not contain buttons, then use *business component name* Form Applet.<br>If the applet contains buttons, then use *business component name* Entry Applet. | The following examples use this format:<br>■ Account Form Applet<br>■ Account Entry Applet |
| Chart applet | *description* Chart Applet - *description* Analysis | Bug Chart Applet - Severity Analysis |
| Tree applet | *description* Tree Applet | List of Values Tree Applet |

For more information, see "Guidelines for Naming an Object" on page 192.

## Guidelines for Creating an Applet Title

If you create an applet title, then use the following guidelines:

- Always define the Title property of an applet. Do not leave this property empty.
- Do not use the same title for more than one applet that Siebel CRM displays in the same view. If a view contains multiple applets that display data from the same business component, then distinguish the titles according to the type of applet. For example, use distinct titles in a view that displays accounts, such as Account List Applet or Account Form Applet.

Table 21 describes formats for an applet title.

Table 21. Formats for an Applet Title

| Type of Applet | Title Format | Example |
|---|---|---|
| Association applet | Add *business component name* | Add Opportunities |
| multi-value group applet | *business component name* | Contacts |
| Pick applet | Pick *business component name* | Pick Product |
| List applet | *business component name* List | Account List |
| Form applet | Use one of the following formats:<br>■ *business component name* Form<br>■ *business component name* Entry | The following examples use this format:<br>■ Account Form<br>■ Account Entry |

Table 21. Formats for an Applet Title

| Type of Applet | Title Format | Example |
|---|---|---|
| Chart applet | Use one of the following formats:<br>■ *type of action* Analysis<br>■ *description* by *description* | The following examples use this format:<br>■ Open Defect Analysis<br>■ Lead Quality By Campaign |
| Tree applet | *business component name* | Opportunities |

For more information, see "Guidelines for Naming an Object" on page 192

# Guidelines for Creating a Control or List Column

If you create a control or list column, then use the following guidelines:

- To simplify data entry, use the appropriate type of pop-up, if possible. For example, associate a calendar control with a date field, or a multi-line edit box with a multi-line text field.
- Left-align fields in a form or list.
- Right-align labels in a form.
- To accommodate multiple translations of a given text string, include extra spaces in a display name or caption. For more information, see *Using Siebel Tools*.
- Associate a control for a form applet that uses the Applet Form 4 Column (Edit/New) web template to a field that is two columns wide, or to a field that is one column wide. To associate a control to a field that is two columns wide, you must set the HTML Width property to 412. If you do not create an HTML Width property, then Siebel CRM displays the control as a one column wide field even if it is associated to a two column wide field in a form applet.

## Guidelines for Creating a Check Box

If you create a check box control or check box list column, then use the following guidelines:

- Make sure a check box is the appropriate way to display the data. If the data does not map to a yes or no response, or if the meaning of the unchecked value is not obvious, then it is recommended that you use a list of values instead. For example, instead of using a check box labeled Standard, use a combo box labeled Shipping Method with a list of values that contain Standard and Next Day. For more information, see "Creating a List of Values" on page 463
- Avoid using a negative. For example, instead of Not Required, use Optional.
- In a form applet, right-align the labels and position them to the left of the check box.

## Guidelines for Creating a Text Control or List Column

If you create a text control or text list column, then use the following guidelines:

- To display a calendar or calculator for a control, set the Runtime property of the control to TRUE.
- To display a pop-up editor, set the Popup Edit property of the control to TRUE.
- To make a list column unavailable, set the Available property to FALSE.
- To display a text list column in a list by default, set the Show in List property to TRUE.
- To hide a text list column by default, set the Show in List property to FALSE. The user can use the Columns Displayed dialog box to display the text control.
- Because a list column header is a specialized control, it does not render HTML. For example, you cannot add a red asterisk to indicate that a field is required, as you can in a form applet.
- You cannot apply a background color to a list column.

# 7 About Views, Screens, and Applications

This chapter describes views, screens, and applications. It includes the following topics:



## About the Siebel Client Navigation Model

Figure 26 identifies the levels of the Siebel client navigation model. The view in this figure is a mock-up to demonstrate the different levels of navigation. This view does not exist in the predefined Siebel repository.

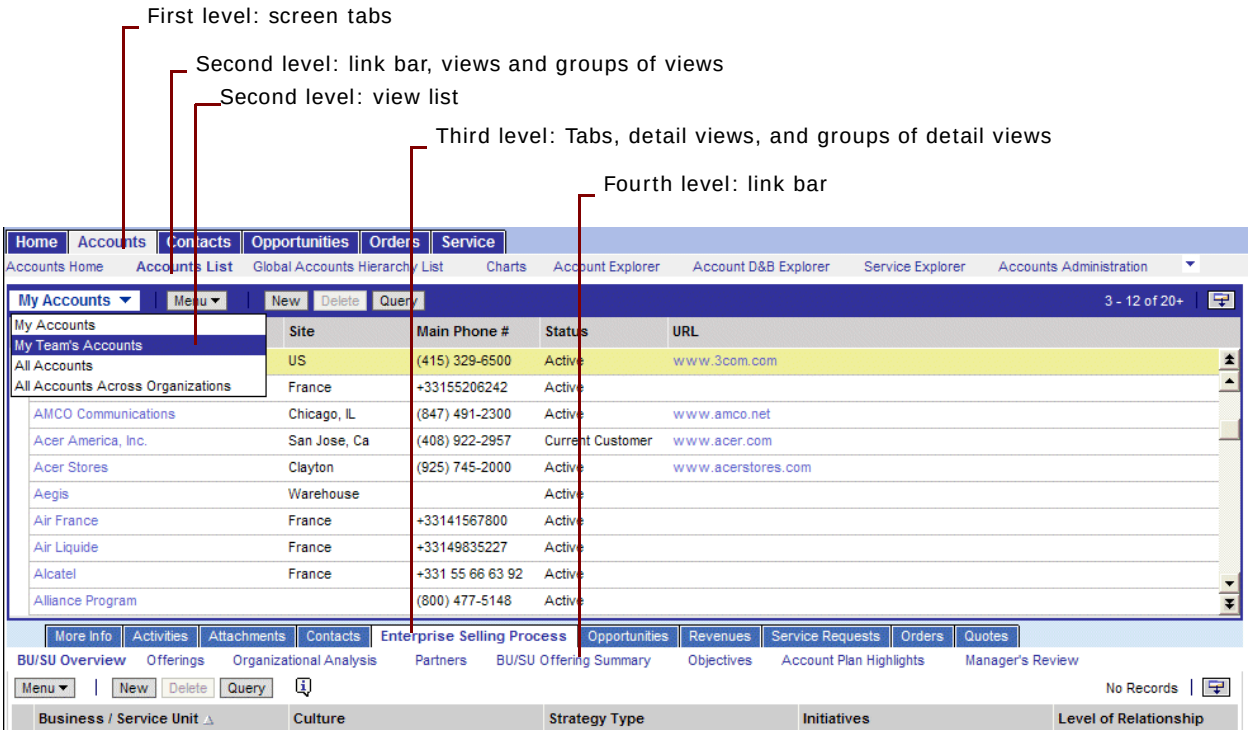



Figure 26. Levels of the Siebel Client Navigation Model

The user navigates between tabs, links, and lists that Siebel CRM displays in one of the following levels of the Siebel client:

- **First level.** Screen tabs that allow the user to navigate between screens.
- **Second level.** Links to groups of views or single views. Siebel CRM can display these links in the following ways:
  - In the link bar directly below the screen tabs.
  - In a list that Siebel CRM displays in the header of an applet. Visibility rules typically determine how this list filters data. The My Contacts, My Team's Contacts, and All Contacts views are examples of these types of views.
- **Third level.** Tabs that allow the user to navigate to a group of detail views or to a single detail view.
- **Fourth level.** One of the following, depending on the web template that Siebel CRM uses:
  - Links in the link bar directly below the tabs.
  - Tabs on a grandchild applet.
  - Links in a list.

Other user interface elements provide the user with more navigation options, such as the Site Map, drilldowns, and the thread bar.

# About Views

The user can access a view in one of the following ways:

- Screenbar, which displays the default view for that screen
- The second-level visibility list
- A third-level tab
- The fourth level list for the category view
- The thread bar
- The history list
- History forward and back buttons
- Drilldown from another view

The navigational constructs in the physical user interface determines access to certain views.

For more information, see "Overview of the Logical User Interface Object Layer" on page 25.

## About List-Form Views

A *list-form view* is a type of view that includes a list applet and a form applet that displays data from the same business component. Siebel CRM displays the list applet above the form applet. It displays a list of records. The form applet displays detailed information about the record currently chosen in the list applet. To view an example of a list-form view, open Siebel Call Center, navigate to the Accounts Screen, and then the Accounts list. Note the following:

- Siebel CRM displays the Account List Applet and the Account Entry Applet.
- The list applet displays a list of account records and the form applet displays details about the account that is chosen in the list, but in a format that the user can view without scrolling.
- These applets reference the Account business component.

## About Master-Detail Views

A *master-detail view* is a type of view that typically includes a form applet and a list applet that displays data from two different business components. A link defines a parent-child relationship between the two business components. Siebel CRM displays the form applet above the list applet and displays one record from the parent business component. The list applet displays all of the records from the child business component that are associated with the record that is chosen in the form applet.

A view can include two list applets in a master-detail view. The records in the detail list applet are child records of the record that is currently chosen in the parent list applet. To view an example of a master-detail view, in Siebel Call Center, navigate to the Accounts screen, and then the Accounts list. Click the link in the Account Name field. Note the following:

- Siebel CRM displays the Account Contact List Applet. It references the Contact business component.
- Siebel CRM also displays the Account Entry Applet. It references the Account business component.
- The view references the Account business object.
- In the context of the Account business object, the parent-child relationship between Account and Contact references the Account/Contact link.

## How Siebel CRM Constructs a Master-Detail View

Figure 27 illustrates how Siebel CRM constructs a master-detail view.

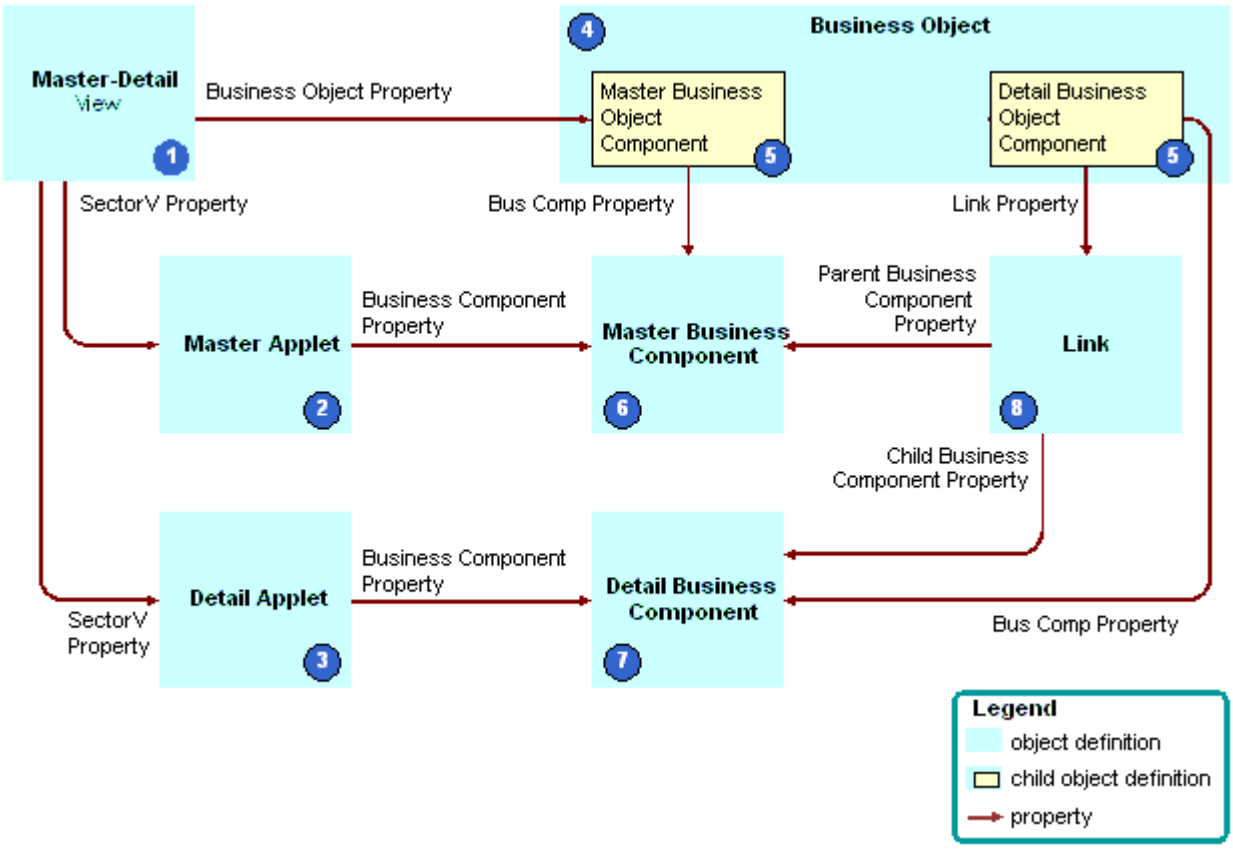



Figure 27. How Siebel CRM Constructs a Master-Detail View

Siebel CRM uses the following objects to construct a master-detail view:

1. **Master-detail view.** The object definition of the view.
2. **Master applet.** The form applet that displays the parent record.
3. **Detail applet.** The list applet that displays the child records.
4. **Business object.** The business object that the Business Object property of the view references. The business object establishes the context that determines the active link between the business components that the applets reference.
5. **Business object components.** Child objects of the business object. Each business object component associates a business component to the business object.
6. **Master business component.** The business component that the parent applet references.
7. **Detail business component.** The business component that the detail applet references.

8 **Link.** The link that specifies the parent-child relationship between the parent business component and the child business component. The Link property of the detail business object component identifies the link.

### Related Topics

For more information, see the following topics:

- About Business Components on page 73
- About Links on page 105
- About Business Objects on page 107

# About Screens

A screen is a collection of related views:

- The screen represents a logical grouping of views that pertain to one business function.
- To simplify navigation, you can group views in a screen into categories.
- All the views in a screen usually reference a single business object.

The user can access a screen through a screen tab or the Site Map. These links to each screen are defined as part of the page tab object definition, which is a child of the screen. The screen defines the default view that Siebel CRM displays if the user clicks a screen tab.

A screen includes a screen view child object type. The screen view controls the views that Siebel CRM displays in the Siebel client if the user chooses a screen tab.

**NOTE:** The Site Map is limited to nonvisibility views. Siebel CRM does not display a visibility level view, such as My Accounts or My Team's Accounts, on the Site Map.

For more information, see "About the Siebel Client Navigation Model" on page 131 and "Process of Creating a Screen" on page 284.

## About Screen Views

A *screen view* is an object type that represents groups of views or a single view in the Siebel client. The screen view allows you to group related views together and to control the location of where Siebel CRM displays links in the Siebel client. The Type and Parent Category properties determine where Siebel CRM displays the screen view in the Siebel client. Although the screen view plays a major role in determining where Siebel CRM displays a view in the Siebel client, a view web template ultimately controls appearance. For example, most web templates render links under tabs. Other web templates render these links in a list. For more information, see "Creating a Screen View" on page 286.

Table 22 describes types of screen views.

Table 22. Types of Screen Views

| Type of Screen View | Description |
|---|---|
| Aggregate Category | Groups all remaining screen view types.<br>Siebel CRM displays it as a link in the link bar below screen tabs. |
| Aggregate View | Siebel CRM displays an Aggregate View as follows:<br>■ If no value is defined for the Parent Category property, then Siebel CRM displays the screen view as a link in the link bar below the screen tabs.<br>■ If the Parent Category property contains a valid Aggregate Category, then Siebel CRM displays the screen view as a link in the view list in applet headers. |
| Detail Category | Groups detail views.<br>Siebel CRM displays it as a tab. |
| Detail View | Siebel CRM displays a Detail View as follows:<br>■ If the Parent Category property contains a valid Aggregate Category, then Siebel CRM displays the screen view as a tab.<br>■ If the Parent Category property contains a valid Detail Category, then Siebel CRM displays the view as a link in a link bar below the tabs, or in another location depending on the web template. For example, Siebel CRM can also display the screen view in a view list or in another row of tabs.<br>**NOTE:** In Siebel CRM version 7.7 and higher, Siebel CRM defines a nonvisibility view as a detail view with the Parent Category property set depending on the business object that the view references. |

## How Siebel CRM Groups Aggregate Categories Beginning with Siebel CRM Version 7.7

In Siebel CRM version 7.7 and higher, visibility views are grouped under aggregate categories according to business object. For example, some of the views in the Accounts Screen belong to the Account and Global Account Hierarchy business objects:

- Siebel CRM groups the visibility views associated with the Account business object under the Accounts List aggregate category.
- Siebel CRM groups the visibility views associated with the Global Account Hierarchy business object under the Global Accounts Hierarchy List aggregate category.

## Type of Screen View That Is Defined for Each Navigation Level

Table 23 describes the type of screen view that is defined for each navigation level and the properties for each screen view. For more information, see "About the Siebel Client Navigation Model" on page 131 and "Process of Creating a Screen" on page 284.

Table 23. Type of Screen View That Is Defined for Each Navigation Level

| Navigation Level | Siebel Client Placement | Object That Is Defined |
|---|---|---|
| 1 | Screen tabs | Page Tabs, which are child objects of an application. For more information, see "Creating a Screen Menu Item" on page 285. |
| 2 | Links in the link bar directly below screen tabs.<br>These links refer to groups of views. | Screen view with the following properties:<br>■ Type is Aggregate Category<br>■ Parent Category is empty |
| | Links in the link bar directly below screen tabs<br>These links refer to a single view. | Screen view with the following properties:<br>■ Type is Aggregate View<br>■ Parent Category is empty |
| | Links in the view list in an applet header | Screen view with the following properties:<br>■ Type is Aggregate View<br>■ Parent Category is Aggregate Category |
| 3 | View tabs<br>These tabs refer to groups of detail views. | Screen view with the following properties:<br>■ Type is Detail Category<br>■ Parent Category is an Aggregate Category |
| | View tabs<br>These tabs refer to a single detail view. | Screen view with the following properties:<br>■ Type is Detail View<br>■ Parent Category is an Aggregate Category |
| 4 | Links in the link bar below view tabs, or in an alternate location depending on the web template. | Screen view with the following properties:<br>■ Type is Detail View<br>■ Parent Category is Detail Category |

### Example of a Screen View Hierarchy

Table 24 describes several screen views from the Account screen and the important properties that determine the location of the screen view in the Siebel client.

Table 24. Example of a Screen View Hierarchy

| Level | Siebel Client Location | Type | Category Name | Category Default View | View | Parent Category |
|---|---|---|---|---|---|---|
| 2 | Link in link bar below screen tabs | Aggregate View | Not applicable | Not applicable | Account Screen HomePage View | Not applicable |
| | Link in link bar below screen tabs | Aggregate Category | Account List | Account List View | Not applicable | Not applicable |
| | Link in view list in applet header | Aggregate View | Not applicable | Not applicable | Account List View | Account List |
| 3 | View tabs | Detail View | Not applicable | Not applicable | Account Detail - Contacts View | Account List |
| | View tabs | Detail Category | ESP | ESP Account Plan Overview View | Not applicable | Account List |
| 4 | Link in link bar below view tabs | Detail View | Not applicable | Not applicable | ESP Account Plan Overview View | ESP |

## Guidelines for Creating a View

If you create a view, then use the following guidelines:

- Apply the guidelines for configuring access control. For more information, see *Siebel Security Guide*.
- Do not associate a view with more than one screen. If you associate a view with more than one screen, then problems with the Thread Manager might occur. When Siebel CRM saves a thread in the session file, Siebel CRM stores the name of the view without the name of the associated screen. If the user chooses a thread that navigates to a duplicate view, then Siebel CRM always navigates the user to one screen, even if Siebel CRM created the thread in the other screen. If you define the duplicate view as the default view on both screen tabs, then the user experiences an anomaly in the Siebel client. Siebel CRM chooses one screen tab as the active tab. Siebel CRM never displays the duplicate screen tab as an active tab. For more information, see "Customizing the Thread Bar" on page 273.

- Do not modify a view that Siebel CRM displays in the Administration - Server Configuration screen or in the Administration - Server Management screen. Siebel CRM reads information in these views from the siebns.dat file. The Server Manager displays these views in the Siebel client. Any modification that you make to one of these views must be stored in siebns.dat file. However, you cannot store this information in siebns.dat. Therefore, Siebel CRM does not support modifying a server view.
- Due to the specialized nature of the code that the Siebel calendar references, Siebel CRM does not support modification to the following views:
  - HI Activity Calendar View
  - eCalendar Daily View
  - eCalendar Weekly View
  - eCalendar Monthly View

  **NOTE:** Oracle supports usage of Siebel Tools to modify the eCalendar Detail View.

## Guidelines for Naming a View

If you name a view, then use the following guidelines:

- Use a prefix that identifies your company. For example, name a new view for ABC Incorporated as ABC Opportunity Detail - Tasks View.
- Make the view name meaningful. Avoid adding a number suffix to a predefined name, such as Opportunity List View 2.
- If the view differs because it is read-only, then indicate that it is read-only. For example, ABC Opportunity List View - Read Only.
- Capitalize the first letter of each word. For example, Opportunity List View rather than opportunity list view.
- Do not use a special character, such as an ampersand (&).

### Guidelines For Naming a View According to the Type of View

Table 25 describes guidelines for naming a view according to the type of view.

Table 25. Guidelines For Naming a View According to the Type of View

| Type of View | Name Format | Example |
|---|---|---|
| List-form view | *business component* List View | Account List View |
| Master-detail view | *detail business component* Detail - *master business component* View | Opportunity Detail - Contacts View |
| Explorer view | *business component* Explorer View | Account Explorer View |
| Chart view | *master business component* Chart View - *detail business component* Analysis | Account Chart View - State Analysis |

### Guidelines For Naming a View According to the Type of Aggregate View

Table 26 describes guidelines for naming a view according to the type of aggregate view. The text in italics indicates text that changes according to the underlying entity.

Table 26. Guidelines For Naming a View According to the Type of Aggregate View

| Type of Aggregate View | Example |
|---|---|
| Personal | My Personal *Contacts* |
| Sales Rep | My *Contacts* |
| Manager | My Team's *Contacts* |
| Organization | All *Contacts* |
| Sub Organizations | All *Accounts* Across My Organizations |
| All | All *Contacts* Across Organizations |
| Group | User *Catalog List View* |
| Catalog | *Products* Across Catalogs |
| Admin Mode | *Contacts* Administration |

For more information, see "Guidelines for Naming an Object" on page 192.

# Options to Create a View or Screen

This topic describes options to create a view or screen. It includes the following topics:



For more information, see the following topics:

- Chapter 14, "Configuring Views, Screens, and Applications"
- Guidelines for Reusing a Predefined View on page 211

## Options to Drill Down to Another View

A *drilldown* is a type of field that allows the user to navigate from a field to another view that presents more information about the chosen record. Siebel CRM displays a drilldown primarily in a list applet. The drilldown object is a child object of an applet. A drilldown can be static or dynamic.

Consider the following drilldown behavior:

- If the parent applet of a view includes a search specification, and if the user drills down on a field, then Siebel CRM applies this search specification to the destination view. For more information, see "Options to Filter Data Displayed in an Applet" on page 120.

- If the target view of a drilldown includes a visibility type that is different from the original view, and if the user drills down on a field, then Siebel CRM navigates the user to the first record of the destination view and not to the drilldown record.

Siebel CRM does not support drilldown on a multi-value group applet, pick applet, or association applet.

## How Siebel CRM Constructs a Static Drilldown

A *static drilldown* is a type of drilldown that navigates the user to the same view.

Figure 28 illustrates how Siebel CRM constructs a static drilldown.

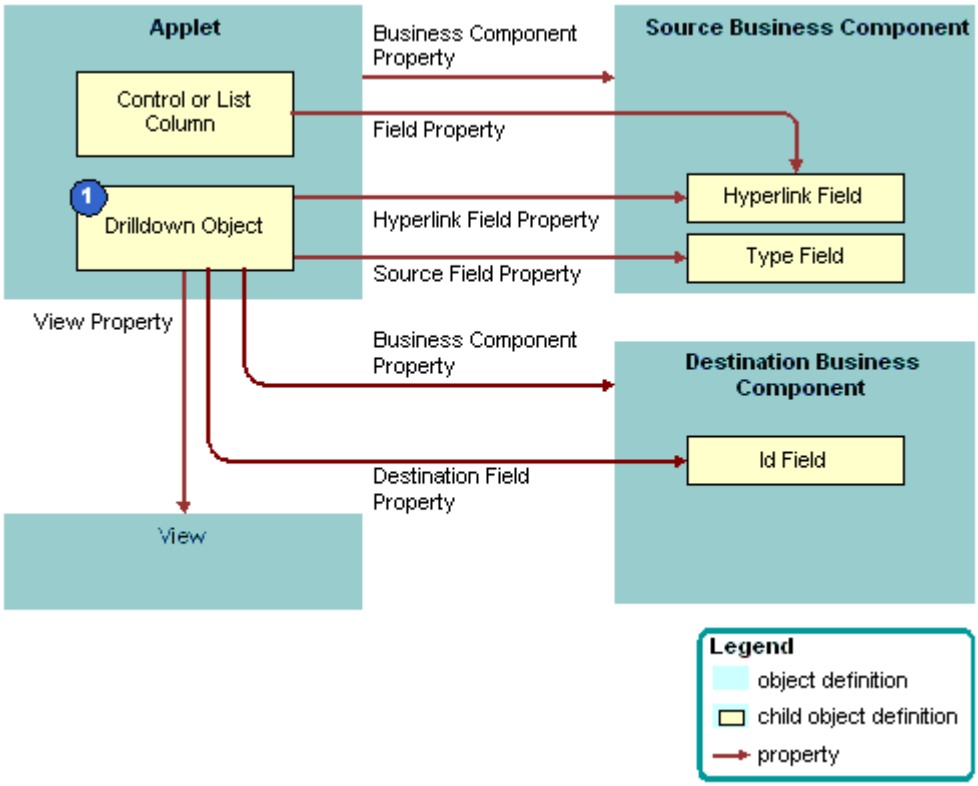



Figure 28. How Siebel CRM Constructs a Static Drilldown

Siebel CRM uses the following objects to construct a static drilldown:

1 **Drilldown Object.** Identifies a link field and a view. These properties define the list column or control that includes a link and the destination view that Siebel CRM displays if the user drills down on the link.

## Objects Siebel CRM Uses to Construct a Dynamic Drilldown

A *dynamic drilldown* is a type of drilldown that navigates the user to a different view. This navigation depends on a condition, such as the value of a field. A dynamic drilldown allows the user to navigate to multiple views from the same link field, depending on the value of a field in the current record of the applet. This functionality is useful if certain processing is required for various types of contacts, opportunities, accounts, and so forth. For example, the business component might include a field on which Siebel CRM can evaluate the condition, such as the Lead Quality of an opportunity or the primary Industry of an account. The drilldown then navigates the user to a different view depending on the value in the field.

Figure 29 illustrates the relationships between objects in a dynamic drilldown. To create a dynamic drilldown, you define one or more dynamic drilldown destination children of the drilldown object for the field and the corresponding list column or control.

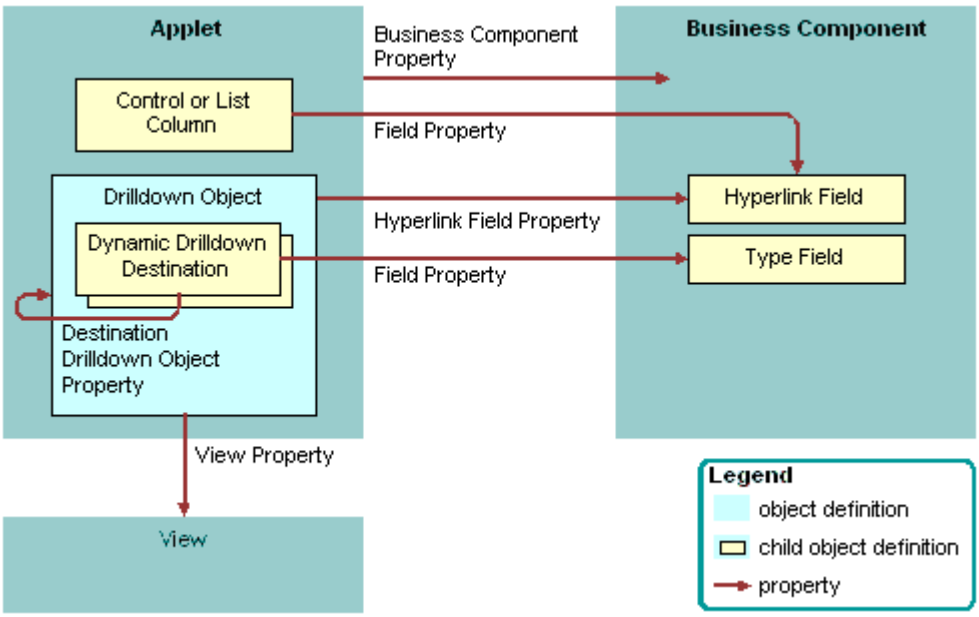



Figure 29. How Siebel CRM Constructs a Dynamic Drilldown

The functionality of the drilldown object in a dynamic drilldown is the same as it is with a static drilldown with the following exceptions:

- A drilldown object is defined for each candidate view.
- Each dynamic drilldown destination contained in a drilldown object specifies a condition.
- The drilldown object that contains the lowest sequence number includes child dynamic drilldown destinations that define the following conditions under which Siebel CRM uses each of the drilldown objects:
  - If the conditions in the dynamic drilldown destination are true, then Siebel CRM flows to one of the drilldown objects.

- If the conditions in the dynamic drilldown destination are false, then Siebel CRM uses the parent drilldown as the default drilldown.
- If the conditions in the dynamic drilldown destination are true but the user is not assigned the responsibility that is required to access the destination view, then Siebel CRM uses the parent drilldown as the default drilldown.

For example, assume the Industry field in the Account business component is designated as the type field in a list of dynamic drilldown destinations:

- If the Industry is Manufacturing, then the drilldown navigates to a drilldown object that includes a view that is tailored for a manufacturing account.
- If the Industry is Transportation, then the drilldown navigates to a drilldown object that includes a view that is tailored for a transportation account.

**CAUTION:** Avoid defining a link that routes from one dynamic drilldown object to another dynamic drilldown object. If you create child dynamic drilldown destinations of a drilldown object, then make sure they do not route to a drilldown object that includes child dynamic drilldown destinations. This technique might cause ambiguity or looping problems.

### How Siebel CRM Handles a Dynamic Drilldown if Multiple or No Conditions Are Met

If the condition in one dynamic drilldown destination is met, then the link navigates to the defined drilldown object. If more than one condition is met, then Siebel CRM uses the lowest value in the Sequence property to identify the first condition that it uses as the destination drilldown object. If no condition is met, or if no dynamic drilldown destinations are supplied as children of the drilldown object, then the drilldown object supplies the name of the destination view.

If you define multiple drilldown objects for an applet, then reference any given field in the business component only one time for all available drilldown objects. For a dynamic drilldown, set the Hyperlink Field property of the drilldown object that contains the dynamic drilldown destinations.

## Options to Toggle Between Applets in a View

An *applet toggle* is a feature that allows the user to navigate back and forth between different applets in the same view. This feature allows you to display different types of data or display the same data in a different way. The following types of applet toggles are available:

- **Static applet toggle.** Allows the user to choose the name of the applet from the Show list to toggle between applets.
- **Dynamic applet toggle.** Automatically toggles between applets that reference the value of a field in a parent applet.

An applet toggle includes the following configurations:

- Siebel CRM applies the search specification on the form applet in the view. To create a search specification on a list applet during a toggle, you must add the search specification for the form applet. For more information, see "Options to Filter Data Displayed in an Applet" on page 120.
- A static toggle applet is not required to reference the same business component.

- You can define only one static applet toggle in a single view.
- A dynamic toggle applet must reference the same business component, which can be a predefined business component or a virtual business component.
- You can define more than one dynamic applet toggle in a single view.
- You can define one static applet toggle and one dynamic applet toggle in a single view.
- You can define one static applet toggle and multiple dynamic applet toggles in a single view.

  **CAUTION:** If you define more than one static applet toggle in a single view to access multiple views, then unpredictable behavior might result. Instead, use detail views with the Parent Category property set to Detail Category. For more information, see "About Screen Views" on page 135.
- You cannot define multiple static applet toggles in a single view.
- You cannot create a static applet toggle and a dynamic applet toggle in the same applet.

For more information, see "Example of Creating an Applet Toggle" on page 275 and "Improving Performance When Using Applet Toggles" on page 563.

# About Applications

An *application* is an object type that is a collection of screens. Siebel Call Center and Siebel Partner Relationship Manager are examples of an application. Although you can create a new application, it is recommended that you modify a predefined application to meet your business requirements.

The application object type defines which screens are accessible through menus and tabs. The following child objects of the application object associates screens with the Siebel application and displays screens in the Siebel client:

- **Page tab.** Adds a screen to the tab bar. For more information, see "Page Tab" on page 26.
- **Screen menu item.** Adds a screen to the Site Map.

An application object definition also includes the following items:

- **Find Objects.** Configures the Find dialog box. For more information, see "About Screens" on page 135.
- **Server script and browser script.** Can be defined as an event procedure on startup, prior to closing, and so forth. You define these scripts through an Application Script child object. You use the Script Editor to create and maintain a script. For more information, see *Siebel VB Language Reference*, *Siebel eScript Language Reference*, and *Siebel Object Interfaces Reference*.
- **Custom menu option for a Siebel method.** Defined through the *applet method menu item* and created in the Applet Method Menu Item Wizard. For more information, see "Applet Method Menu Item Object Type" on page 499.

For more information, see "Creating and Deploying an Application" on page 299 and "How Siebel CRM References Web Pages" on page 151.

## Guidelines for Creating an Application

If you create an application, then use the following guidelines:

- Note that the name of the Siebel application is case-sensitive and space-sensitive.
- To identify the name of the Siebel application, use the appropriate parameter in the configuration file of the Siebel application.
- To minimize locking of the application object, Siebel CRM contains the object in a separate project.

# 8 About Siebel Web Templates and Siebel Tags

This chapter describes how to configure Siebel web templates and Siebel Web Engine (SWE) tags. It includes the following topics:



For more information, see "How the Siebel Web Engine Generates a Siebel Application" on page 34, and Chapter 21, "Configuring Siebel Web Templates and Siebel Tags."

## About Siebel Web Templates

This topic describes Siebel Web Templates. It includes the following topics:



### Overview of Siebel Web Templates

A Siebel web template includes a preset format that Siebel CRM reuses each time Siebel CRM requires a particular layout. This way, Siebel CRM uses only a single template rather than multiple files every time it requires a particular layout. For more information, see "Siebel Web Template" on page 24.

A Web browser uses HTML to define the layout and format of a page. Siebel web templates provide this HTML layout to the Siebel Web Engine when Siebel CRM renders Siebel objects in the Siebel client. The templates contain markup tags, such as HTML, WML, and XML, that are interspersed with Siebel tags. Siebel CRM prefixes these tags with the following text: *swe*.

A Siebel web template includes empty placeholders that contain no data. To enter data and user interface elements into a template, Siebel CRM associates views, applets, controls, and other objects with each template. These objects are defined in the Siebel repository. Siebel CRM maps each object to an empty placeholder in the template. For example, assume a view maps to three applets. You associate a view web template with the view, and then map each applet to a placeholder in that template.

## How Siebel CRM Renders a Wireless Application

Siebel CRM renders a wireless application in the same way as it renders an application that is not wireless except for the fact that the markup language in the templates uses WML or XML code. Although this topic describes configuration for Web (HTML) applications, many of the concepts described in this chapter are generic across markup languages.

## Types of Siebel Web Templates

Siebel CRM uses the following types of Siebel web templates:

- **Page container template.** Provides a structure for Siebel CRM. Each Siebel application uses one page container. Used as a container for view web templates. A view that does not use the container page usually varies significantly from other views. For example, the login page does not use the page container.
- **Web page template.** Defines the layout for the entire display. Includes information about where Siebel CRM displays the screen bar, view bar, and view.
- **View web template.** Defines the layout for a view. Specifies where to position applets and other page-level controls on the view. Specifies the format of the view.
- **Applet template.** Defines the layout for fields and controls in an applet. Specifies how to format elements in an applet. An applet can include more than one mode. Siebel CRM associates each mode with a template. For more information, see "Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data" on page 118.
- **Format template.** Allows you to create custom HTML types, such as specialized controls, list items, and page items. These templates use the SWF (Siebel Web Format) extension. For more information about SWF files, see "Customizing an HTML Control Type" on page 534.

Siebel CRM can contain other pages that do not contain any Siebel tags. For example, you might include an About This Application help page. However, this page is not a template.

## Development Environment You Use to Generate HTML Output

Figure 30 illustrates the development environment you use to generate HTML output. The Siebel Web Engine uses templates, repository definitions, and HTML to generate HTML output.

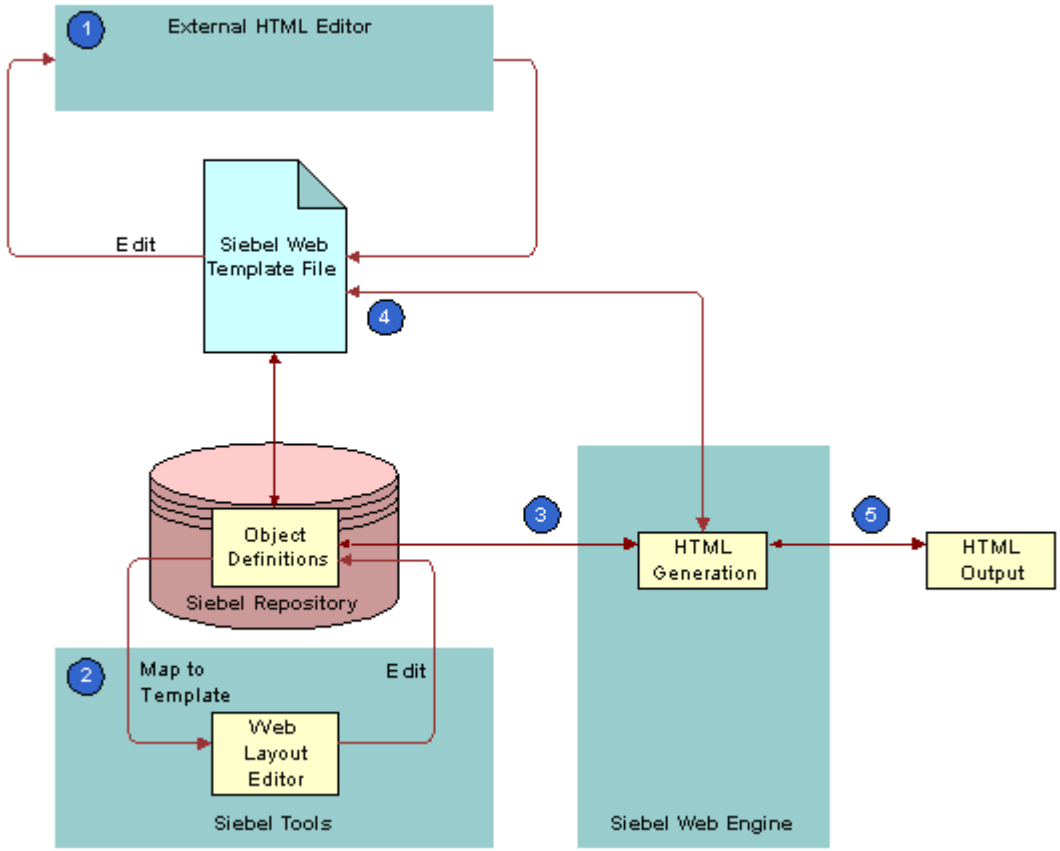



Figure 30. Development Environment You Use to Generate HTML Output

You use the development environment to do the following:

1. Edit the HTML in an external HTML editor.
2. Use the Web Layout Editor in Siebel Tools to edit the layout of an applet and to map object definitions to the Siebel web template.

If a Siebel client requests a specific view, then the Siebel Web Engine does the following:

3. Retrieves the object definition for the view and the object definition for each applet in that view from the SRF file. Retrieves the data defined in the object definition from the data manager layer of the application object manager (AOM).
4. Matches this data with the template that the view references and each applet in the view.

5 Uses the placeholders in the template to render this view. Defines where each user interface element in the object definition is placed and how it is formatted.

   If the user accesses the HTML file in a Web browser, then Siebel CRM renders it as a Web page, and includes the layout defined in the original template and the data and controls retrieved.

## Siebel Web Template Reuse

You can share a Siebel Web template among many objects in the Siebel repository. Because a template includes placeholders that do not contain data, Siebel CRM can map any number of repository objects to a specific placeholder. This allows you to change only one template to apply style or structural changes to numerous user interface elements. A typical Siebel application contains approximately 5 to 50 templates. These templates form the basis for several hundred views and applets. For example, Siebel CRM can share a template that defines the layout and format of a predefined list applet among all list applet definitions in the Siebel repository.

If a placeholder is not mapped, then the Siebel Web Engine ignores it and the HTML between the Siebel tags that define the placeholder. For example, if the template contains layout for a list applet that is 10 columns in width but only two of the columns are mapped, then the Siebel Web Engine ignores the other eight unmapped columns. This technique improves efficiency and performance.

## Flexibility of Use

Siebel CRM comes with many predefined applet web templates and view web templates that you can modify. To support your business processes, it might not be necessary for you to modify any of the applet web template and view web templates. However, in some situations, especially with customer and partner applications, you can modify predefined templates to reflect your corporate look and feel. You can also create entirely new templates.

A Siebel Web template file can include another Siebel Web template. Siebel CRM uses this technique to improve efficiency. For example, to separate handling for the title of an applet from handling the body of an applet, you can create a template file that includes the title in the applet template. This way, you can define an applet layout once and then combine it with multiple different title layouts.

A Siebel Web template must use valid HTML. It is recommended that you do not add JavaScript beyond what the Siebel Web Engine already generates. If it is necessary to add JavaScript, then you must use Siebel Tools to define browser script.

You can use Siebel Tools or an external editor to modify a template. For more information, see *Using Siebel Tools*.

## Support for Multiple Browser Types

The layout and style of HTML Web pages is dynamic, which allows simultaneous support for multiple browser types and versions. A Siebel web template supports conditional branching. Siebel CRM evaluates conditions according to the results of a business service.

# How Siebel CRM References Web Pages

Siebel CRM is associated with a set of templates through the properties of the application object type. Each property identifies a template to use in a given situation. For more information, see the following topics:

- About Applications on page 144
- Creating and Deploying an Application on page 299
- Properties of an Application on page 679

## About the Container Page

The container page is the outermost template. It references view web templates and view web templates that reference applet templates. The container page contains markup language and Siebel Web Engine tag elements that define the Web equivalent of the application window. You can examine this logic in the CCPageContainer.swt file. The Siebel Web Engine processes the container page template, view web templates, and applet web templates.

## Container Page Elements

The container page includes the following elements:

- **Markups for the top of the container page.** Example markups include the corporate banner and Siebel tags for predefined queries. For example, in the Web Page Layout Editor you can view how the Queries menu label is the FavoritesLabel Web page item. For more information, see "Guidelines for Modifying a Predefined Query" on page 184.
- **Screen tab bar.** Generated beneath container page markups as a table. The Siebel Web Engine logic that is associated with the following tags loads the screen tab bar:
  - swe:screenbar
  - swe:screenlink
  - swe:now-control
- **View bar.** The Siebel Web Engine logic that is associated with the following tags loads the view bar:
  - swe:viewbar
  - swe:viewlink
  - swe:now-control

After Siebel CRM loads the container page and displays screen and view names, the screen and view names function as links in the following ways:

- If the user clicks a screen tab, then to generate and display the view, Siebel CRM uses the template for the default view for that screen.
- If the user clicks a view name in the view bar, then Siebel CRM loads the view web template that is defined in the object definition of the view.

The Siebel Web Engine also does the following:

- Processes the set of tags in the view web template to incorporate applets into the page.
- Uses the view object definition, view web templates, and applet web templates to identify the applets that Siebel CRM displays in specific sectors.
- Obtains controls from the Siebel repository to resolve tag references to controls in each applet. Loads controls into the Web page as defined in the applet web template for the applet. The container page can contain frames to support independent update and scroll of areas of a page. For more information, see "How Siebel CRM Uses HTML Frames in the Container Page" on page 152.

## How Siebel CRM Uses HTML Frames in the Container Page

You can use HTML frames in the container page and in a view web template. The container page contains frames that Siebel CRM uses to support independent update and scroll of user elements in a page. Example elements include toolbars, menus, the main content area, and so forth. For more information, see "Example Frameset Code from a Container Page" on page 155.

Figure 31 identifies HTML frames in a container page.

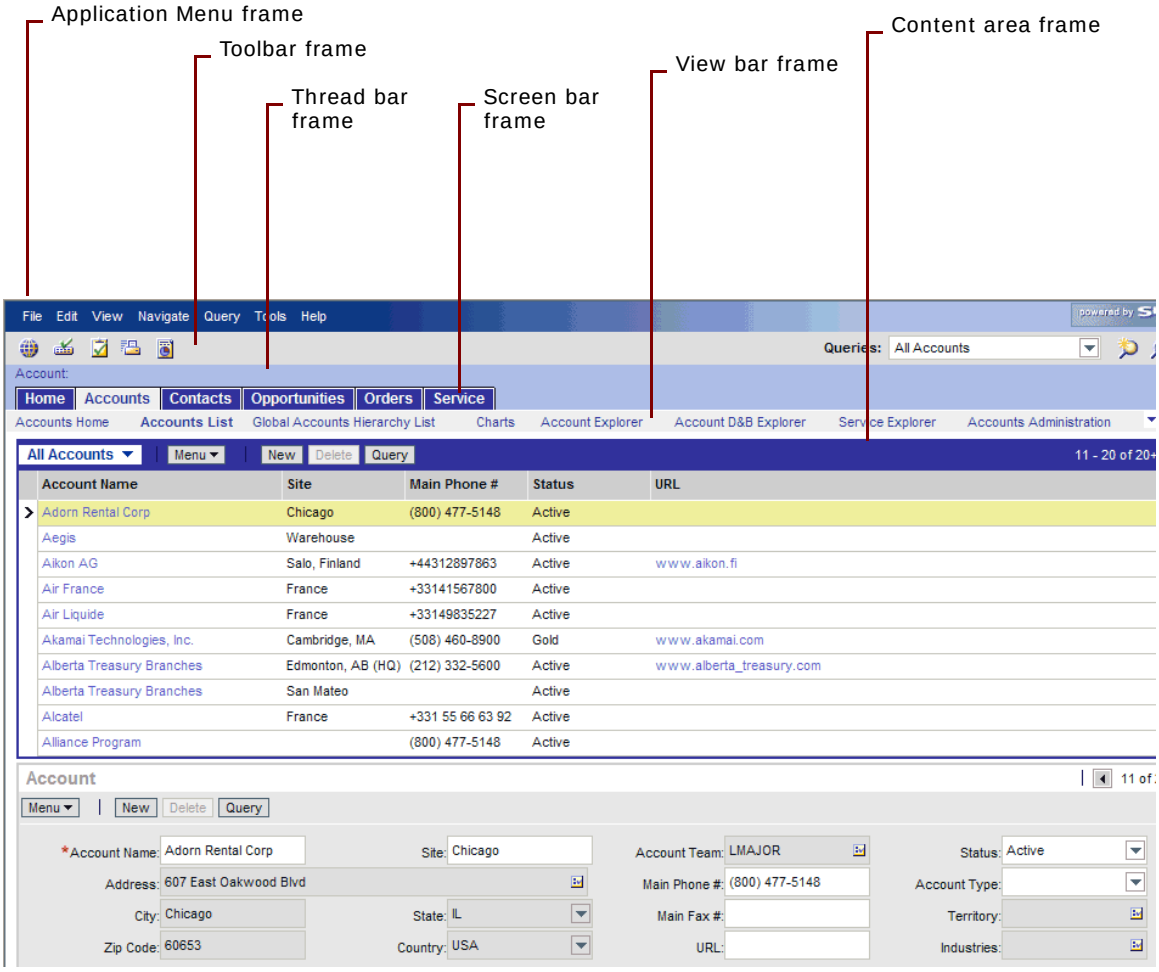



Figure 31. HTML Frames in the Container Page

You can group applets into separate frames in a view web template. However, it is recommended that you do not use this technique except where independent refresh or independent scrolling is required.

Siebel CRM uses the swe:frameset tag and the swe:frame tag to do the following:

- Create attributes for HTML frames.
- Provide the Siebel Web Engine a way to control how it targets and refreshes URLs.

## SWE Tag That Defines the Set of Frames in a Document

The swe:frameset tag defines the set of frames that are contained in the document. Similar to the HTML frameset tag, the Siebel Web Engine renders it as an HTML frameset tag. The body of this tag can only contain swe:frame tags.

The swe:frameset tag uses the following format:

```
<swe:frameset htmlAttr="xxx">  ... </swe:frameset>
```

The swe:frameset tag includes the *htmlAttr* attribute**.** This attribute defines the attributes for the HTML frameset tag. For example, the following code supports a layout in which the frames that belong to the frameset use 89 pixels, 25 pixels, and the remainder of the window:

```
htmlAttr=”rows=’89,25,*’”
```

## SWE Tag That Marks the Beginning and End of Content in a Frame

The swe:frame tag marks the beginning and end of the contents that Siebel CRM places in a frame. The Siebel Web Engine renders this tag as an HTML frame tag, with the *src* attribute of the tag set to a Siebel Web Engine URL that retrieves the contents of the frame. You must place this tag in the body of the swe:frameset tag.

The swe:frame tag uses the following format:

```
<swe:frame type="xxx" name="yyy"> ....  </swe:frame>
```

The swe:frame tag includes the *type* attribute. The type attribute indicates the nature of the contents of the frame. The Siebel Web Engine uses this information to decide when to refresh the frame. Siebel Web Engine supports the following values for the Type attribute:

- Siebel CRM uses the following values in a container page template:
  - **Toolbar.** Specifies that the frame contains the toolbar.
  - **Screenbar.** Specifies that the frame contains the primary tab bar.
  - **Viewbar.** Specifies links to views and categories of views.
  - **View.** Specifies that the frame contains the current view, that is, the content area.
  - **Page.** Specifies that the frame contains a Web page. Siebel CRM does not refresh these frames after initial loading.
- **Applet.** In a view web template, specifies that the frame contains an applet.
- **Content.** Defines the content area and contains a view frame that displays the main view. To display an alternate view, it can contain one or more AltView frames. The search center is an example of an alternate view.
- **AltView.** Designates subframes to display one or more alternate views in the content frame in addition to the one in the view frame.
- **Name.** Used only if the type of the frame is *page*. In this situation, you can use this attribute to define a name for the frame. For other frame types, the Siebel Web Engine generates consistent names for the frame.

### Nested Framesets

The Siebel Web Engine supports nested framesets. In this situation the swe:frame tag contains a swe:frameset tag, and the *type* attribute of the outer swe:frame tag is *page*.

### Example Frameset Code from a Container Page

The following swe:frameset code is from the CCPageContainer.swt container page:

```
<swe:frameset htmlAttr="rows='60,21,25,*' border='0' frameborder='No'">

   <swe:frame type="Page" htmlAttr="marginheight='0' marginwidth='0'noresize
   scrolling='No'">

      <swe:include file="CCFrameBanner.swt"/>

   </swe:frame>

   <swe:frame type="Screenbar" htmlAttr="marginheight='0' marginwidth='0' noresize
   scrolling='No'">

      <swe:include file="CCFrameScreenbar.swt"/>

   </swe:frame>

   <swe:frame type="Viewbar" htmlAttr="marginheight='0' marginwidth='0' noresize
   scrolling='No'">

      <swe:include file="CCFrameViewbar.swt"/>

   </swe:frame>

   <swe:frame type="View" htmlAttr="marginheight='0' marginwidth='0' noresize
   scrolling='Auto'">

      <swe:current-view/>

   </swe:frame>

</swe:frameset>
```

# About View Web Templates

Siebel CRM uses the view web template object type to associate a view web template with a view. A view web template uses the swe:applet tag to define placeholders for applets. You can use the Web Layout Editor to map a specific applet to each placeholder.

### Example Code of a View Web Template

The following is code is from an example view web template:

```
<!-- Template Start: CCViewBasic.swt -->

<!------------ Page Title ------------->
```

```
<title>
<swe:this property="Title"/>
</title>
<!----------- Salutation applet and Search Applet, table 3.1 ------>
<table border="0" cellspacing="0" cellpadding="1" width="100%">
   <tr>
      <td width="66%"><swe:applet id="101"/> </td>
      <td width="33%"><swe:applet id="201"/> </td>
</tr>
</table>
<!-------- End Salutation applet and Search Applet, table 3.1 ------>
<!------------ Regular Applet(s) ---->
<swe:for-each count=5 iteratorName="currentId" startValue="1">
   <swe:applet id="swe:currentId"/>
</swe:for-each>
<!------------ Special Applet(s) ---->
<swe:for-each count=3 iteratorName="currentId" startValue="11">
   <swe:applet id="swe:currentId"/>
</swe:for-each>
<!-- Template End: CCViewBasic.swt -->
```

## Applet ID Tags

Each *swe:applet id=x* tag is a placeholder that determines the location for an applet in the view web template. To display different views, you can map applets that currently exist in the view to placeholders in this same view web template. View web templates that come predefined with Siebel CRM include the following swe:applet tags:

- **Tags with IDs of 101 and 201.** Displays the salutation and search applets that Siebel CRM displays at the top of the views.
- **Tags with IDs 1 through 10.** Displays the main applets in the view.
- **Tags with IDs that begin with 11.** Displays special applets that Siebel CRM displays at the bottom of some views.

# About HTML Frames in a View Web Template

To display applets in a view, you can use HTML frames in view web templates and create a frame definition document. The Siebel Web Engine refreshes these frames only if one or more of the applets that are contained in a frame includes new data.

The following situations require HTML frames in the content area of a view web template:

- If a tree applet occupies a frame on the left and the corresponding list applet occupies the frame on the right in an explorer view.
- If the user performs a search. Siebel CRM requires a search frame and a results frame in the right portion of the content area.

For more information, see "Guidelines for Naming a Siebel Web Template" on page 182.

## Example Code for Using HTML Frames in a View Web Template

The following is an example of code that uses HTML frames in a view web template:

```
<!-- CCView_33_66_Frame.swt start -->

<swe:frameset htmlAttr="cols='33%,66%'' border='1' frameborder='Yes'">

<!-- Column 1 Applets -->

<swe:frame type="Applet" htmlAttr="marginheight='0' margin width='0'
scrolling='Auto'">

<swe:for-each count=10 iteratorName="currentId" startValue="101">

   <swe:applet id="swe:currentId" hintText="Applet" var="Parent">

      <!--start applet-->

      <swe:this property="FormattedHtml"/>

      <!--end applet-->

   </swe:applet>

</swe:for-each>

</swe:frame>

<!-- Column 2 Applets -->

<swe:frame type="Applet" htmlAttr="marginheight='0' marginwidth='0'
scrolling='Auto'">

<swe:for-each count=10 iteratorName="currentId" startValue="201">

   <swe:applet id="swe:currentId" hintText="Applet" var="Parent">

      <!--start applet-->

      <swe:this property="FormattedHtml"/>
```

```
        <!--end applet-->
    </swe:applet>
</swe:for-each>
</swe:frame>
</swe:frameset>
<!-- CCView_33_66_Frame.swt end --> </HTML>
```

# About Applet Web Templates

This topic describes applet Web templates. It includes the following topics:



## Overview of Applet Web Templates

An *applet web template* is a type of Siebel web template that provides you with a way to define multiple templates for a single applet, where each template file is associated with one or more modes. The applet web template is a child of the applet. For more information, see "About the Form Applet and List Applet" on page 113 and "Adding a Web Template to an Applet" on page 354.

Table 27 describes properties of the applet web template.

Table 27. Properties of an Applet Web Template

| Property | Description |
|---|---|
| Type | Indicates the edit mode that the applet template supports, such as Edit or New. For more information, see "Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data" on page 118. |
| Web template | Provides the name of the Web Template used for that mode. |

The applet web template item defines the mappings that exist between controls and list columns to placeholders in the web template file. The applet web template item is a child of the parent applet web template.

Table 27 describes properties of the applet web template item.

Table 28. Properties of an Applet Web Template Item

| Property | Description |
|---|---|
| Name | Name of the applet web template item, which is typically the same as the Control property. |
| Control | Name of the control as Siebel CRM displays it in the Siebel client. |
| Item Identifier | A unique numeric identifier for each control that Siebel Tools generates in the layout editor. Siebel CRM uses the value in the markup language tag that specifies the corresponding control in a template. It binds the control to a specific position on the page. |
| Type | Indicates the type of control that the applet web template item defines. You can choose one of the following values:<br>■ Control<br>■ List Item<br>■ Web Control |

## About Grid Form Applet Templates

A grid template simplifies the task of creating the layout of a form applet. If you use a grid layout template, then you use a graphic interface that includes objects that you drag and drop from a palette to a work space. The grid layout applet web template, Siebel tag, and other features in the Web Layout Editor allow you to modify the layout of a form without directly modifying the underlying applet web template. For more information, see “Using Grid Layout for an Applet” on page 322.

You can do the following with an applet web template that uses a grid. You cannot perform these tasks with an applet web template that does not use a grid:

- Use Siebel Tools to modify the layout of the form without having to directly modify the web template.
- Place labels and controls independently in the applet layout. Although, labels and controls are a single object in the Siebel repository with one set of shared properties, you can manipulate them as separate items in the Web Layout Editor.
- A template that uses a grid does not automatically compress empty space in a column.

A grid layout applet web templates uses the following Siebel tags:

- swe:form-applet-layout
- /swe:form-applet-layout

These tags do not use placeholder tags. Instead they serve as a single container for all controls in the main body of a form applet. These tags allow you to use the Web Layout Editor to configure the layout of form applets. You must use the Web Layout Editor to modify the layout of an applet that uses a grid applet web template.

### About the Body, Header, and Footer

A grid layout applet web template includes a body, header, and footer:

- The swe:form-applet-layout tag defines the body. It contains no placeholder tags.
- The header and footer do use placeholder tags for buttons, such as New and Save. You cannot use the grid layout features of the Web Layout editor to edit the layout of the header or footer.

## About Nongrid Form Applet Templates

Predefined applet web templates that do not use a grid use placeholder tags to define the layout of the applet. You can use the Web Layout Editor in Siebel Tools to map controls to any available placeholder. You cannot use the Web Layout Editor to change the layout of the placeholders themselves. You must modify the applet web template file to change the layout of the placeholders that Siebel CRM displays in these templates.

Siebel CRM can display a form applet in any of the following modes:

- Base
- Edit
- New
- Query

### Example Code of a Nongrid Form Applet Template

This topic includes example code of a nongrid form applet template. It can run in Edit, New, and Query modes. An applet that runs in Base mode is similar except it does not contain the swe:form tag. For more information, see "Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data" on page 118.

```
<swe:control id="1100">
  <div class=CmdTxt>
     <swe:this property="FormattedHtml" hintText="Outside Applet Help Text"/>
  </div>
</swe:control>
<table class="AppletStyle1" width="100%" align="center">
  <swe:form>
     <tr>
        <td colspan="2">
        <swe:include file="CCTitle.swt"/>
        </td>
```

```
    </tr>
    <tr>
       <td>
       <swe:error>
       <swe:this property="FormattedHtml"/>
       </swe:error>
       </td>
    </tr>
  <swe:for-each startValue="1301" count="10" iteratorName="currentId">
  <swe:control id="swe:currentId" hintMapType="FormItem">
    <tr valign="top">
       <td class="scLabelRight"> 
       <swe:this property="RequiredIndicator"
       hintText="Required"/>
       <swe:this property="DisplayName" hintText="Label"/>
       </td>
       <td class="scField">
       <swe:this property="FormattedHtml" hintText="Field"/> 
       </td>
    </tr>
  </swe:control>
</swe:for-each>
</swe:form>
</table>
```

## Tags Included in a Nongrid Form Applet Template

This topic describes the important tags included in a nongrid form applet template.

### SWE Tag That Accepts User Input

The swe:form tag encloses a section of a page that accepts user input. It is similar to an HTML *form* tag. This tag includes the following important attributes:

- **htmlAttr.** Must include valid attributes of the HTML *form* tag other than method, name, or action. Siebel CRM uses these attributes in the same way it uses the HTML *form* tag that it generates.
- **name.** Creates an HTML form with the defined name. If the name attribute is not defined, then Siebel CRM uses an internally generated name.

### SWE Tag That Specifies Placeholders for Controls

The swe:control tag specifies placeholders for controls. This tag includes the following important attributes:

- **Id.** References the control for the placeholder.
- **Property.** Specifies the property of the control to render. This attribute includes the following important values that are relevant for a form applet:
  - **FormattedHTML.** Instructs Siebel CRM to render the data value of the control.
  - **DisplayName.** Corresponds to the Caption property.
  - **RequiredIndicator.** Instructs Siebel CRM to render specific HTML if the underlying business component field is required.

### SWE Tag That Handles Errors

For more information, see "Customizing How Siebel CRM Displays an Error That Occurs on the Siebel Server" on page 526.

## About List Applet Templates

Information in this topic is presented in terms of if the user can or cannot edit information that Siebel CRM displays in an applet, which the Edit List mode controls. For more information, see "Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data" on page 118.

### Example Code of a List Applet Template

The following is example code of a list applet template:

```
<table width="100%" cellspacing="0" cellpadding="0" border="0" align="center">

<swe:form>

 ...

<swe:list>

<!-- List Header Section Start>

 <swe:control id="147">

    <td class="Header" align="center">
```

```
    <swe:this property="DisplayName"/>
    </td>
  </swe:control>
  <swe:select-row>
    <td width="42" align="center" class="Header"> 
    </td>
  </swe:select-row>
<swe:for-each startValue="501" count="20" iteratorName="currentId">
  <swe:control id="swe:currentId">
    <td align="swe:this.TextAlignment" class="Header">
    <swe:this property="ListHeader"/>
    </td>
  </swe:control>
</swe:for-each>
  <swe:control id="142">
    <td class="Header" align="center">
    <swe:this property="DisplayName"/>
    </td>
  </swe:control>
<!-- List Header Section End>
<!------------ Loop for all 7 records, List Body ------------>
<swe:for-each-row count="7">
<tr class="swe:this.RowStyle">
  <swe:control id="147">
    <td width="42" align="center" class="Row">
    <swe:this property="FormattedHtml" hintMapType="Control"/>
    </td>
  </swe:control>
  <swe:select-row>
    <td width="42" align="center" class="Row">
```

```
      <swe:this property="FormattedHtml" />
      </td>
  </swe:select-row>
<!-- ---------- List Field Values (501-520) ------------->
<swe:for-each startValue="501" count="40" iteratorName="currentId">
  <swe:control id="swe:currentId">
      <td align="swe:this.TextAlignment" class="Row">
      <swe:this property="FormattedHtml"
      hintText="Field"/>
      </td>
  </swe:control>
</swe:for-each>
<!-- ---------- Per-record Control Buttons ------------->
  <swe:control id="142">
      <td align="center" class="Row">
      <swe:this property="FormattedHtml" hintMapType="Control"/>
      </td>
  </swe:control>
</tr>
</swe:for-each-row>
<!-- ---------- End Loop, List Body ------------->
</swe:list>
  ...
</swe:form>
</table>
```

## Tags Included in a List Applet Template

This topic describes important tags included in a list applet template.

### SWE Tag That Encloses an Editable Section

The swe:form tag encloses an editable section. You use it for an editable list applet.

### SWE Tag That Encloses the List Header and Body

The swe:list tag encloses the section of the template that contains the list header and body. For a Siebel application that uses high interactivity, Siebel CRM replaces the section between the start and end of the swe:list tags with the specialized list control that supports certain capabilities, such as resizing columns. Siebel CRM ignores this tag for standard interactivity applications. For more information, see "About Standard Interactivity and High Interactivity" on page 36.

### SWE Tag That Defines a Placeholder for a List Column

The swe:control tag defines a placeholder for a list column. It includes the Property attribute, which specifies the property of the control to render. This attribute includes the following important values that are relevant for a list applet:

- **FormattedHTML.** Instructs Siebel CRM to render the data value of the control.
- **DisplayName.** Corresponds to the Caption property.

You can use some properties of a list column to control the attributes of an HTML element that the swe:control tag contains. For example, you can use the following code to set the align attribute of a TD tag to equal the Text Alignment property of the enclosing list column:

```
<td align="swe:this.TextAlignment">
```

### SWE Tag That Allows the User to Choose Rows

The swe:select-row tag renders check boxes that allow the user to choose multiple rows. For more information, see "Allowing the User to Choose Multiple Rows in Standard Interactivity" on page 364.

### SWE Tag That Repeats for Each List Row

The swe:for-each-row tag encloses the section of the template that Siebel CRM repeats for each list row.

# About Tree Applet Templates

This topic describes the tree applet template. For more information, see "Customizing a Tree Applet" on page 409.

## How Siebel CRM Builds and Displays a Tree Applet

To display a tree, Siebel CRM iterates through each item of the tree in a top-down, depth-first fashion, and displays one item at a time. Siebel CRM defines this behavior in the swe:for-each-node tag.

Siebel CRM uses the swe:for-each-indent tag to indent each tree item. It uses this tag to do the following:

- Place the text in the correct indent level relative to the root.
- Display the expand icon, collapse icon, the text of the item, and the links.

Siebel CRM uses a series of GIF images to accomplish the indentation, or white spaces if in text-only mode. Siebel CRM uses images to display the expand icon and collapse icon, or text if in text-only mode. The swe:indent-img tag defines these objects. Siebel CRM displays, as part of the view, the list applet that is associated with the currently chosen tree node. For more information, see "Customizing Icons in a Tree Applet" on page 516.

## Example Code of a Tree Applet Template

In this example, if the user clicks or expands a tree, then the swe:applet-tree-list tag provides a placeholder for a list applet that Siebel CRM displays. The applet that Siebel CRM renders depends on the node that is currently chosen.

The following is example code of a tree applet template:

```
<!--View with tree applet on the left and list applet on the right-->
<table border="0" cellspacing="0" cellpadding="1" width="100%">
 <tr>
    <!-- Begin Tree Applet -->
    <td>
       <swe:applet id="1" hintText="Tree Applet"/>
    </td>
    <!-- Begin List Applet -->
    <td>
       <swe:applet-tree-list/>
    </td>
 </tr>
</table>
```

## Example Code of a Tree Applet Template That Displays the Tree in a Single Column

In this example, Siebel CRM ignores the following items:

- For tree items, ignores the swe:node tag that includes a DisplayName type
- For tree nodes, ignores the swe:node tag that includes a FieldValue type

The following example code of a tree applet template displays the tree in a single column:

```
<TABLE BORDER=0 CELLPADDING=0 CELLSPACING=0>
 <TBODY>
    <swe:for-each-node>
```

```
      <TR VALIGN=top>
      <TD NOWRAP>
      <swe:for-each-indent>
         <swe:indent-img/>
      </swe:for-each-indent>
      <swe:node type="DisplayName">
         <swe:this property="FormattedHtml"/>
      </swe:node>
      <swe:node type="FieldValue">
         <swe:this property="FormattedHtml"/>
      </swe:node>
      </TD>
      </TR>
      </swe:for-each-node>
   </TBODY>
</TABLE>
```

## Tags That Siebel CRM Includes in a Tree Applet Template

This topic describes important tags that Siebel CRM includes in a tree applet template.

### SWE Tag That Displays Tree Nodes and Field Values

Siebel CRM uses the swe:for-each-node tag to display tree nodes and field values. It iterates through each visible item in the tree control in a top-down, depth-first fashion.

The attributes are optional. If the Count attribute is not defined, then the tag iterates over all nodes in the tree. The swe:for-each-node tag includes the following attributes:

- **Count.** Specifies the number of times the tag iterates through content. If you require a specific tree format, then you use can use this attribute.
- **StartValue.** The value at which the iteration starts. To start the iteration, the tag assigns this value to an internal iterator, and then increments it by one for each iteration.

### SWE Tag That Indents Tree Items

Siebel CRM uses the swe:for-each-indent to indent tree items. It iterates through each level of a tree item. The swe:for-each-indent tag does not include any attributes.

### SWE Tag That Provides a Placeholder for a GIF Image

Siebel CRM uses the swe:indent-img as a placeholder for a GIF image that corresponds to the indent level for the tree item that the user chooses in the Siebel client. At each level, the Siebel Web Engine uses in the swe:indent-img tag to determine which GIF file to use. The GIF image can include an empty space or a vertical bar. The swe:indent-img tag does not include any attributes.

### SWE Tag That Provides a Placeholder for a Tree Item

Siebel CRM uses the swe:node as a placeholder for tree item. A tree item can be a repository tree node or a field value. Note the following:

- If the tree item is a tree node, then Siebel CRM displays the display name.
- If the tree item is not a tree node, then Siebel CRM generates a field value.

The expand icon, collapse icon, and links are parts of a tree item. Depending on the configuration file settings, Siebel CRM displays the expand icon or collapse icon as a GIF image or text. Siebel CRM only displays the expand icon or collapse for a tree item that contain child items. The following links are associated with each item:

- A link for the expand icon and collapse icon that allows the user to expand or collapse the item
- A link for the item image that allows the user to choose the item or to navigate to next or previous workset

Choosing an item allows the user to access the list applet that is associated with the tree node. The swe:node tag must use the swe:this tag as a child tag.

The swe:node tag includes the *type* attribute. This attribute can include the following values:

- **DisplayName.** Displays the Display Name of the tree node.
- **FieldValue.** Displays a field value.

## About Chart Applet Templates

A chart applet template contains several swe:control tags that map the chart control and other controls that switch between different chart types. The Id for the chart control in a predefined Siebel application is 599. For more information, see “Customizing a Chart Applet” on page 379.

### Example Code of a Chart Applet Template

The following code is an example of a chart applet template:

```
<table width="98%" cellspacing="0" cellpadding="0" border="0" align="center">

<swe:form>

  ...

<table width="100%" valign="top" align="center">

  <swe:togglebar type="Select">
```

```
  <tr>
     <td>
        <swe:control id="2" property="DisplayName" />
     </td>
     <td>
        <swe:this property="FormattedHtml"/>
     </td>
  </tr>
  </swe:togglebar>
</table>
  ...
<table class="AppletBack" width="100%" border="0">
  <tr>
     <td align="center">
        <swe:control id="599" property="FormattedHtml" hintText="Chart"/>
     </td>
  </tr>
</table>
  ...
</swe:form>
</table>
```

## About Catalog List Applets and Rich List Templates

Catalog list applets and rich list templates support a layout that is similar to a catalog. Siebel CRM displays these catalogs in views that reference applets that maintain a parent and child relationship. You can display records from the parent applet and the child applet so that they are interwoven with each other.

## Example of an Applet That Interweaves Records

Figure 32 illustrates an example of an applet that interweaves records.


Figure 32. Example of an Applet That Interweaves Records

Note how Siebel CRM interweaves records in this example:

- The parent applet provides data for the bullet items under Portable Music.
- The child applet provides data for values that Siebel CRM displays below Portable Music.

To create this layout, the parent and child applets are list applets. The parent applet is a root level applet. You can use more than one root level applet to display more than one set of parent-child relationships in a view.

### The Position Property Defines Relationships Between Applets

The Position property of the view web template item defines the relationship between the applets. It works similarly to the Position property of the tree node. The root level applets contain position values, such as 1, 2, and so forth. You assign the immediate child applets of the applet with position 1 with position values 1.1, 1.2, and so forth. You can define third level applets with position 1.1.1, 1.1.2, and so forth. These third level applets are child applets of the applet with position 1.1. For more information, see “Defining the Position Property of a Tree Node” on page 416.

## Tags That Define the Layout for Nonroot Applets

This topic describes tags that define the layout for nonroot applets layout. Siebel CRM only supports applets in the base mode in this layout. Note the following:

- If the Applet property in the view web template item references a root applet, then Siebel CRM maps this applet to a swe:applet tag in the view web template.
- If the Applet property in the view web template item references a nonroot applet, then Siebel CRM does not assign an Id value to this applet. Siebel CRM does not define the layout of these nonroot applets in the view web template. It defines them in the applet template of the root level applets.

### SWE Tag That Iterates Through Each Child Applet

The swe:for-each-child tag iterates through each of the child applets defined for the applet, as determined by the Item Identifier property of the view web template item of the view that the applet references. You can use this tag only in the base template of an applet. If the applet does not include any child applets, then Siebel CRM skips this tag.

The swe:for-each-child tag uses the following format:

```
<swe:for-each-child> ... </swe:for-each-child>
```

### SWE Tag That Places the Child Applet in the Parent Applet

The swe:child-applet tag places the child applet in the parent applet. Siebel CRM uses the base template of the child applet to render the child applet at the location where you place this tag.

The swe:child-applet tag uses the following format:

```
<swe:child-applet/>
```

## Example of a Parent-Child Applet Relationship

This topic describes the following example parent-child applet relationship:

- The parent applet is Category Items List Applet
- The child applet is Sub Category Items List Applet

Table 29 describes the properties of the view web template item in the view that references these applets.

Table 29. Properties of the View Web Template Item

| Item Identifier | Applet | Applet Mode | Position |
|---|---|---|---|
| 100 | Category Items List Applet | Base | 1 |
| 101 | Sub Category Items List Applet | Base | 1.1 |

### Code That Defines the Table for the Base Template

The following code defines the table for the base template of the Category Items List Applet:

```
<table>
<swe:for-each-row>
<tr>
 <td>
    <swe:control id = "5001" /> <!-- field value like "Small Business" -->
 </td>
 <td>
```

```
      <swe:for-each-child>
         <swe:child-applet> <!-- Show the child applet -->
      </swe:for-each-child>
    </td>
  </tr>
  </swe:for-each-row>
  </table>
```

### Code That Resides in the Base Template

The following code resides in the base template for the Sub Category Items List Applet:

```
  <table><tr>
  <swe:for-each-row>
    <td>
      <swe:control id="5001"/> <!-- field value like "Desktop" -->
    </td>
  </swe:for-each-row>
  </tr></table>
```

**NOTE:** Set the HTML Number of Rows property of the Sub Category Items List Applet to the number of values you must display under each category value. To allow the user to drilldown from the category and subcategory values, you must configure the appropriate drilldown objects.

# About Siebel Tags

This topic describes Siebel tags. It includes the following topics:



For more information, see “Siebel Tag” on page 24.

# Overview of How Siebel CRM Uses Siebel Tags

Siebel CRM maps a Siebel object to an Id in a web template. The Siebel Web template files do not include references to specific controls in the Siebel repository. Instead, it includes placeholder tags that define layout and style. The following is an example of a Siebel tag that places a web page item in a web page:

```
<swe:Control id="1" property="FormattedHtml"/>
```

Other Siebel tags place other items in a web page, such as view bars, applets, or controls.

To process this tag and generate the final HTML, the Siebel Web Engine does the following:

1. For the current web page, examines the compiled SRF file for web page item whose Item Identifier property is equal to 1. This is the mapping between the template file object and the repository object.
2. To replace the placeholder in the template file, renders the Formatted HTML representation of this repository object.

Figure 33 illustrates how the mapping between controls and IDs work to display an image as a link to add a new contact. The HREF is likely different in your implementation. If you create the correct controls and template mappings, then the Siebel Web Engine constructs a URL in the HREF that executes the NewRecord method in the correct context.

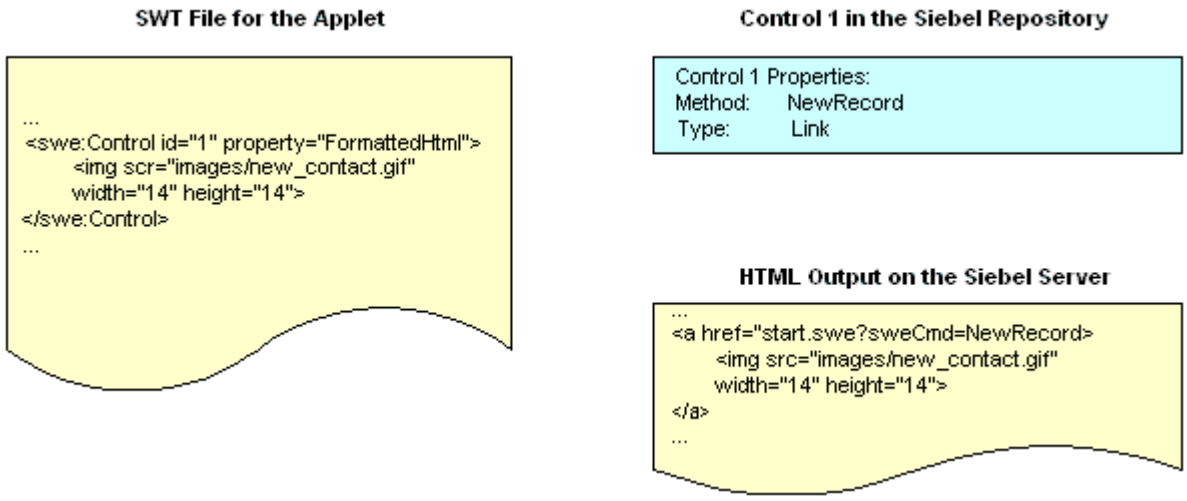



Figure 33. Example of Mappings Between Controls and IDs

## Siebel Tag Usage in an HTML Tag

You cannot nest a Siebel tag in an HTML tag. For example, the following code is not valid. It generates an error:

```
<img src="<swe:control id="1"/>">
```

Also, you cannot nest some Siebel tags. For example, the following is not valid. It generates an error:

```
<swe:control id="1">
   <swe:control id="2" property="formattedHTML"/>
   <swe:this property="formattedHTML"/>
   </swe:control>
</swe:control>
```

# About Singleton, Multipart, and *This* Tags

This topic describes singleton, multipart, and *this* tags.

## About Singleton Tags and Multipart Tags

Because the *singleton* tag and *multipart* tag are part of the basic vocabulary of SGML (Standard Generalized Markup Language), they are only described in this topic to introduce the concepts and terminology as they pertain to Siebel CRM, which uses singleton and multipart tags in the typical way.

A *singleton* element is a tag that includes a slash that indicates the end of the tag. It occurs in the same tag as the tag name. A singleton tag does not include child elements. The following is an example of a singleton tag:

```
<swe:pageitem name="value"/>
```

The following is an example of a multipart tag. It does not include a slash at the end of the tag:

```
<swe:control id="1" property="formattedHTML">
   ...HTML here...
</swe:control>
```

## About the *This* Tag

A *this* tag is a type of Siebel tag you can use if you must use a multipart tag but reference the control that the Siebel Web Engine generates at a location other than at the beginning or end of the tag. The following is an example of a *this* tag:

```
<swe:control id="1">
   ...HTML here...
   <swe:this property="formattedHTML"/>
</swe:control>
```

The swe:this tag is an alias for the nearest enclosing Siebel context. You can enclose the swe:xxx element to establish this context. For example, Siebel CRM commonly includes the swe:this tag in a multipart swe:control element. In this situation, the swe:this tag is an alias for the control. You use it to display properties of the control. In some situations, the context is less direct. For example, if Siebel CRM includes a swe:this element in an applet template file, and if the swe:this tag is not in any swe:control tag, then it is an alias for the applet and you can use it to display properties of the applet.

## About Iterator Tags

An *iterator tag* is a type of Siebel tag that defines the number of times the tag must iterate the contents of the iterator tag. For example, if you use the same HTML and Siebel tags with controls or page items that contain different values for the Id parameter, then you can use the following swe:for-each tag to reduce the size of the template files:

```
<swe:for-each count="x" iteratorName="yyyy" startValue="z"/>
```

You can use the following iterator tags:

- swe:for-each
- swe:for-each-row
- swe:for-each-child
- swe:for-each-node
- swe:for-each-indent
- swe:for-each-value

The swe:for-each tag includes the following attributes:

- **count.** Specifies the number of times the swe:for-each tag must iterate the contents of the swe:for-each tag.
- **startValue.** The value assigned to the iterator at the start of the iteration. The tag assigns this value to the iterator to start the iteration. The tag increments the value by one for each iteration.
- **iteratorName.** The name of the iterator. You can use this name to get the value of the iterator during the iteration. You use the following format: swe:iteratorName.

### Determining the Current Value of the Iterator

The name defined in the iteratorName attribute determines the current value of the iterator. The section that the swe:for-each tag encloses includes this name.

#### *To determine the current value of the iterator*

- For example, if you set the value of the iteratorName attribute to CurrentID, then you can use the following format to get the value of the iterator:

```
swe:CurrentID
```

You can also use the swe:CurrentID+x tag to reference a value that is an increment over the current value. The following fragment illustrates this usage:

```
<swe:for-each startValue="2301" count="50" iteratorName="currentId">
  <swe:control id="swe:currentId">
  .
  .
  </swe:control>
  <swe:control id="swe:currentId+100" />
</swe:for-each>
```

# About Search and Find Tags

The Siebel client merges search, find, and query in a unified search model. This technique provides users with multiple ways to locate records. You can configure a template to display search and query features from an application menu and query features from an applet menu. You can use Siebel tags to render the Search and Find applet, and the Results applet.

## Search and Find Applet Tags

You can use the following search and find tags to customize how Siebel CRM displays basic search, advanced search, or find in an applet:

- swe:srchCategoryList
- swe:srchCategory
- swe:srchCategoryText
- swe:srchCategoryControl

### Example Code for Search and Find Applet Tags

The following code is an example of using search and find applet tags:

```
<swe:srchCateogryList>
   <swe:srchCategory>
      <td><swe:srchCategoryText/></td>
      <td><swe:srchCategoryControl/></td>
   </swe:srchCategory>
</swe:srchCategoryList>
```

## Search Result Applet Tags

You can use the following search results tags to display search and find results in a list applet:

- swe:srchResultFieldList
- swe:srchResultField
- swe:this

Siebel CRM displays search results tags in the Search_ListBodySearchResults.swt template.

### Example Code for Search Result Applet Tags

The following code is an example of using search result applet tags:

```
<swe:srchResultFieldList>

   <swe:srchResultField><td align="swe:this.TextAlignment" class="Row"><swe:this
   property="FormattedHtml"/> </td>

   </swe:srchResultField>

</swe:srchResultFieldList>
```

## Summary of Search, Find, and Search Result Tags

Table 30 describes search, find, and search result tags.

Table 30. Summary of Search, Find, and Search Result Tags

| Tag Name | Description |
|---|---|
| swe:srchCategoryList | Search tag that is an iterator that encloses all the search categories that must be displayed. It establishes context and encloses the following tags:<br>■ swe:srchCategory<br>■ swe:srchCategoryText<br>■ swe:srchCategoryControl<br>It uses the following format:<br><swe:srchCategoryList> … </swe:srchCategoryList> |
| swe:srchCategory | Search tag that represents a search category object. It encloses the following tags:<br>■ swe:srchCategoryText<br>■ swe:srchCategoryControl<br>It uses the following format:<br><swe:srchCategory> … </swe:srchCategory> |

Table 30. Summary of Search, Find, and Search Result Tags

| Tag Name | Description |
|---|---|
| swe:srchCategoryControl | Search tag that displays the control of the search category. It is a check box in advanced search. It must be called in the context of a srchCategory tag.<br>It uses the following format:<br>`<swe:srchCategoryControl/>` |
| swe:srchCategoryText | Search tag that displays the display name of the search category. It must be called in the context of the srchCategory tag.<br>It uses the following format:<br>`<swe:srchCategoryText/>` |
| swe:srchResultFieldList | Search result tag that is an iterator. It encloses all the search result fields that are defined in the SRF file in a search engine object type. Siebel CRM creates result fields dynamically in the business component and then displays them in the applet.<br>This tag establishes a context and encloses the following tags:<br>■ swe:srchResultField<br>■ swe:this<br>It uses the following format:<br>`<swe:srchResultFieldList> … </swe:srchResultFieldList>` |
| swe:srchResultField | Search result tag that represents a result field object. Siebel CRM must call it in the context of the srchResultFieldList tag. It encloses the swe:this tag.<br>It uses the following format:<br>`<swe:srchResultField> … </swe:srchResultField>` |
| swe:this | A search result tag. Depending on the value of the property attribute, it does one of the following:<br>■ **Property is TextAlignment.** Retrieves the text alignment property for the result field from the *Search Definition - Custom result Field* object.<br>■ **Property is FormattedHtml.** Retrieves the value for the current result field from the results that Siebel CRM obtains when it executes the search on the search adapter.<br>It uses the following format:<br>`<swe:this/>` |

# About Siebel Conditional Tags

This topic describes Siebel Web Engine conditional tags. For more information, see *Siebel Developer's Reference*.

## If Conditional Tag

The swe:if tag provides a simple conditional branching capability. It uses the following format:

```
<swe:if condition="xxx"> ... </swe:if>
```

The swe:if tag includes the Condition attribute**.** Siebel CRM does the following:

- If the condition is TRUE, then Siebel CRM processes the body of the swe:if tag.
- If the condition is FALSE, then Siebel CRM skips the body of the swe:if tag.

The swe:if tag does not provide an *else* capability. To implement an *else* condition, use some combination of the swe:switch, swe:case, and swe:default tags.

## Switch, Case, and Default Conditional Tags

If used together, then the following tags provide a conditional branching capability that is similar to the switch, case, and default statements in JavaScript:

- swe:switch
- swe:case
- swe:default

The swe:switch tag is a container tag for the swe:case and swe:default tags.

### Format for the Switch, Case, and Default Conditional Tags

The swe:switch, swe:case, and swe:default tags use the following format:

```
<swe:switch>
<swe:case condition="xxx">
   ...
</swe:case>
<swe:case condition="yyy">
   ...
</swe:case>
<swe:default>
   ...
</swe:default>
```

```
</swe:switch>
```

### Attributes for the Switch, Case, and Default Conditional Tags

The swe:case tag includes the Condition attribute**.** The swe:switch and swe:default tags include no attributes. To process these tags, Siebel CRM does the following:

- Ignores any tags in the body of the swe:switch tag that are not the swe:case tag or swe:default tag.
- Examines the swe:case tags, starting with the first swe:case tag, and then does one of the following:
  - If any of the swe:case tags satisfies the condition, then Siebel CRM skips any other swe:case tags and swe:default tags and processes the body of the swe:case tag that satisfied the condition.
  - If none of the swe:case tags satisfy their conditions, then Siebel CRM processes the body of the swe:default tag. You must make sure that the body of a swe:switch tag contains only a swe:default tag.

## Variable Conditional Tag

An applet template includes the swe:if-var tag. It conditionally express the body of the swe:if-var tag as determined by a variable that is set in a parent view web template. For the purposes of the swe:if-var tag, if an applet is associated with a view, then the web template in the applet acts as a child of the view web template.

The applet placeholder in the view web template must define a variable that the swe:if-var tag in the child applet template can evaluate.

The expression in the swe:if-var tag returns a value of true or false depending on if the variable it evaluates is or is not a property of the swe:applet tag in the corresponding view web template. You can use this technique to conditionally display parts of an applet depending on the position of the part in a view.

Figure 34 illustrates object relationships that Siebel CRM uses with the variable conditional tag.

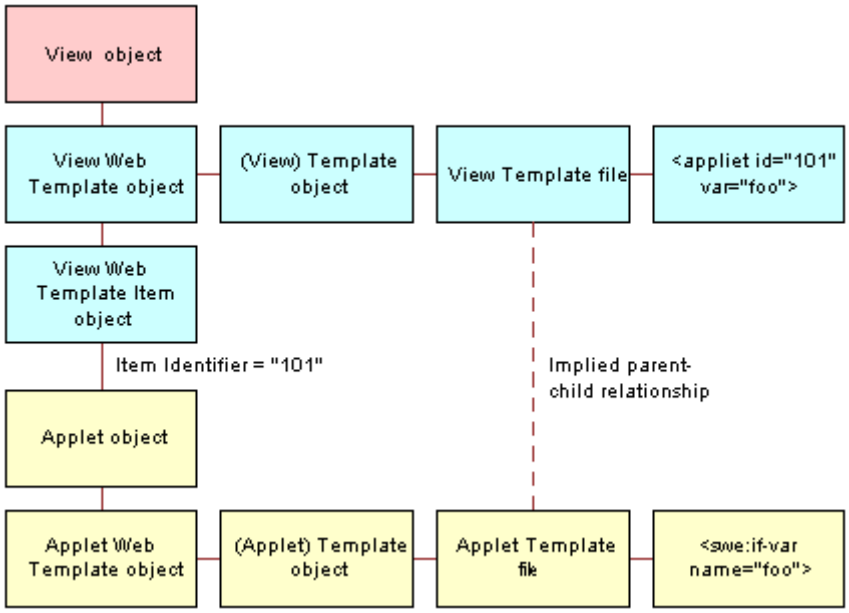



Figure 34. Object Relationships Siebel CRM Uses with the Variable Conditional Tag

### Example Code That Uses the Variable Conditional Tag

In this example, a view uses a template that contains the following tags:

```
<swe:applet hintMapType="Applet" id="1" property="FormattedHtml"  hintText="Applet"
var="Parent"/>

<swe:applet hintMapType="Applet" id="2"  property="FormattedHtml"
hintText="Applet" var="Child"/>
```

The view object references an applet through a view web template item. The template for this applet includes the following tags:

```
<swe:if-var name="Parent">

   <td valign="middle" nowrap>

      <swe:menu type="Button" bitmap="MenuBttn" width="38" height="15"
      bgcolor="gray" fgcolor="blue"/>

   </td>

</swe:if-var>

<swe:if-var name="Child">

   <td valign="middle" nowrap>

      <swe:menu type="Button" bitmap="MenuBttn" width="38" height="15"
      bgcolor="gray" fgcolor="red"/>
```

```
        </td>
    </swe:if-var>
```

If you drag and drop the applet into the placeholder in the view web template:

- And the applet Id for this placeholder is 1, then the first swe:if-var condition returns TRUE and the second condition returns FALSE. This is because the var property of the swe:applet placeholder that contains an Id of 1 is set to Parent. As a result, Siebel CRM displays the button menu with a blue foreground.
- And the applet Id for this placeholder is 2, then Siebel CRM displays the button menu with a red foreground.

# Guidelines for Configuring Siebel Web Templates and Siebel Tags

This topic describes guidelines for configuring Siebel web templates and Siebel tags.

## Guidelines for Naming a Siebel Web Template

The file name of a Siebel Web template uses the SWT extension. For example, CCPageContainer.swt, CCHomePageView.swt, and so forth. You are not required to use this format. The Siebel Web Engine recognizes and interprets the file correctly regardless of how you name it. However, it is recommended that you use swt for the file extension to help develop and maintain Siebel CRM. The swt extension provides you with a way to immediately recognize how Siebel CRM uses the file.

Siebel CRM typically stores Siebel Web template files in the Web Template directory in your Tools installation directory. The Filename property references the Web Template object type.

## Guidelines for Using Modes with Web Templates

In many situations, it is not necessary to use Base mode forms, which are read-only. You can use persistently editable forms because tasks often include data editing and input. This type of form improves usability because the user can enter data without having to click an edit button, and then wait for Siebel CRM to display the form in edit mode.

If an applet is in Edit mode in a view, as defined by the applet mode property of the view web template item, then Siebel CRM never displays this applet in Base mode. If the user updates the field values in this applet and then commits the change, then Siebel CRM continues to display the applet in this mode after Siebel CRM writes the changes to the Siebel database.

To display an applet in Query or New mode, you can call a method, such as NewQuery or NewRecord, on an applet that Siebel CRM displays in Edit mode. After Siebel CRM executes the query or writes the new record, Siebel CRM displays the applet in Edit mode.

For more information, see “Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data” on page 118.

## Guidelines for Using HTML Frames in a View Web Template

If you use HTML frames in a view web template, then use the following guidelines:

- You can only use frames in a view web template if Siebel CRM uses frames in the container page, and if there is a separate frame in the container page for the view.
- If you place an applet in a frame, then make sure that at least one swe:applet tag in the frame is mapped to an applet in the Siebel repository. Otherwise, empty frames will occur.
- If a *swe:frame* block contains a *swe:applet* tag, then set the type attribute of the tag to Applet.
- Do not group applets into separate frames in a view web template unless you require independent refresh or independent scrolling.

## Guidelines for Creating HTML Frames in a Container Page

Siebel CRM uses the container page template to create the frame definition document for the Siebel application. If you define HTML frames in a container page, then use the following guidelines:

- Use the swe:include tag to define the contents of a frame. You can place the contents directly into the body of the swe:frame tag.
- Make sure the contents of the swe:frame tag constitutes a complete HTML document. The contents must contain the required HTML document structure tags, such as html, head, body, and so forth. This requirement also applies to view web templates.
- If the type is view, then make sure the contents of the swe:frame tag contains only the *swe:current-view/* tag.

## Guidelines for Using Cascading Style Sheets

A cascading style defines qualities of user interface elements, such as color schemes and fonts. The following examples describe how you can use a cascading style sheet to modify the look and feel of the Siebel client:

- Display text in the font of your choice.
- Define the size of text in points, pixels, and other units.
- Customize color for images or background color.

Although you can configure Siebel web templates to use format tags, if you store style information in cascading style sheets rather than in Siebel web templates, then you can realize the following benefits:

- Increase the modularity of a Siebel application.
- Increase consistency of a Siebel application.
- Simplify modification and reuse of Siebel web templates.

Because Siebel CRM renders style information that is stored in a cascading style sheet slightly differently in different browsers, you must test your configuration in all browsers that your users use.

Cascading style sheet files are located in the following directories:

- The Siebel Server installation directory:

  *ORACLE_HOME*\WEBMASTER\files*language_code*

- The Siebel client installation directory:

  *ORACLE_HOME*\PUBLIC*language_code*\FILES

- The Siebel Tools installation directory:

  *ORACLE_HOME*\PUBLIC*language_code*\FILES

**NOTE:** If you apply a patch, then Siebel CRM might overwrite the CSS files. If this happens, then you must manually reenter the modifications you made to the cascading style sheets.

For more information, see "Cascading Style Sheet" on page 25 and *Siebel Developer's Reference*.

## Guidelines for Modifying a Predefined Query

If you modify a predefined query, then use the following guidelines:

- The swe:PDQbar tag defines the predefined query bar. It includes no parameters and can be located anywhere in Siebel CRM. The user chooses the query to be executed. You must explicitly define the following:
  - The swe:PDQBar tag
  - The Favorites label that Siebel CRM displays to the left of the swe:PDQBar tag.
- To allow translation in a localized or multilingual deployment, it is recommend that you define the favorites label as a control and not as HTML text.
- If Siebel CRM does not use HTML frames, then it is not necessary to place the swe:pdqbar tag in the view frame.
- If Siebel CRM uses HTML frames, then you must place the swe:pdqbar tag in the view frame or the view bar frame.

Consider the following requirements for standard interactivity and high interactivity:

- You can use a Siebel Web Engine tag to change the position of the predefined query bar in standard interactivity.
- You cannot place the predefined query bar in the view frame in high interactivity.
- You can align the predefined query bar in high interactivity.

For more information, see "About Standard Interactivity and High Interactivity" on page 36.

### Query Management Commands

A user can add a named query in the combo box. Siebel CRM accomplishes this through the query management commands that are available as invoke method calls through the class of the base applet. Siebel CRM makes these queries available to the user as menu items or toolbar buttons. Siebel CRM supports the following commands:

- **New.** SWEMthdNewQueryE. Places the applet in new query mode.

- **Refine.** SWEMthdRefineQueryE. Places the applet in query refinement mode.
- **Save.** SWEMthdSaveQueryE. Uses the current name of the query to save the current query.
- **Save As.** SWEMthdSaveQueryAsE. Displays a dialog box that allows the user to save the current query that uses a name that the user defines.
- **Delete.** SWEMthdDeleteQueryE. Displays a dialog box that allows the user to delete one of the queries.

**NOTE:** It is strongly recommended that you do not define an Edit button for the predefined query feature. Because the Edit button must call the Refine method, problems can arise if an Edit button exists in a multiview environment and there is no way to determine the active view.

# 9 Configuring a Siebel Application

This chapter provides an overview of configuring a Siebel application. It includes the following topics:



## About Configuring a Siebel Application

*Configuration* is the process of altering a predefined Siebel application to meet business requirements. This can range from making minor changes, such as adding text box controls and their underlying fields, to creating a new user interface or creating new business entities.

*Siebel Tools* is an integrated development environment that allows you to reconfigure and customize Siebel CRM. It is a software configuration toolset rather than a programming language. This toolset provides you with a way to create and modify object definitions and their properties so that you can develop and customize Siebel CRM.

Siebel CRM is built on object definitions that Siebel CRM executes when the user uses the Siebel client. You can modify these definitions. To create a completely new module, you can create new object definitions or modify predefined definitions. It is not necessary for you to write C++ program code, although you can write Siebel Visual Basic (Siebel VB), Siebel eScript, or browser script to supplement the programmatic logic of Siebel CRM. Note that Siebel Visual Basic and Siebel eScript run on the Siebel Server. Browser script runs on the client.

### Usage and Configuration of Non-Licensed Objects

The licensing agreement between Oracle and Oracle customers is such that customers are only entitled to use and configure Siebel objects that belong to modules they have purchased. Example objects include business components and tables. If Siebel CRM does not display a Siebel object in the licensed user interface through views that Siebel CRM displays according to your license key, then you are not entitled to use that object in a custom configuration. To display these tables, you can define new tables and define new business components and user interface objects.

## Roadmap for Configuring a Siebel Application

To configure a Siebel application, perform the following processes and tasks:

1 Developing an Implementation Plan on page 188

2 Setting Up the Development Environment on page 195

3 Process of Determining If You Can Reuse a Predefined Object on page 214

4 (Optional) Process of Creating and Binding an Entity Relationship Diagram on page 225

5 Configuring Tables on page 235

6 Configuring Views, Screens, and Applications on page 269

7 Customize various aspects of your Siebel application.

   You can customize certain aspects of your Siebel application. For more information, see the relevant chapter in this book. For example, see the following chapters:

   - Chapter 17, "Configuring Special-Purpose Applets"
   - Chapter 21, "Configuring Siebel Web Templates and Siebel Tags"
   - Chapter 26, "Localizing Siebel Business Applications"

8 Improving the Performance of Siebel Business Applications on page 545

This roadmap provides a general guideline to configure a Siebel application. The actual tasks you perform and the sequence in which you perform them varies significantly depending on your implementation requirements. For more information, see *Siebel Deployment Planning Guide* and *Developing and Deploying Siebel Business Applications*.

# Developing an Implementation Plan

This task is a step in "Roadmap for Configuring a Siebel Application" on page 187.

This topic includes the following topics:

- Developing a Configuration Strategy on page 189
- Developing a Plan to Control File Versions for the Physical User Interface Layer on page 190

### *To develop an implementation plan*

1 Perform a thorough business analysis that details the needs of your organization and users.

2 Acquire approval and commitments for time and resource from the relevant organizations.

   - Determine if a predefined Siebel application can or cannot meet the needs of your users.
   - If a predefined Siebel application cannot meet the needs of your users, determine what business needs require changes to the Siebel application.
   - Determine how you can assure success with your configured application.

3 Write design documents that include the following items:

   - The requirements that the configured application satisfies.
   - An entity relationship diagram (ERD) or text that describes the entity relationships. For more information, see "Using the Entity Relationship Designer" on page 223.

- The names and descriptions of the business objects and business components that Siebel CRM requires, and how they relate to one another.
- Screen flow diagrams and a list of fields to be displayed on each applet.
- The type of interactivity your implementation uses, and any plans that are required to implement it. For more information, see "About Standard Interactivity and High Interactivity" on page 36.
- (Conditional) How your implementation will use various Siebel technologies. For more information, see "About Siebel Technologies That Customize Siebel CRM Behavior" on page 41.
- A description of your development environment and process. For example:
  - Describe how the work is divided among participating developers.
  - Describe naming formats the development team must use. For more information, see "Guidelines for Naming an Object" on page 192.
  - Describe how file versions for the physical user interface layer are controlled. For more information, see "Developing a Plan to Control File Versions for the Physical User Interface Layer" on page 190
  - Describe how your organization will test and deploy Siebel CRM to users.
- The complete stepwise procedures your development and test team must follow to complete Siebel CRM configuration.

For more information, see "Developing a Configuration Strategy" on page 189.

4 Make sure the participating organizations and users review and approve the design.

## Developing a Configuration Strategy

The major goal of configuring Siebel CRM is to develop an application that meets the look, feel, and functional requirements of your organization and your users, and that is easy to maintain and upgrade.

### *To develop a configuration strategy*

1 Use the following guidelines in the plans for your configuration project:

- Make as few changes as possible.
- Use predefined Siebel application functionality. Never create a new object unless you cannot modify a predefined object to meet your requirements. If you follow this principle, then your Siebel application is much easier to maintain and upgrade to future Siebel product releases. For more information, see Chapter 10, "Reusing Predefined Objects."
- Standardize configuration development.
- Achieve acceptable system performance. For more information, see *Siebel Performance Tuning Guide*.

- Build a consistent and intuitive Siebel client. For example, if you create a new form applet, then make sure it uses the same general look and feel as other form applets in your Siebel application.

2 Plan Siebel CRM design starting at the top and working downward:

   a Design the user interface for the Siebel client.

   b Create the underlying business logic.

   c Create the data objects layer that is necessary to support your configuration.

3 Develop a plan to configure Siebel CRM starting at the bottom and working upward:

   a Modify objects at the data layer.

   b Modify objects at the business object layer.

   c Modify objects at the user interface layer.

   This technique helps you to make sure the correct values for all required object properties are available as options. For more information, see Figure 1 on page 23.

4 Use one of the following techniques to structure the development work:

- Assign the development role for a complete functional area to a single developer or group. This technique typically allows different groups to work in parallel.

  For example, one group or an individual person can develop a Web page and the logical business object definitions and data object definitions that are required to support the page.

- Assign a single developer or group to a specific architectural layer.

  This technique takes advantage of the specific expertise of developers. For example:

  - The RDBMS specialist defines extensions in the data objects layer.
  - The system architect defines the business object layer.
  - The user interface developer defines the user interface objects layer.

  **TIP:** Use a web template, which requires each group to complete some work before another group begins.

## Developing a Plan to Control File Versions for the Physical User Interface Layer

This topic describes how to manage modifications that your development team makes to the physical user interface. Because you do not configure the physical user interface layer in Siebel Tools, you cannot use the Siebel Tools check out and check in feature to manage web templates, JavaScript files, and style sheets, which are files that are part of the physical user interface layer. If multiple developers simultaneously modify these files, then follow the recommendations described in this topic. For more information, see "Overview of the Physical User Interface Layer" on page 24.

The description in this topic is appropriate for most projects. For more information, see "Getting Help from Oracle" on page 192.

***To develop a plan to control file versions for the physical user interface layer***

- Assign a single developer or group to manage web templates, JavaScript files, and style sheets. Make sure all changes are made by this individual or group, which is solely responsible for releasing amended files to the Siebel Web Server environment.
- Use version control software to manage changes to web templates, JavaScript files, and style sheets. PVCS (Polytron Version Control System) is an example of source control software. This technique makes sure that only a single individual amends these files at any time. It also provides an audit trail of changes.
- If source control software is not available, then use manual controls that allow a structured release. Assign an individual or group that is responsible for all amendments to physical user interface files and their subsequent release.
- Use a separate directory structure for each release that includes subfolders for the various objects that are released. Copy all amended physical user interface files that are included in the release to the appropriate subfolder.

  The date on which a file is amended serves as an indication for which web templates or JavaScript library files you must release to users. Therefore, it is necessary to use central release folders or to copy changed or new objects to these folders. A web template is an example of a changed or new object.

# Using Development Tools and Techniques

This chapter describes development tools and techniques. It includes the following topics:



## Overview of the Development Process

This topic describes a summary of work you perform to develop a Siebel application. Developing a Siebel application is not necessarily a serial process. During some phases, it makes sense for you to configure multiple sections of Siebel CRM concurrently. Because some tasks are iterative, such as testing and debugging, it is likely that you will modify the simplified and linear task that is described in this topic to meet development requirements for your team.

To develop a Siebel application, you do the following:

1. Set up your development environment.

   For example, the system and database environment and developer workstations. For more information, see "Setting Up a Developer as a Remote User" on page 197.

2 Develop the Siebel application:

   a Use Siebel Tools to modify or create the following object definitions:

      ❑ Data objects, such as tables, columns, indexes, and so forth.

      ❑ Business components and business objects.

      ❑ User interface objects. For example, applets, views, and screens.

   b Modify web template files.

   c Compile your Siebel application and perform unit testing.

   For more information, see *Using Siebel Tools*.

3 (Optional) Use the tools available to you in the Siebel development environment to define whatever assignment and workflow rules are required.

   Example tools include Siebel Assignment Manager and Siebel Worklfow.

4 (Optional) Use Siebel Visual Basic or Siebel eScript to customize the functionality of Siebel CRM.

5 (Optional) Localize Siebel CRM if the Siebel client must display content in two or more languages. For more information, see Chapter 26, "Localizing Siebel Business Applications."

6 Perform system and performance testing of your Siebel application.

7 Iterate through the development steps until your design is fully implemented, and until Siebel CRM runs smoothly and meets your performance objectives.

8 Introduce Siebel CRM to your users and train your users on how to use Siebel CRM.

### Getting Help from Oracle

If you require help from Oracle you can create a service request (SR) on My Oracle Support. Alternatively, you can phone Global Customer Support directly to create a service request or get a status update on your current SR. Support phone numbers are listed on My Oracle Support. You can also contact your Oracle sales representative for Oracle Advanced Customer Services to request assistance from Oracle's Application Expert Services.

## General Guidelines for Developing a Siebel Application

This topic describes some general guidelines for developing a Siebel application. For more information, see Chapter 26, "Localizing Siebel Business Applications."

### Guidelines for Naming an Object

If you name an object, then use the following guidelines:

- Never include a question mark at the end of a field name or user interface label.
- Use an object name that is meaningful and descriptive. For example, Account Detail Applet With Agreement, instead of Account Detail Applet 2.

- Do not use a license key option as an object name. For example, do not use Product Forecasting. This technique can cause Siebel CRM to not display a user interface object, such as a view.
- Prefix the name for each custom object you define with your company name. For example, ABC Product Forecasting View. This distinguishes your custom object from a predefined object.
- Be careful with spelling, spacing, and capitalization when naming an object. Typically, the logical name of an object in the Siebel repository uses complete words, mixed casing, and a space between words. However, a physical database object might use an abbreviation, uppercase, and an underscore. For example, the Service Request business component references the S_SRV_REQ database table.
- Do not use a reserved SQL word in an object name. For example SELECT, COUNT, FROM, WHERE, and UNION. This technique can cause unpredictable application behavior.
- Avoid changing the name of an object. It is time consuming to change the name of an object when Siebel CRM references it throughout the Siebel repository. If you must change the name of an object, use the Find in Repository feature from the Tools menu in Siebel Tools to find all of the references.
- Siebel Tools uses English (ENU). It does not support objects from other character sets, such as ASCII (American Standard Code for Information Interchange) codes or accented characters. If you attempt to use objects from another character set, then Siebel Tools displays a *unique constraint* error.

**TIP:** If you are not sure how to name an object, use the predefined objects in the Siebel repository as a guide. Examine the predefined objects and conform to their established naming formats. For example, to create a new Association applet, use the *business component name* Assoc Applet naming format.

### Related Topics

For more information, see the following topics:


- Naming Format for a Siebel Table on page 46
- Guidelines for Naming a Business Component on page 80
- Guidelines for Naming an Applet on page 126
- Guidelines for Creating a Join on page 96
- Guidelines for Creating a Business Object on page 111
- Overview of Guidelines for Creating an Applet on page 125
- Guidelines for Naming a View on page 139
- How Siebel CRM References Web Pages on page 151
- Reusing Predefined Objects on page 205

## Guidelines for Using the Upgrade Ancestor Property

*Upgrade Ancestor* is a property that allows a copied object to incorporate properties of the original object from which the copy is defined. During an upgrade, Siebel CRM applies changes to the original object and to the copied object. You can use the following object types with the Upgrade Ancestor property:

- Applets
- Business components
- Reports
- Integration objects

For example, assume you create a copy of the Account List applet, name it the Premium Account List Applet, and then set the Upgrade Ancestor property. The new applet might differ from the original applet because the new applet includes a search specification that Siebel CRM only displays in accounts that are considered premium accounts. In a subsequent release, Oracle might add a new predefined list column to the Account List applet. During an application upgrade, your Account List applet and the Premium Account List Applet retain the configuration changes you made. However, these applets also receive the new predefined list column added in the new version.

Use caution if you copy an object. For more information, see "Guidelines for Reusing a Predefined Object" on page 206.

Note the following factors if you use the Upgrade Ancestor property:

- If you copy an object, then Siebel Tools does not automatically define the Upgrade Ancestor property. You must define it manually.
- Creating a new object without defining the Upgrade Ancestor property could add to your upgrade effort, because a custom object is *not* upgraded. Instead, it is copied to the new repository, but without changes.
- Creating a new copy of a business component or applet can result in a redundant configuration.

For more information, see *Siebel Database Upgrade Guide*.

## Guidelines for Modifying Configuration Files

Although you can modify an application configuration file, Siebel CRM does not support any change you make to an application configuration file. The only exception occurs if Siebel documentation explicitly describes how you can change the configuration file. Any file that contains one of the following extensions and is part of the Siebel installation is a Siebel configuration file:

- cfg
- css
- gif
- swt
- htm
- xsl

- sws
- swf
- sw
- ctl
- sql
- ucf
- rox
- rod
- srf
- prd

# Setting Up the Development Environment

This task is a step in "Roadmap for Configuring a Siebel Application" on page 187.

This topic describes some of the tasks you can perform to set up a development environment that can you can use to configure Siebel CRM. For more information, see *Using Siebel Tools*.

## Setting Up the Configuration File for Siebel Tools

This topic describes how to set up the configuration file for Siebel Tools. For more information, see *Using Siebel Tools*.

### *To set up the configuration file for Siebel Tools*

1. Open the `tools.cfg` file in a text editor.
2. Set the EnableToolsConstrain parameter to FALSE.

   For more information, see "How the EnableToolsConstrain Parameter Affects Text Strings" on page 195.
3. Make sure the ClientConfigurationMode parameter is not All.

   You cannot use the Form Applet Wizard, List Applet Wizard, View Wizard, or set the HTML Sequence if the ClientConfigurationMode parameter is All.
4. Save the `tools.cfg` file.
5. If Siebel Tools is open, then exit out of it, and then open it.

### How the EnableToolsConstrain Parameter Affects Text Strings

Table 31 describes how the EnableToolsConstrain parameter affects text strings. For more information, see *Using Siebel Tools*.

Table 31. How the EnableToolsConstrain Parameter Affects Text Strings

| Task | If EnableToolsConstrain is TRUE | If EnableToolsConstrain is FALSE |
|---|---|---|
| Creating a text string | You must choose from a list of string references to enter a value for a translatable text string, such as an Applet Title. | You can use the string override property to override the string reference. |
| Creating a symbolic string | You cannot create a custom symbolic string. | You can create a custom symbolic string. |

You can use one of the following techniques to create a custom text string:

- Use a symbolic string to create a translatable text string.
- Enter a value in a string override field. For an example, see "Validating Data That the User Enters In a Business Component Field" on page 255.
- Add an HTML tag that modifies a text string. For more information, see "Changing the Text Style of a Control or List Column in an Applet" on page 347.

## Displaying Object Types You Use to Configure Siebel CRM

You can display object types in the Object Explorer that you use to configure Siebel CRM.

### *To display object types you use to configure Siebel CRM*

1. Open Siebel Tools.
2. Choose the View menu, and then the Options menu item.
3. Click the Object Explorer tab.
4. Scroll down through the Object Explorer Hierarchy window until you locate the Entity Relationship Diagram tree.
5. Make sure the Entity Relationship Diagram tree and all child objects of the Entity Relationship Diagram tree include a check mark.

   If all child objects in the Entity Relationship Diagram tree are displayed, then Siebel Tools displays a black check mark with a white background for the tree.
6. Repeat Step 4 for the following object types:
   - Task group and all children of the task group object type.
   - View and all children of the view object type.
   - Import object and all children of the import object type.
   - Control user prop and list column user prop children of the applet object type.
   - Business component user prop child of the business component object type.

- Class object type.
- Other objects, as necessary.

7 Click OK.

## Setting Up a Developer as a Remote User

After you install Siebel Tools, the Siebel Server, and other necessary software in the development environment, you must set up each developer as a remote user. This way, you can store a copy of the Siebel database, including the Siebel repository, on the local computer that the developer uses. The developer can check out objects from the Siebel Server repository, configure and test on their work on their local computer, and then check objects back into the Siebel Server.

For more information about:

- Installing software, see *Siebel Installation Guide* for the operating system you are using.
- Check in and check out, see *Using Siebel Tools*.
- Setting up a remote user, see *Siebel Remote and Replication Manager Administration Guide*.

### *To set up a developer as a remote user*

1 Install Siebel Tools on the computer that the developer uses. Install Siebel Tools in a directory that is separate from the Siebel client.

   For example, if you install the Siebel client in `c:\siebel\clnt`, then install Siebel Tools in `c:\siebel\tools`. This technique does the following:

   - Makes sure that the development environment and the Siebel client environment are distinct.
   - Makes sure that if you use Siebel Remote in these environments, that the two installations do not conflict.

   For more information, see *Siebel Installation Guide* for the operating system you are using.

2 Verify that each developer possesses a valid user name and password for the Siebel development database server.

   In most situations, Siebel CRM uses the employee login ID and password for the database server user name and password.

3 Using a Siebel client connected to the development server database, create an Employee record and a Mobile User record for each developer.

   Use the first and last name of the developer for the employee first and last names. For the login ID, use a consistent naming format, such as first initial and last name. This simplifies identifying who locked a project.

   **NOTE:** Password encryption interferes with project check in and check out. If you check projects in and out, then you must disable password encryption in the client or the configuration file if you run Siebel Tools.

4 Grant each developer the Developer and Siebel administrator responsibilities.

   To prevent unintended changes to important system preferences, you can also create a responsibility that contains access to all views except the System, Service, and Marketing Administration views. You can use a common position for all developers. For testing purposes, you can set up an organization structure that models the business.

   **NOTE:** If you do not grant the user the Developer responsibility, then Siebel Tools does not activate drilldowns in the Tools client.

   For more information on setting up an employee, see *Siebel Applications Administration Guide*. For more information on setting up a responsibility, see *Siebel Security Guide*.

5 On the Siebel Server, use the Database Extract server component to extract the local database for each developer.

   Database Extract creates a template for the local database that includes only business data, not repository data. The Database Extract server component extracts Enterprise data into this template, together with any data with limited visibility, such as contacts, accounts, opportunities, and so forth. For more information, see *Siebel Remote and Replication Manager Administration Guide*.

6 To initialize the Mobile Client Database for the developer, open Siebel Tools and connect to the local database.

   Siebel CRM displays a message that states the local database is not found.

7 To start the initialization process, click Yes.

8 In the Siebel Remote Parameters dialog box, enter the Siebel developer logon you defined in Step 3 and an appropriate password.

   The initialization program creates the `sse_data.dbf` local database file in the `LOCAL` subdirectory of your Siebel Tools installation. For example, `c:\siebel\tools`.

9 Do an initial *get* operation for all projects on each local database.

   For more information, see *Using Siebel Tools*.

# Creating a Script to Customize Siebel CRM

This topic describes how you can use Siebel Visual Basic, Siebel eScript, and browser script to write scripts to customize Siebel CRM. It includes the following topics:



A script is associated with a specific object and event in the Siebel Event Model.

## Scripts That You Write for the Server

Siebel Tools includes the following scripting languages:

- **Siebel Visual Basic**. Similar to Microsoft Visual Basic. It supports scripting only on the Windows operating system.
- **Siebel eScript**. Compatible with JavaScript. It supports scripting in Windows and other operating systems, such as UNIX.

You can use Siebel Visual Basic and Siebel eScript to do the following:

- Integrate Siebel CRM with a third-party application.
- Customize the base functionality of the screens and business components in Siebel CRM.
- Develop a data validation routine to enforce specific rules before or after Siebel CRM manipulates records. Siebel CRM performs validation routines before the user performs an update or an insert. The intent is to make sure that Siebel CRM does not enter data into the database that is not logical or is not complete.
- Develop a data manipulation or computational routine to modify or analyze data.
- Develop a data transport routine to import and export small volumes of data between Siebel CRM and a third-party application.
- Develop a routine to open an external application on the Siebel Server in response to a Siebel event or to pass start-up parameters. This capability is valid for browser script only.

You use the Script Editor, Debugger, and Compiler to develop and test Siebel Visual Basic script, Siebel eScript script, or browser script. Because Siebel CRM integrates this capability with the Applet Layout Editor, you can attach a script to a control that Siebel CRM displays in the Siebel client, such as a field or ActiveX control.

You can associate a server script with the following object types:

- Web applet
- Business component
- Business service
- Application

For more information about:

- Scripting, see *Siebel eScript Language Reference* and *Siebel VB Language Reference*.
- Redeploying a script written for a prior release of Siebel CRM in the Siebel client, see *Siebel Database Upgrade Guide*.
- JavaScript, see "JavaScript Usage in High Interactivity" on page 38.

### Simultaneous Use of Siebel Visual Basic Script and Siebel eScript

To respond to various client events, you can use Siebel Visual Basic and Siebel eScript simultaneously in the same environment but not in the same object. It is recommended that you use Siebel eScript only because it works on UNIX and Windows servers. When you initially add a script to an object, Siebel Tools prompts you to choose the scripting type.

## Scripts That You Write for the Browser

Browser script allows you to use *JavaScript*, which is an interpreted language that runs in many Web browsers. A browser script responds to an event on a browser Java object. This browser object works with the corresponding object that runs in the object manager. The set of events that you can script with a browser object type is different from the set of events that you can script with a server script:

- For Siebel CRM, you can script a wide variety of events that the browser supports. However, an HTML control does not support the OnClick event. For more information, see *Siebel eScript Language Reference*.
- For a Siebel employee application, you can only script on the OnBlur or OnFocus events.

You use Siebel Tools to write a browser script. You can associate a browser script with the following object types:

- Applet
- Business component
- Business service
- Application

### Hierarchy of Object Types That Siebel CRM Uses With a Script

Figure 35 illustrate the hierarchy of relationships between object types that Siebel CRM can use with a script. To script against a browser event, you use a child object type of the parent. You can use these object types with their server counterparts in Siebel Visual Basic, JavaScript, or Java.

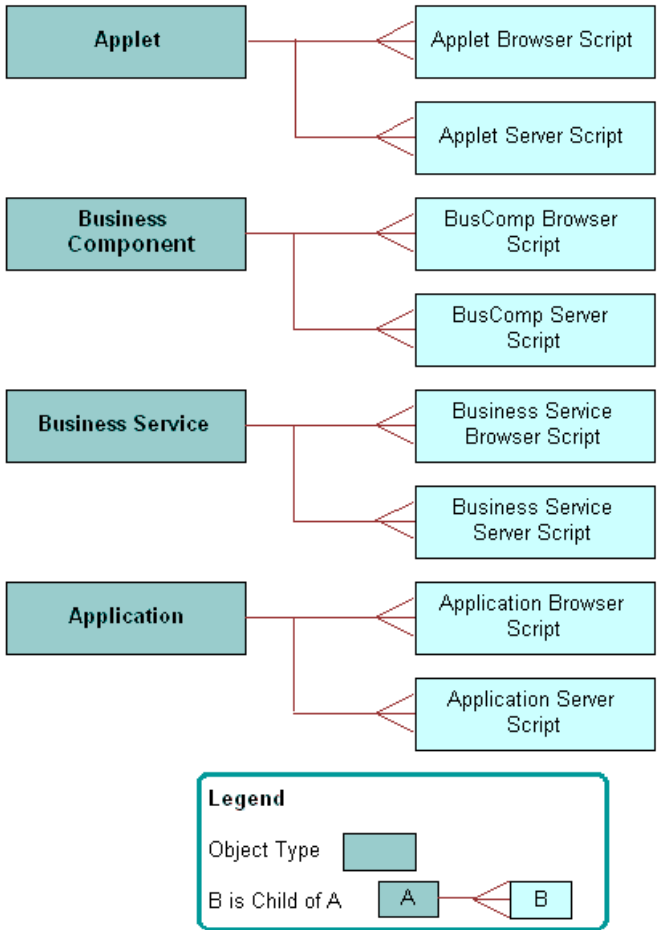



Figure 35. Hierarchy of Relationships Between Object Types That Siebel CRM Uses with a Script

Figure 36 illustrates an example of how you can use a browser script to validate the field in a form that Siebel CRM displays in the Siebel client. The example uses browser script on the BusComp_PreSetFieldValue event handler in the Account business component.

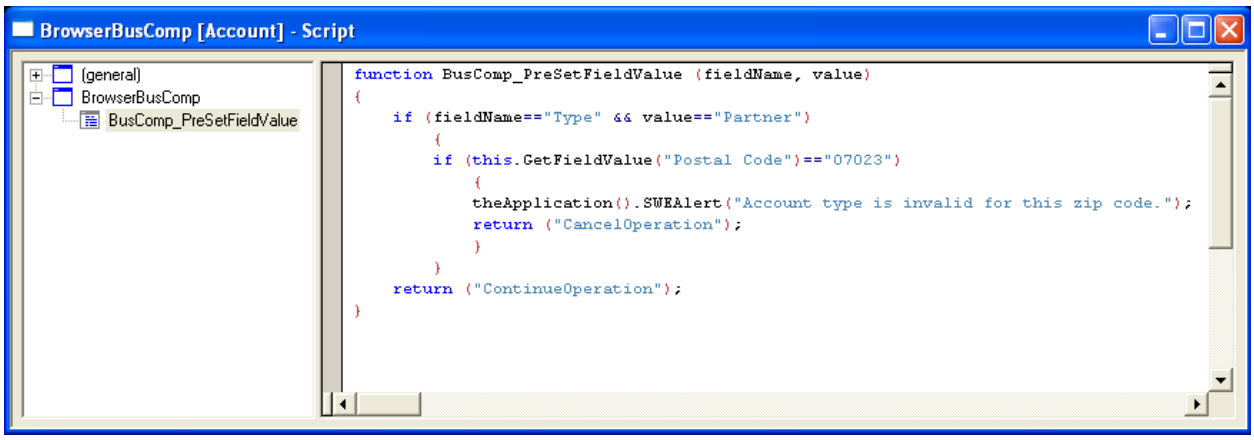



Figure 36. Example of Browser Script to Validate a Field

### Browser Scripting with Standard Interactivity

If your Siebel application uses standard interactivity, then you cannot write a browser script for the following objects:

- Applet
- Business component
- Business service
- Application

You cannot write a script to handle a pre or post event with standard interactivity.

Note the following conditions for writing browser script with a control:

- You can write a script to handle a control event, such as Onclick, Onblur, or with a Text control.
- You can write a script for a predefined browser event on a control that is associated with an applet. For example, onChange, onMouseOver, onFocus, onMouseOut, or onBlur.
- You must write browser script on the onChange browser event of the control.
- you must use the native methods of the browser Document Object Model (DOM).

For more information, see "Standard Interactivity" on page 36.

### Browser Scripting with High Interactivity

If your Siebel application is an employee application that uses high interactivity, then a browser script on a business component is only appropriate if Siebel objects that the script references are displayed in the Siebel client. For more information, see "High Interactivity" on page 37.

## Generating and Deploying a Browser Script

You can generate and deploy a JavaScript file (.js).

### *To generate and deploy a browser script*

1 Use one of the following techniques to generate the browser script:

- In Siebel Tools, compile objects to a repository file.

  When you compile objects to a repository file, then Siebel Tools only generates browser scripts for compiled objects. Siebel Tools places them in the directory that you define in the Scripting tab of the Development Tools Options dialog box. To view this dialog box, choose the View menu, and then the Options menu item.

  If you do not create a directory, then Siebel Tools stores the browser script in the following directory:

  *ORACLE_HOME*\public*language_code**srf_timestamp*\bscripts\all

  where:

  - *ORACLE_HOME* is the root directly of where you installed Siebel Tools
  - *language_code* is the language code, such as ENU
  - *srf_timestamp* is the timestamp when the Siebel Repository File (SRF) is saved

  For more information, see *Using Siebel Tools*.

- In the command line interface, run the genbscript.exe utility.

  When you run the genbscript.exe utility, then the executable generates all browser scripts that exist in the Siebel repository and places them in a directory that you define. You run the genbscript.exe utility from the *ORACLE_HOME*/bin directory.

  Use the following format to run genbscript:

  genbscript *config_file destination_directory language_code*

  where:

  - *config_file* is the name of the configuration file
  - *destination_directory* is the destination directory where genbscript stores the script files
  - *language_code* is the language code, such as ENU. The language code parameter is optional for ENU, but you must define it for other languages.

  For example:

  ```
  genbscript c:\siebel\client\bin\enu\uagent.cfg c:\siebel\client\public\enu
  enu
  ```

2 Stop, and then restart the Web server.

This technique loads the scripts into SWSE, thus avoiding an Object Not Found error message. For more information, see "Updating Web Images to Load Scripts into SWSE" on page 204.

3 Deploy the browser script to the following directory on the Siebel Server:

*ORACLE_HOME*\webmaster

4 Deploy the browser script to the following directory on the Siebel client:

*ORACLE_HOME*\public*language_code*

5 If you migrate scripts from one location to another, then copy the following directories to the correct location:

*srfTimestamp*\bscripts\all\

If you generate a browser script, then the Siebel system creates a directory path and names it according to the version of the Siebel repository file. The system appends it to the path that you create as the destination directory. For example, after you compile browser scripts to the Siebel Server, the system uses the following path on the Siebel Server to the browser script files:

c:*ORACLE_HOME*\webmaster*srfTimestamp*\bscripts\all\

6 If you compile on a Siebel Server that runs in the Windows operating system, and then migrate browser scripts to a Siebel Server that runs on an Oracle Solaris or AIX operating system, then you must FTP the directories to the correct location on the Oracle Solaris or AIX computer.

### Updating Web Images to Load Scripts into SWSE

You can update Web images to load scripts into SWSE.

### *To update Web images to load scripts into SWSE*

1 Log in to Siebel CRM.

For example, type the following URL into the Address field of the browser:

http://*user_name*.siebel.com/callcenter

2 Type the following URL into the Address field of the browser:

http://*user_name*.siebel.com/callcenter/
start.swe?SWECmd=UpdateWebImages&SWEPassword=*password*

where:

- *user_name* is the name of the user.
- *password* is the Siebel Enterprise Security Token. You define this token when you configure the SWSE logical profile. Siebel CRM stores it in encrypted form in the eapps.cfg file.

# 10 Reusing Predefined Objects

This chapter describes how to reuse a predefined object. It includes the following topics:



In general, it is recommended that you reuse predefined objects to configure Siebel CRM. You must avoid making significant customization of Siebel CRM, and attempt to reuse and customize predefined objects where possible. However, there are situations when reusing a predefined object is not appropriate and can cause problems. This topic includes information about when to reuse and when not to reuse a predefined Siebel object.

## Reasons to Reuse or Not Reuse a Predefined Object

This topic describes reasons to reuse or not reuse predefined object.

### Reasons to Avoid Extensive Customization of Siebel CRM

*Customization* is the act of performing significant changes to the predefined product, such as making the following changes:

- Creating new modules that do not exist in the predefined Siebel application. This work typically involves customizing the database, and creating many new business components and business objects.
- Modifying a significant number of predefined objects.
- Making significant changes to predefined behavior, such as visibility.
- Making significant changes to framework objects, such as JavaScript files.
- Writing a significant amount of custom scripts.

Inappropriate customization of Siebel CRM can cause the following problems:

- Decreased maintainability.
- Increased cost of ownership.
- Potential for decreased performance. A predefined Siebel application is tuned for performance.
- Potential affect on future upgrades.
- Increased testing effort.
- Inconsistent application behavior.

### Why Reusing Objects Is Important

*Reuse* involves building components that you can reuse and customize. Reuse allows you to limit the amount of customization in your deployment. Any changes to the predefined configuration must maximize reuse and allow for easy customization. There are several ways to reuse components in Siebel CRM. For example:

- Use predefined configuration objects. For example, business components, business objects, links, applets, views, and so forth.
- Use Siebel declarative techniques and tools to translate business requirements into application behavior. For example, Siebel Tools, workflow, personalization, run-time events, and state model.

# Guidelines for Reusing a Predefined Object

This topic describes guidelines for reusing a predefined object. It includes the following topics:



## Reasons to Reuse a Predefined Object

The following reasons describe why it is recommended that you copy, and then modify a predefined object rather than create a new object:

- Oracle configures many predefined objects for optimal performance. A custom object you create might not be automatically configured for performance.
- When troubleshooting, you can use the object in the sample database to revert back to the original object. You can also use the comparison feature in Siebel Tools to determine what changes were made to the object that might cause the problem.
- Repository and application maintenance requires less time and fewer resources.
- The Siebel Repository File is smaller and compiles faster.
- Eliminating unnecessary copies of objects reduces the amount of redundancy in the Siebel repository.
- Because Oracle thoroughly tests a predefined object, less effort is required to test Siebel CRM or to resolve an application error.

- By reducing the number of repository objects that you must evaluate or upgrade, less effort is required when you upgrade Siebel CRM.

**CAUTION:** It is recommended that you do not modify administration objects. For example, objects in the Administration - Server Configuration and Administration - Server Management views, and the List Of Values business component. Modifying these objects might cause unpredictable behavior.

## Guidelines for Reusing a Predefined Table

If you must create a custom business component because no predefined business component is suitable, then you must decide to reuse a predefined table or to create a new table. You must only reuse a predefined table that is a suitable technical and functional fit. There are several reasons for this guideline:

- Oracle tunes the indexing for the table for the originally intended use. Using it for an alternative purpose might reduce performance.
- The user key table for the unique indexes might not meet your requirements. For a predefined table, you cannot change these objects. If a user key column does not contain the required data, then the uniqueness of the record, performance, and Enterprise Integration Manager might be compromised.
- The dock object visibility rules might not meet your requirements. Modifying the rules for the table might compromise Siebel Remote. For more information, see Chapter 25, "Configuring Dock Objects for Siebel Remote."

If you do not reuse a table appropriately, then future reuse of that table for the original purpose of the table might be difficult. For example, assume you use the S_CALL_LST table to store data that is not related to a call list. If you later implement predefined list management, then Siebel CRM displays data that is not related to the call list in the list management views. Adding a search specification to remove this data might compromise performance that adding an index might or might not correct. For more information, see "Options to Filter Data Displayed in an Applet" on page 120.

For more information, see Chapter 10, "Reusing Predefined Objects".

### Guidelines for Overloading a Table

You can overload a table if you reuse the same table multiple times on different business components, and if each business component is *typed* with a search specification. For example, if you use the S_EVT_ACT table to store regular activities, audit logs, error logs, messages, EAI logs, and so forth.

If you overload a table, it is often necessary to add a search specification against a Type field to prevent data from one business component from displaying in another business component.

Overloading a table can cause the following problems:

- The search specification used to *type* the table into various business components might cause performance problems. Often, the table is not designed to be overloaded. For example, the TODO_CD column of the S_EVT_ACT table is often used for typing the table. This table is not denormalized on to the S_ACT_EMP intersection table for activities and employees. A query that uses the sales representative visibility against a business component that references the S_EVT_ACT table might result in poor performance.
- There is no guarantee that adding indexes against these *type* columns will resolve a performance problem because adding an index might compromise performance elsewhere. The fact that the type columns are often not denormalized onto position, employee, or organization intersection tables affects queries in certain views.
- Overloading a table increases the table size.

For more information, see "Options to Filter Data Displayed in an Applet" on page 120.

#### Oracle Designs Some Tables to Be Overloaded

Oracle designs some tables in the Siebel repository to be overloaded. For example, in Siebel Industry Applications, the S_ASSET table uses the TYPE_CD column to *type* various business components. Oracle denormalizes and indexes this column onto the S_ASSET_POSTN and S_ASSET_BU intersection tables to improve performance in SalesRep and Organization visibility views. Also, XM tables, such as S_ORG_EXT_XM, are built to be overloaded.

## Guidelines for Using an Extension Table as the Base Table of a Business Component

Never use an Extension or Extension (Siebel) table as the base table of a business component. Siebel Enterprise Integration Manager and Siebel Remote assume that the PAR_ROW_ID and ROW_ID columns on these tables are equivalent and that the PAR_ROW_ID column references a valid parent table record. For more information, see "Extension Columns of a Siebel Table" on page 59.

## Guidelines for Creating a New One-To-One Extension Table

In most situations, you must extend the base table or reuse an ATTRIB column on a one-to-one extension table. However, there are rare instances when you must create a new one-to-one table, such as to add a LONG column because you cannot add it to a base table and because Siebel CRM supports only one LONG column on a given table. For more information, see "Creating a LONG Column on an Extension Table" on page 239.

## Guidelines for Creating a New XM Table

In most situations you must reuse a predefined XM table to support a one-to-many relationship from a base table. If you use an XM table, then use the following guidelines:

- There are very few situations that require you to create a new XM table. Siebel CRM already tunes XM tables to support large data volumes and multiple data types. Before you create a new XM table, make sure to examine the predefined XM tables to determine if one meets your requirements.

- In some instances, a base table does not reference an XM table. Instead of reusing another unsuitable predefined table because it contains a foreign key to the base table, you must create a new table. For example, if you require a one-to-many business component from the S_EVT_ACT table, then you must create a one-to-many table rather than reuse a table that might be inappropriate, such as the S_ACT_TIMESTAMP table, provided that the business component does not store timestamp information.

For more information see, see "How an Extension Table Stores Custom Data" on page 47.

### Guidelines for Using a Table That Is Not an Intersection Table to Establish an Intersection

You must reuse an intersection table only where it is a true intersection between two tables. The type of table must be Data (Intersection). Do not use a table that is not an intersection table as an intersection table only because it contains a foreign key to the desired table. This technique can overload the table. For more information, see Chapter 10, "Reusing Predefined Objects."

Do not use a one-to-many XM table as an intersection table. Because Siebel CRM does not tune an XM table for this usage, using it as an intersection table might cause poor performance. To support one side of the relationship, you must also create a custom foreign key, which can cause problems with Siebel Remote and Enterprise Integration Manager.

If no suitable intersection table exists between two tables and one is required, then you must customize the database. For more information, see "How an Extension Table Stores Custom Data" on page 47.

### Guidelines for Using a Table That Is Not Licensed

Do not reuse an unused table that is not licensed for your configuration.

### Guidelines for Using the S_PARTY Table to Support a Custom Party Type

Using a custom party type compromises access control and remote visibility. For more information, see "How the S_Party Table Controls Access" on page 62.

## Guidelines for Reusing a Predefined Business Component

Inappropriately using a predefined business component can make it difficult to use the same business component for the intended purpose of the business component in the future. For example, if you use the Service Request business component to store financial transactions in one release, then you might be prevented from using the same business component to store actual service requests in a future release. For more information, see "Guidelines for Creating a Business Component" on page 80.

if you reuse a predefined business component, then use the following guidelines:

- If you require a business component that is similar to a predefined business component, then do one of the following:
  - Create a new business component that references the predefined business component.
  - Modify the predefined business component.

  Siebel CRM prefers that you modify a predefined business component because it minimizes the number of business components in your configuration. This situation leads to a smaller repository that is easier to maintain and upgrade because it is more closely aligned with the predefined Siebel application.
- Use the business component in a way that is consistent with the intended use of the business component. For example:
  - Use the Contact business component to store individual details for each contact at a customer site.
  - Use the Account business component to store details of the business relationship with the customer.
  - Do not use the Service Request business component to store information that is not related to a service request, such as a financial transaction or order history.
- If you reuse a business component, then configure it to be as flexible and reusable as possible. For example:
  - In one release you use the Service Request business component to store customer complaints.
  - In another release, you use the Service Request business component to store addresses for customers who changed their address.

  In these situations, you must use the Service Request business component rather than cloning the business component in a subsequent release for other service transactions. For example, you could use the SR Type field to distinguish between the two service transactions. Your business requirements must also be as generic as possible to facilitate the use of a single business component.
- Always configure Siebel CRM in a way that allows you to reuse a business component instead of creating a new business component. For example, an implementation can allow one group of users to create new opportunities, but another group can only edit existing opportunities. Instead of creating a new business component and setting the No Insert property to TRUE, you can create a new applet and set the No Insert property to TRUE for the applet.

## Guidelines for Copying a Predefined Business Component

If you copy a business component, also copy the links that business component uses, and then update the copies with the new business component name. You can avoid errors if you copy and update links. For example, if you clone the Service Request business component and name the clone Service Request ABC, then you must also copy the Service Request/Action link and name the copy Service Request ABC/Action.

## Guidelines for Reusing a Predefined Business Object

In general, avoid copying a business object or business component. However, copying might be appropriate in the following situations:

- When a business component must be included twice in a business object. For example, when the Account business component and Sub Account business component must be included in the Account business object.
- When two business components contain different search specifications *and* predefault values for the Type field that differentiates the records of these two business components. For more information, see "Options to Filter Data Displayed in an Applet" on page 120.

## Guidelines for Reusing an Applet

To decide to reuse or create an applet, use the following guidelines:

- If your requirements closely align with the functionality of the predefined applet, and if the applet only requires minor modification, then modify a predefined applet. For example, to change a title, deactivate, or add a few controls or list columns, or to change display labels.
- If the predefined applet meets your requirements for a relationship in the data model, such as between an opportunity and contacts, then copy a predefined applet. You can then modify the new copy to make significant changes, such as the applet layout, resequencing, inactivating objects, or adding many new controls and list columns. This technique provides a configuration that is easier to maintain and upgrade.
- If your requirements demand a different drilldown to a different view, then copy a predefined applet, and then modify the copy.
- If you cannot locate a suitable predefined applet, then create a new applet. For example, if your requirements demand that you display a new business component.
- If you copy an object, then use the Upgrade Ancestor property. For more information, see "Guidelines for Using the Upgrade Ancestor Property" on page 194.

For more information, see the following topics:

- About Applets, Controls and List Columns on page 113
- Overview of Guidelines for Creating an Applet on page 125

## Guidelines for Reusing a Predefined View

To decide to reuse or create a view, use the following guidelines:

- If the requirements for a new view closely align with a predefined view, but require simple changes, such as changing the view title, or moderate layout changes, such as displaying a different applet or adding a toggle, then you can modify the predefined view.

- For a view that consolidates two predefined views, it is recommended that you modify one of the predefined views, and then use the Responsibility Administration screen to remove visibility to the redundant view.
- If the requirements for a view do not align with a predefined view and require significant changes to the predefined view, then you can create a new view. Typically these views implement new functionality that your implementation requires. For example, you might need a view to display new business objects or business components. In these situations, it is easier to maintain and upgrade a new custom view rather than modifying a predefined view.
- If you copy an object, then use the Upgrade Ancestor property. For more information, see "Guidelines for Using the Upgrade Ancestor Property" on page 194.

For more information, see the following topics:

- About Views on page 132
- Guidelines for Creating a View on page 138

## Guidelines for Reusing a Predefined User Interface Object

Sometimes it is appropriate to copy a user interface object. For example, if your business requirements demand a significant change to the look and feel of the object, then copying the object and setting the Upgrade Ancestor property makes certain that Siebel CRM preserves the modified look and feel following an upgrade. For more information, see "Guidelines for Using the Upgrade Ancestor Property" on page 194.

If you only require a minor change to the user interface object, then it is recommended that you use the predefined object because this technique reduces the time you spend to configure and maintain the Siebel repository. The following reasons describe when it is appropriate to copy a user interface object:

- When you require two different user interface objects to display different records and use different search specifications on applets. For more information, see "Options to Filter Data Displayed in an Applet" on page 120.
- When you require different read and write properties between two objects. For example, one applet is read-only and the other applet is editable. In this situation, only copy the object if you cannot use the dynamic read-only business component user prop to accomplish this functionality.
- When you require different drilldowns for different applets, depending on the view that contains them. In this situation, only copy the object if you cannot use a dynamic drilldown to accomplish this functionality.

If you copy an applet that uses a business component that references a specialized class, then use the following guidelines:

- You *must* use the copied applet with the original business component, not a copy of the original business component.
- To use a copied applet with a copied business component, you must change the class of the copied applet.

# Reasons Not to Reuse a Predefined Object

Reusing an object can result in problems.

## Copying a Predefined Object Can Cause an Upgrade Problem

Copying an object can cause an upgrade problem that is difficult to debug. Functionality is often added to most of the predefined business components during major releases. This new functionality often depends on new fields, joins, and so forth, that are added to a predefined business component. During the upgrade, these new fields are added only to the predefined business components in your merged repository.

Copying an object can result in problems following an upgrade. These problems can be difficult to locate and debug. The errors often occur because some C++ code for the business component or applet class attempts to find a field that does not exist in your custom copy of that business component or applet. The only way to debug the problem is to compare your custom business component with the predefined business component, and to add any new fields and other child object definitions that Siebel CRM added in the new release. This work can be complex, requiring detailed knowledge of what changed in the new release.

## Copying a Predefined Object Can Cause Redundancy

Creating a new copy of a business component or applet can result in redundancy in your configuration. For example, if you create a copy of the Account business component and name it My Account, and use this copy on all of the views that reference accounts, then you must also define copies of every applet that references accounts and make sure each of these copies references the new My Account business component. It also might be necessary for you to create a new business object, screen, and so forth.

## Copying a Predefined Object Can Increase Complexity

You might make a copy of an object in the belief that doing so will reduce problems during an upgrade. The assumption is that if the business component is named My Account, then the Application Upgrader will leave it alone during the upgrade, resulting in no problems after the upgrade. However, this assumption is misleading. The problems you might encounter with an upgraded configuration that contains a copied object might be more complex to solve than the problems caused by reusing a predefined object. It is easier to examine your Siebel application after an upgrade and remove various new controls and list columns from a predefined applet than it is to examine each custom business component and applet to determine which fields, joins, multi-value links, and so forth that you must troubleshoot.

## Results of Reusing An Object Inappropriately

Reusing a Siebel module or repository object in a way that does not meet the original purpose of the object can cause the following problems:

- Performance might be degraded. The performance of the component or object is tuned by Oracle for a specific purpose.

- Future use of the object might be limited. For example, the Service Request business component stores a service interaction with a customer. If you change this usage, you might limit your ability to use this business component for the original purpose in a future release.
- Large amounts of customization might be required to make the improper use of an object function correctly. For example, if you reuse a table for an alternative purpose, then you must configure Siebel CRM to update all required columns and add a search specification to the business component. If you use a predefined business component for a purpose other than the original design intent, then there might be specialized class behavior that affects your ability to properly use the business component. It might be necessary for you to perform more customization to make the business component function so that it meets your requirements. For more information, see "Options to Filter Data Displayed in an Applet" on page 120.
- The intended purpose of the reused object might not be clear to future developers. For example, if you use the S_SRV_REQ table to store financial transactions, the configuration is not clear to future developers because the table bears no relationship to financial transactions.
- Upgradability might be decreased. Troubleshooting and reconfiguration might be required after an upgrade because the upgrade might revert an object to the original form. Changes that Siebel CRM makes to objects during a repository upgrade are dependent on objects being used for their original purpose. An upgrade might incorporate any of the following changes:
  - Change the table schema by adding or changing unique indexes or required columns.
  - Change the behavior of specialized classes.
  - Change functionality. For example, access control, visibility, and so forth.
  - Change the party model.
- Objects that are not included in your licensed configuration might be included in your deployment.

# Process of Determining If You Can Reuse a Predefined Object

This task is a step in "Roadmap for Configuring a Siebel Application" on page 187.

To determine if you can or cannot reuse a predefined object, perform the following tasks:

1. Determining Functional Fit for Reusing a Predefined Object on page 215
2. Determining Technical Fit for Reusing a Predefined Object on page 216
3. (Conditional) Determining If You Can Reuse a Predefined Table Column on page 216
4. (Conditional) Determining If You Can Reuse a Predefined Business Component Field on page 219
5. (Conditional) Determining If You Can Reuse a Predefined Business Component on page 221

In general, use the predefined objects, if possible. However, there might be situations when it is difficult to determine to reuse a predefined object or to create a new object. This situation occurs if predefined objects cannot meet your requirements. You must determine the functional and technical fit of the proposed use. Where the fit is appropriate, then you can reuse the object. Where it is not, you must create a new object. You must not reuse an object merely because it is not already used by another Siebel application.

If no predefined object is suitable, then you must consider customizing the data objects layer. For more information, see "Options to Customize the Data Objects Layer" on page 63.

To determine if an object is a functional fit to your business requirement, examine the table or business component that you intend to use.

## Determining Functional Fit for Reusing a Predefined Object

This task is a step in "Process of Determining If You Can Reuse a Predefined Object" on page 214.

### *To determine functional fit for reusing a predefined object*

1. Determine if you must reuse the object rather than copy the object.

   For more information, see "Reasons to Reuse or Not Reuse a Predefined Object" on page 205.

2. Determine if you must copy the object rather than reuse the object.

   For more information, see "Guidelines for Reusing a Predefined Object" on page 206.

3. Make sure the original nature and purpose of the Siebel object is compatible with your proposed use.

   For example, storing customer complaints is compatible with the Service Request business component, but not for storing financial transactions.

4. Make sure relationships to other objects are compatible with your requirements.

   However, the fact that an object contains the correct relationships is not sufficient for reuse. For example, you must not use the S_EVT_ACT table as an intersection table only because it contains two of the foreign keys that you require. Doing so can cause the table to overload and result in degraded performance.

5. Determine if the visibility properties of the object are or are not compatible with your requirements.

If the object is not a good functional fit, then reusing the object for that purpose might be inappropriate. The following are examples of improper use:

- Using the S_PARTY table to store a nonparty entity.
- Using an unused table for a custom business component where the table does not possess a relationship to the intended usage of the business component.

- Using an unused table column or business component field that does not possess a relationship to the intended usage of the field.

## Determining Technical Fit for Reusing a Predefined Object

This task is a step in "Process of Determining If You Can Reuse a Predefined Object" on page 214.

### *To determine technical fit for reusing a predefined object*

1. Examine the following technical factors:
   - Performance factors
   - Size and type of columns and fields
2. Examine the following table schema factors:
   - Determine if you must set columns to a specific default value.
   - Determine if you must configure Siebel CRM to update the user key and unique index columns.

   If you must perform a large amount of customization to use an unused table, then technical fit diminishes.
3. Determine the affect that the foreign key relationships have on Siebel Remote.

   Foreign key relationships and Siebel Remote are closely interrelated. Simply using the correct foreign key might not guarantee that Siebel CRM downloads the data to the Remote client. You must determine how reuse affects the dock objects and rules with which the foreign keys interact. For more information, see Chapter 25, "Configuring Dock Objects for Siebel Remote."
4. Determine the affects that foreign key relationships have on visibility.

   Many columns that are not foreign keys can affect visibility. For example, S_PROD_INT.ENTERPRISE_FLG with a value of Y confers partial docking visibility to the product record. Misusing these columns can result in a significant negative affect on Siebel Remote.

## Determining If You Can Reuse a Predefined Table Column

This task is a step in "Process of Determining If You Can Reuse a Predefined Object" on page 214.

This topic describes the factors you must evaluate when you consider reusing a predefined table column. Reusing a predefined table column if there is not a good technical or functional fit can lead to a poor result. In this situation, it is better to create a new, custom field or column. For more information, see "Options to Customize the Data Objects Layer" on page 63.

### *To determine if you can reuse a predefined table column*

1 Consider table columns that Siebel Remote uses:

   a Do not use a field or column that controls Siebel Remote behavior.

   Siebel Remote uses the ENTERPRISE_FLG column to implement visibility on records that use normal visibility constraints. Siebel Remote might use other columns to control download behavior, such as the RTE_CONTACTS_FLG or RTE_PRSP_CONS_FLG column on the S_SRC table. For more information, see Chapter 25, "Configuring Dock Objects for Siebel Remote."

   b Choose the Flat tab in Siebel Tools, and then submit one of the following queries to determine if a dock object visibility rule uses a particular column:

      - Query the SQL Statement and DBX SQL Statement properties of the Dock Object Visibility Rule object for the column you are considering.
      - Query the Filter Sql Statement property of the Dock Object Table object for the column you are considering.

   Note that you must display the dock object type and child object types of the dock object. For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

   For more information, see *Siebel Remote and Replication Manager Administration Guide*. If you are in doubt about how a column might affect Siebel Remote, then see "Getting Help from Oracle" on page 192.

2 To reuse a table column or business component field that references a LOV (list of values) bounded column, make sure you use a bounded list that uses the same LOV type as the column object.

   If the LOV Bounded property of the column is TRUE, then Enterprise Integration Manager enters data into the column only if the corresponding LOV type and value exist in the S_LST_OF_VAL table. For more information, see "Creating a List of Values" on page 463.

3 Consider the column type and size.

   In most situations, you must not change the type or size of the column. An exception is DB2 for OS/390 and z/OS operating systems, because these systems store the maximum size of a VARCHAR column in an index. For more information, see *Implementing Siebel Business Applications on DB2 for z/OS*.

4 Make sure a column you use is not obsolete.

   Examine the Comments property of the column to determine if the column is obsolete. You must not use an obsolete column because it might be deleted in a future release.

5 Examine the Foreign Key Table property of the Column object to determine if the correct foreign key relationship exists:

   - If a field on the business component already uses the key, then reuse that field rather than creating a new field. The original purpose of the unused foreign key field or column must match your intended use.
   - Do not use a foreign key column that does not contain the correct foreign key relationships.

   For more information, see "Guidelines for Considering a Foreign Key Relationship" on page 218.

6 Use a one-to-one ATTRIB column.

If no other suitable field or column exists, then some one-to-one tables contain generic ATTRIB columns that you can use. For example, the S_CONTACT_X table. If you use an ATTRIB column, make sure you do the following:

a Extend a base table with a custom extension column instead of using an ATTRIB column in the following situations:

- For foreign keys and the Primary ID Field. For more information, see "About the Primary ID Field" on page 100.
- For a column that Siebel CRM frequently queries or is always present in the result set. For example, a field that is in the initial list view of a screen, or a field whose Force Active or Link Specification property is TRUE.

b If you reuse a predefined ATTRIB column, then make sure another field does not use it. If another field does use it, then choose another unused ATTRIB column.

For more information, see "Options to Use a Predefined One-to-One Extension Table" on page 64.

7 Reuse an unused column for a new business component field.

You must verify that another field on the same business component does not already use the column. If more than one field references the same table column, then you might encounter a *duplicate column* insert error during a copy operation. In this situation, you must use the original Siebel field that references the desired column. Otherwise, use another appropriate column, such as a custom extension column or an unused ATTRIB column.

8 Use a user key column.

Note the following:

- Do not use a column that is part of the user key of a table for any other purpose than which the column is intended. Doing so might result in degraded performance. For more information, see *Siebel Performance Tuning Guide*.
- Do not enter data into a nonforeign key value or map the foreign key to a different table as a way to map a user key column that is a foreign key to a table. Enterprise Integration Manager (EIM) uses the user key to identify a unique record. Inappropriately entering data into a user key column that references a foreign key might prevent Enterprise Integration Manager from operating correctly.

For more information, see "How a User Key Creates a Unique Set of Values" on page 61.

## Guidelines for Considering a Foreign Key Relationship

You must not reuse a table only because it contains the necessary foreign key relationship. Instead, to add the required foreign key columns, you can do one of the following:

- Customize the database.
- Use the Siebel Dock Object Wizard.
- Use the EIM Table Mapping Wizard.

Do not use a predefined column that is not a foreign key to store a custom foreign key. Doing so can affect Siebel Remote and Enterprise Integration Manager. This situation can cause problems when Siebel CRM generates EIM mappings or routes data to the user.

# Determining If You Can Reuse a Predefined Business Component Field

This task is a step in "Process of Determining If You Can Reuse a Predefined Object" on page 214.

This topic describes the factors you must evaluate when you consider reusing a predefined business component field. Reusing a field if there is not a good technical or functional fit can lead to a poor result. In this situation, it is better to create a new, custom field. For more information, see "Process of Determining If You Can Reuse a Predefined Object" on page 214.

### *To determine if you can reuse a predefined business component field*

1 Examine the Primary ID Field.

   In certain situations, you can configure the Primary ID Field for a multi-value link to improve performance. For more information, see "About the Primary ID Field" on page 100.

   For a custom multi-value link, you must attempt to reuse an unused column or the Primary ID Field before you create a new custom extension column:

   a Make sure the Foreign Key Table property of the unused column references the table of the business component of the multi-value link.

   b Make sure the Primary Child Col property is TRUE.

   c Make sure the Primary Child Table, Primary Child Join Column, and Primary Join Column Name properties are set with an appropriate value.

      For a many-to-many relationship, the Primary Inter Table Name must reference the intersection table. Because you cannot set these values for a base table column that is predefined, you must make sure that the unused field or column is the appropriate Primary ID Field.

   d If you cannot locate an appropriate unused primary field or column, then you must verify that another multi-value link does not already use it.

      For more information, see "Sharing a Primary for a Multi-Value Link" on page 220.

   e If you cannot find a suitable unused Primary ID Field or column, then you must extend the base table and create a custom field.

      Note that the EIM Table Mapping Wizard does not automatically create an EIM explicit primary mapping object for a custom Primary ID Field. For more information, see "Improving Performance by Defining the Primary ID Field of a Multi-Value Link" on page 560.

2 Make sure the field you use is not inactive.

   Do not reactivate a field that is currently inactive in a predefined Siebel application for the following reasons:

- The field might be obsolete and be deleted in a future release
- The field might be part of future functionality that is not yet implemented.

3 Make sure a specialized business component does not reference the field.

Only use a field on a specialized business component for the purpose for which the field is originally intended. Specialized behavior might be affected due to an unintended use of the field.

4 Use a user key field.

For more information, see Step 8 on page 218.

## Examples of Reusing a Business Component Field or Table Column

The following are examples of how you might reuse a business component field or a table column:

- Use the Last Name or First Name field of the Contact business component to store the name of a contact.
- On the Account business component, instead of creating a custom extension column for a new field to store an email address, use the EMAIL_ADDR column of the S_ORG_EXT table.
- On the Order Entry business component, use the Revision field to store the revision number. Specialized behavior controls this field.
- On the Campaign business component, use the Route Prospects field to store information that describes the campaign contacts that Siebel CRM routes to the Remote client. If you store other information, then Siebel Remote performance might be compromised.
- Use the WEIGHT column on the S_CONTACT table to store the weight of the contact. Do not use it to store information that is not related to the weight of the contact.

**TIP:** The Comment property of the column object type often describes the intended purpose of the column. Use comments to help you decide when to reuse a column.

## Sharing a Primary for a Multi-Value Link

It is recommended that you do not share a primary for a multi-value link that returns different result sets because it can corrupt the primary. For example, assume two multi-value links reference business components against the same table but use different search specifications. Sharing the Primary ID Field for the two multi-value links causes Siebel CRM to set the Primary ID Field to the value of No Match Row Id because the value of the Primary ID Field might reference a record that one of the multi-value links does not return. For more information, see "Options to Filter Data Displayed in an Applet" on page 120.

# Determining If You Can Reuse a Predefined Business Component

Where possible, it is recommended that you reuse a business component in the predefined repository. However, you must only reuse a business component that provides a valid functional and technical fit with your requirements. If no suitable predefined business component exists, then it might be necessary to create a new one. It might also be necessary to customize the database to create a new table.

### *To determine if you can reuse a predefined business component*

1. Make sure the business component does not use a specialized class.

   Instead of using a specialized business component, create a new business component. If you use a business component that references a specialized class for a purpose other than for which it is intended, then the class code might generate problems that are difficult to debug. For example, if you use the eEvents Parent Event business component to store data that is not related to events management, then the specialized code might result in the creation of an undesirable subevent. For more information, see "Guidelines for Creating a Business Component That References a Specialized Class" on page 80.

2. Make sure the business component does not reference the S_PARTY table.

   Never use a business component that references the S_PARTY table for a purpose other than which the business component is intended. A business component that references the S_PARTY table influences other areas, such as access control and Remote visibility.

3. Make sure the business component is licensed.

   You cannot use a predefined business component that is not licensed for your configuration.

4. Make sure the business component is not a repository business component.

   Never customize a repository business component. The name of a repository business component begins with Repository.

# 11 Using the Entity Relationship Designer

This chapter describes how to use the Entity Relationship Designer. It includes the following topics:



## About the Entity Relationship Designer

The *Entity Relationship Designer* is a visual design tool you can use to create an entity relationship diagram (ERD). You then map the entities and relationships in the diagram to objects in the Siebel repository, such as business components, links, joins, and so forth. The Entity Relationship Designer includes the following capabilities:

- A drag-and-drop environment to create an ERD.
- Various edit and layout options, such as aligning shapes, moving shapes, and modifying text.

The Entity Relationship Designer provides the following benefits:

- Filters the list of objects from which you choose when you bind entities and relations to Siebel objects. This way, the list includes only those objects that support the context that the ERD represents. If no business components are suitable for binding, then you can open a wizard in the Entity Relationship Designer to assist you with creating a new business component.
- Allows you to use the *crows feet* diagraming format to define relationships between entities.
- Requires less work to define requirements for the data objects layer.
- Improves your ability to trace configuration changes back to data object layer requirements.
- Creates a permanent record of entity relationship design in the Siebel repository.

## Example of How the Entity Relationship Designer Filters Business Components

Figure 37 illustrates an example entity relationship diagram that contains two entities and one relationship.


Figure 37. Example of an Entity Relationship Diagram

Table 32 describes the business components that are available to bind to Entity C. The business components that are available to bind depends on how the Entity Relationship Designer filters them.

Table 32. Example of how the Entity Relationship Designer Filters Business Components

| Entity A | Relationship | Entity C | Business Components Available for Binding |
|---|---|---|---|
| Unbound | Any | Unbound | All business components are available for binding. |
| Bound | one-to-one | Unbound | A business component that contains a join to the primary table of the business component that is bound to Entity A is available for binding. |
| Bound | one-to-many | Unbound | The following business components are available for binding:<br>■ A business component that contains a link to the business component that is bound to Entity A, where the business component bound to Entity A is the parent.<br>■ A business component that contains a join to the primary table of the business component that is bound to Entity A. |
| Bound | many-to-one | Unbound | The following business components are available for binding:<br>■ A business component whose primary table is the table that is joined to the business component that is bound to Entity A.<br>■ A business component that contains a link with the business component that is bound to Entity A, where the business component bound to Entity A is the child. |
| Bound | many-to-many | Unbound | A business component that is in the intersection of the one-to-many and many-to-one examples described in this topic is available for binding. |

## Example of How the Entity Relationship Designer Filters Links and Joins

Figure 37 on page 224 illustrates an example ERD that contains two entities and one relationship. Assume you bind entities A and C to business components and that you must bind the relationship AC to a link or join. The Entity Relationship Designer filters the list of links and joins that are available for binding that the context described in the ERD requires.

Table 33 describes the links and joins that are available to bind to relationship AC.

Table 33. Example of how the Entity Relationship Designer Filters Links and Joins

| Relationship AC | Objects That Are Available to Bind |
|---|---|
| one-to-many | The following objects are available to bind:<br>■ A join whose source is the business component that is bound to Entity C, and whose destination is the primary table of the business component that is bound to Entity A.<br>■ A link between the business component that is bound to Entity A and the business component that is bound to Entity C, where the business component bound to Entity A is the parent and the business component bound to Entity C is the child. |
| many-to-one | The following objects are available to bind:<br>■ A join whose source is the business component that is bound to Entity A to the primary table of the business component that is bound to Entity C.<br>■ A link between the business component that is bound to Entity C and the business component that is bound to Entity A, where C is the parent and A as the child. |
| many-to-many | A link between business components that are bound to Entities A and C is available to bind. |

# Process of Creating and Binding an Entity Relationship Diagram

This task is a step in "Roadmap for Configuring a Siebel Application" on page 187.

To create and bind an ERD, perform the following tasks:

1. Creating an Entity Relationship Diagram on page 226
2. Binding an Entity to a Business Component on page 227
3. Associating an Entity Attribute with a Business Component Field on page 227
4. Binding a Relationship to a Link or Join on page 227

Two people are typically involved with creating and binding an ERD:

- A business analyst defines an ERD that represents your business model because the analyst possesses knowledge about the business.
- A technical architect or developer binds the entities and relationships in the diagram to Siebel objects because the architect or developer possesses knowledge about the data objects layer.

## Creating an Entity Relationship Diagram

This task is a step in "Process of Creating and Binding an Entity Relationship Diagram" on page 225.

An ERD can include business entities, entity properties, and the type of relationship that exists between entities, such as one-to-one, one-to-many, or many-to-many. Examples of common business entities include accounts, contacts, and addresses.

### *To create an entity relationship diagram*

1. Open Siebel Tools.
2. Make sure object types for the Entity Relationship Designer are displayed.

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.
3. In the Object Explorer, click Entity Relationship Diagram.
4. In the Entity Relationship Diagrams list, right-click, and then choose New Record.
5. Enter a name and associate a project to the new record.

   The project must be locked to enter it in the Project field. For more information, see *Using Siebel Tools*.
6. Right-click and choose Edit Entity Relationship Diagram.

   Siebel Tools displays the canvas of the Entity Relationship Diagram.
7. Drag and drop an entity from the ERD Palette to the canvas.
8. Click the entity, and then enter a value in the Name property in the Properties window.
9. Repeat Step 7 through Step 8 for the next entity in your diagram.
10. Drag and drop the desired relationship, such as ERD 1:1, from the pallet to the canvas.
11. Connect each end of the relationship to a connector point on one of the entities.

    **TIP:** Before you connect two entities, place the entities to be connected on a horizontal plane, with the preceding entity placed on the left and the subsequent entity placed on the right. Also, place the entities in close proximity to one another. This way, when you drop the relationship, Siebel Tools automatically connects the start point and the end point of the relationship.
12. Repeat Step 7 through Step 11 until you added and connected all entities and relationships.

## Binding an Entity to a Business Component

This task is a step in "Process of Creating and Binding an Entity Relationship Diagram" on page 225.

After you create an ERD that includes entities, you can bind an entity to a business component. If you bind an entity, then the Entity Relationship Designer filters the list of business components so that they fit the context of the ERD. For more information, see "Example of How the Entity Relationship Designer Filters Business Components" on page 224.

### *To bind an entity to a business component*

1. In the Entity Relationship Designer, right-click an entity, and then choose Bind Business Component.
2. In the Bind Business Component dialog box, choose the business component that you must bind to the entity.

   If no business component meets your needs, you can click New to start the New Business Component Wizard. For more information, see "Customizing a Business Component" on page 247.

   After you click OK, Siebel Tools displays the name of the business component and the underlying base table in the entity.

## Associating an Entity Attribute with a Business Component Field

This task is a step in "Process of Creating and Binding an Entity Relationship Diagram" on page 225.

After you bind an entity to a business component, you can associate an entity attribute with a business component field.

### *To associate an entity attribute with a business component field*

1. In the Entity Relationship Designer, choose an entity that is bound to a business component.
2. Right-click in the Multi Value Property Window, and then choose New Record.
3. In the Business Component field, click the arrow, and then choose a field.

   Siebel Tools associates the attribute with the business component field. Note that the pick applet that displays if you click the arrow in the Business Component field is context-sensitive. It displays business component fields that are bound to the entity. If the entity is not bound to a business component, then Siebel Tools displays a set of default fields in the pick applet.

## Binding a Relationship to a Link or Join

This task is a step in "Process of Creating and Binding an Entity Relationship Diagram" on page 225.

After you bind two entities to business components, you can bind the relationship between them. You can bind this relationship to a link or join. For more information, see "Example of How the Entity Relationship Designer Filters Links and Joins" on page 225, and "About Links" on page 105.

### *To bind a relationship to a link or join*

1. In the Entity Relationship Designer, choose a relationship between entities.

   Note that you must bind the two entities that the entity relationship joins before you can bind a relationship to a link or join.

2. Right-click, and then choose Bind Entity Relation.

   In the Bind Relationships dialog box, Siebel Tools displays the joins or links that exist between the two business components.

3. Choose the join or link that best represents the relationship that your ERD describes.

   After you complete the bind, Siebel Tools bolds the relationship in the Entity Relationship Designer.

# Opening or Modifying an Entity Relationship Diagram

You can open, view, and modify an ERD.

## Opening an Entity Relationship Diagram

You can open an entity relationship diagram.

### *To open an entity relationship diagram*

1. In the Object Explorer, click Entity Relationship Diagram.
2. In the Entity Relationship Diagrams list, right-click the diagram you must open, and then choose Edit Entity Relationship Diagram.

## Viewing the Entities and Relations Lists of an ERD

You can toggle between the Entities List and the Relations List in the Object Explorer.

### *To view the entities or relations list of an ERD*

- To view the entities list, in the Object Explorer, expand the Entity Relationship Diagram tree, and then choose the Entity tree.

- To view the relations list, in the Object Explorer, expand the Entity Relationship Diagram tree, and then choose the Entity Relation tree.

# Modifying the Properties of a Relationship

You can use the Entity Relationship Diagrams list or the Properties window to modify the properties of a relationship. For example, you can change the text that Siebel Tools displays at the end points of a relationship.

**NOTE:** You cannot use the Entity Relationship Diagrams list or the Properties window to modify the type of relationship, such as changing a one-to-one relationship to a one-to-many relationship. To change the type of relationship, delete the old relationship, and then drag the new desired relationship from the ERD Palette to the canvas.

## Using the Properties Window to Modify the Properties of a Relationship

You can use the Properties window to modify the properties of a relationship.

### *To use the Properties window to modify the properties of a relationship*

1. Open an entity relationship diagram.

   For more information, see "Opening an Entity Relationship Diagram" on page 228.

2. In the Entity Relationship Designer, choose the relationship you must modify.
3. In the Properties window, edit the property you must modify.

   If you change the value for the Name, End Name 1, or End Name 2 property, then Siebel Tools updates the labels in the diagram.

## Using the Entity Relations List to Modify the Properties of a Relationship

You can use the Entity Relations list to modify the properties of a relationship.

### *To use the Entity Relations list to modify the properties of a relationship*

1. In the Object Explorer, click Entity Relationship Diagram.
2. In the Entity Relationship Diagrams list, locate the entity relationship diagram you must modify.
3. In the Object Explorer, expand the Entity Relationship Diagram, and then click Entity Relations.
4. In the Entity Relations list, locate the record you must modify.
5. In the Properties window, edit the property you must modify.

   If you change the value for the Name, End Name 1, or End Name 2 property, then Siebel Tools updates the labels in the diagram.

## Copying the Drawing of an Entity Relationship Diagram

You can copy the drawing of an ERD and paste it into a third-party application, such as Microsoft Word or Outlook. You cannot copy a drawing from one ERD and paste it into another ERD.

### *To copy the drawing of an entity relationship diagram*

1. In the Entity Relationship Designer, right-click the canvas, choose Copy, and then choose Drawing.
2. In another application, such as Word or Outlook, choose Paste from the Edit menu.

# Manipulating Shapes and Lines in an Entity Relationship Designer

This topic describes how to change the appearance of shapes and lines in the Entity Relationship Designer. It includes the following topics:



## Manipulating Shapes in the Entity Relationship Designer

This topic describes ways that you can manipulate shapes in the Entity Relationship Designer. You perform all tasks described in this topic in the Entity Relationship Designer.

### *To manipulate shapes in the Entity Relationship Designer*

1. To modify the appearance of a shape in an ERD:
   a. Choose an entity or relationship.
   b. Right-click, and then choose Shape Properties.
   c. Modify the properties in the Item Properties dialog box, and then click OK.
2. To choose multiple objects in an ERD:
   a. Choose an entity.
   b. Hold down the shift key.
   c. With the shift key still depressed, click another entity.

d Release the shift key.

3 To align shapes relative to each other:

a Choose multiple objects in the Entity Relationship Designer.

For more information, see Step 2.

b Right-click the canvas, choose Layout, Align, and then choose one of the following menu items:

- Lefts
- Centers
- Rights

4 To make shapes the same size:

a Choose multiple objects in the Entity Relationship Designer.

For more information, see Step 2.

b Right-click the canvas, choose Layout, Make Same Size, and then choose one of the following menu items:

- Width
- Height
- Both

## Manipulating Relationships in the Entity Relationship Designer

This topic describes how to manipulate relationships in the Entity Relationship Designer. You perform all tasks described in this topic in the Entity Relationship Designer.

### *To manipulate relationships in the Entity Relationship Designer*

1 To add a point to a relationship:

a Right-click a relationship, choose Edit, and then choose Add Point.

b Grab the point, and then drag it to a new position on the canvas.

You can change the shape of a relationship. For example, you can add a right angle. This technique helps to avoid overlapping lines in a complex diagram.

2 To hide the text labels of a relationship, right-click a relationship, choose Edit, and then choose Hide Text.

You can hide the text label of a relationship, including the Relationship Name, End Name 1, and End Name 2.

3 To move the name of a relationship, right-click a relationship, choose Edit, and then choose Move Text Back or Move Text Forward.

   You can change where Siebel Tools displays the text label for the name of a relationship. Note that you cannot change the location of the text labels for the End Name 1 and End Name 2 properties.

4 To return text labels of a relationship to the default setting, right-click a relationship, choose Edit, and then choose Move Text to Default.

5 To display a connection point, right-click the canvas, and then choose Connection Points.

   To hide connection points, choose Connection Points again to remove the check mark.

   A *connection point* is the point on an entity where the relationship connects. You can display or hide a connection point. For example, you can display connection points when you create an ERD and then hide them when you print an ERD.

## Moving Shapes in the Entity Relationship Designer

To move a shape in the Entity Relationship Designer canvas, you can drag and drop it or use the menu items in the Layout menu.

### *To move shapes in the Entity Relationship Designer*

- In the Entity Relationship Designer, do one of the following:
  - Drag the shape to another position on the canvas.
  - Right-click the shape, choose Layout, Move, and then choose one of the menu items described in the following table.

| Menu item | Description |
|---|---|
| Left by 1 | Moves the shape in the direction you choose by 1 pixel. |
| Right by 1 | |
| Up by 1 | |
| Down by 1 | |
| Left by X | Moves the shape in the direction you choose according to the number of pixels that one cell on the canvas contains. The number of pixels can vary depending on the resolution setting of your monitor. |
| Right by X | |
| Up by X | |
| Down by X | |

**TIP:** You can also use the shortcut keys that Siebel Tools displays in the Move submenu of the Layout menu.

# Resizing Shapes in the Entity Relationship Designer

To resize a shape, you can drag it in the canvas or use the Resize menu item in the Layout menu.

### *To resize shapes in the Entity Relationship Designer*

1. In the Entity Relationship Designer, choose the shape you must resize.
2. Do one of the following:
   - Click one of the connection points on the entity, then drag it to a new position.
   - Right-click the entity, choose Layout, Resize, and then choose one of the menu items described in the following table.

| Menu item | Description |
|---|---|
| Height by 1 | Resizes the dimension you choose by 1 pixel. |
| Height by -1 | |
| Width by 1 | |
| Width by -1 | |
| Height by X | Resizes the dimension you choose according to the number of pixels that one cell of the canvas contains. The number of pixels can vary depending on the resolution setting of your monitor. |
| Height by -X | |
| Width by X | |
| Width by -X | |

**TIP:** You can also use the shortcut keys in the Expand submenu of the Layout menu.

# Zooming, Displaying the Grid, or Snapping to the Grid in the Entity Relationship Designer

You can zoom, display the grid, or snap to the grid in the Entity Relationship Designer.

### *To zoom, display the grid, or snap to the grid in the Entity Relationship Designer*

1. To zoom in the Entity Relationship Designer, right-click the canvas, choose Zoom, and then do one of the following menu items:
   - Choose Zoom In.
   - Choose Zoom Out.
   - Choose a percentage.

   You can choose a default zoom amount or enter a percentage to zoom in and out of an ERD.

2 To display the grid, right-click the canvas, and then choose Show Grid.

   To hide the grid, choose Show Grid again, which removes the check mark.

   The grid helps you align entities and relationships in an ERD. It is useful to display the grid when you work in the canvas and then hide it when you print the ERD.

3 To turn on the Snap to Grid feature, right-click the canvas, and then choose Snap to Grid.

   The Snap to Grid feature helps you keep entities and relationships aligned while you define your ERD.

# 12 Configuring Tables

This chapter describes tasks you perform to configure tables. It includes the following topics:



For more information, see "Options to Customize the Data Objects Layer" on page 63.

## Using the New Table Wizard to Create a New Table

The New Table Wizard allows you to create a new stand-alone table, extension table, or intersection table. It provides lists that display appropriate choices for each type of table and makes sure that you use the correct naming formats. For more information, see "Guidelines for Creating a New Table" on page 68.

### *To use the New Table Wizard to create a new table*

1. In Siebel Tools, choose the File menu, and then the New Object menu item.
2. On the General tab of the New Object Wizards dialog box, click Table, and then click OK.
3. In the General dialog box, in the Enter a Name for the New Table field, enter a new table that begins with CX_.

   If you do not enter a name, then the New Table Wizard automatically adds a prefix.

   **NOTE:** You must enter the Table Name in uppercase. A mixed case or lowercase name might result in problems if you apply the changes to certain databases.
4. In the Choose a Project in Which You Wish to Create the Table field, choose a project.

   The New Table Wizard restricts the Project list to only locked projects. The wizard restricts all lists that display in the wizard to objects that belong to locked projects.
5. In the Select the Type of the Table field, choose from the following options:
   - A stand-alone Table

- 1:1 Extension Table for a predefined Table
- 1:M Extension Table for a predefined Table
- Intersection Table between two existing Tables

If you choose 1:1 Extension Table for an Existing Table, then the New Table Wizard applies the _X suffix to the table name.

6 Click Next.

The subsequent dialog box displays depending on the type of table you are adding.

7 If you are creating a stand-alone table, then click OK in the Finish dialog box.

8 If you are creating a one-to-one or many-to-one extension table, then choose the parent table in the Parent Table Specification dialog box, click Next, and then click Finish.

The wizard restricts the list of available parent tables to Data (Public) tables.

9 If you are creating an intersection table, then do the following:

a Add the parent tables and names of foreign key columns to the parent table in the Parent Table Specification dialog box.

The New Table Wizard restricts the lists for the Select the First Parent Table field and the Select the Second Parent Table field to all Data (Public) tables. The wizard verifies the names of the Foreign Key columns that you enter. This verification makes sure that they are unique and do not conflict with each other or with other system column names.

b Click Next.

Siebel Tools displays the Finish dialog, which allows you to review the changes before the wizard creates the objects.

c Click Finish to generate the table.

Siebel Tools displays the new table in the Tables list. The name is CX_*YOUR_CUSTOM_NAME*_X.

10 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Work That the New Table Wizard Performs

This topic describes work that the New Table Wizard performs.

**NOTE:** If you use the New Table Wizard to create a custom extension table, then the wizard adds a U1 index to the table. However, the User Key column is empty. Siebel CRM does not support creating a user key on a custom table.

For all tables, the New Table Wizard creates seven system columns and a P1 index on ROW_ID.

For a one-to-one extension table, the wizard sets the Type property to Extension and does the following work:

- Creates a column for PAR_ROW_ID

- Sets the User Key Sequence property to 1
- Sets the Foreign Key Table property to *BASE_TABLE_NAME*

- Creates a U1 index that includes PAR_ROW_ID(1) and CONFLICT_ID(2)
  - Sets the Unique and Cluster properties to TRUE
  - Sets the Type property to User Key
  - Sets the User Primary Key property to TRUE

For a many-to-one extension table, the New Table Wizard sets the Type property to Data (Public) and does the following work:

- Creates the following columns:
  - PAR_ROW_ID
  - TYPE
  - NAME
- Creates a U1 index that includes PAR_ROW_ID(1), TYPE (2), NAME (3), and CONFLICT_ID (4)
  - Sets the Unique and Cluster properties to TRUE
  - Sets the Type property to User Key
  - Sets the User Primary Key property to TRUE
- Creates an M1 index on TYPE (1) and NAME (2)
  - Sets the Unique and Cluster properties to FALSE
  - Sets the Type property to System

For an intersection table, the New Table Wizard sets the Type property to Data(Intersection) and does the following work:

- Creates a TYPE column for added user functionality
- Creates two Foreign Key columns using names you defined in the wizard
  - Sets the User Key Sequence property to 1 and 2
  - Sets the Foreign Key Table property to Parent Table
- Creates a U1 index on the two Foreign Keys (1, 2), TYPE (3), and CONFLICT_ID (4)
  - Sets the Unique and Cluster properties to TRUE
  - Sets the Type property to User Key
  - Sets the User Primary Key property to TRUE
- Creates an F1 index on the Foreign Key to the second parent table

# Creating a Custom Index

This topic describes how to create a custom index. For more information, see "Guidelines for Creating a Custom Index" on page 69.

### *To create a custom index*

1. In Siebel Tools, in the Object Explorer, click Table.
2. In the Tables list, locate the table to which you must add an index.
3. In the Object Explorer, expand the Table tree, and then click Index.
4. In the Indexes list, add a new index.

   When you add a custom index to a table, Siebel Tools appends an _X to the index name. Do not use an index name that includes a word that is reserved on your server or client database. For more information, see "Indexes of a Siebel Table" on page 61 and *Siebel Object Types Reference*.
5. In the Object Explorer, expand the Index tree, and then click Index Column.
6. In the Index Columns list, add a new record for each index column.

   For more information, see "Index Columns of an Index" on page 61.

# Adding an Extension Column to a Base Table

This topic describes how to add an extension column to a base table. For more information, see "Guidelines for Adding an Extension Column to a Base Table" on page 68.

**CAUTION:** Be extremely careful if you use a custom extension column to track a foreign key. If you use this technique, then it is recommended that you consult with Oracle concerning the visibility rules that Siebel CRM applies to the foreign key table. To use Enterprise Integration Manager to load values into the column, you must set the Foreign Key Table Name property to NULL for that column. For information on creating a foreign key mapping for Enterprise Integration Manager, see "About Interface Tables" on page 565.

### *To add an extension column to a base table*

1. In the Object Explorer, click Table.
2. In the Tables list, choose the table to which you must add an extension column.
3. Make sure the Type property for the table is not Data (Private).
4. In the Object Explorer, expand the Table tree, and then click Columns.
5. In the Columns list, add a new record.
6. Apply the changes to your local database.

   For more information, see "Applying a Custom Table to the Local Database" on page 242.

# Configuring Objects to Use a One-To-Many Extension Table

To use a one-to-many extension table, you must configure the objects described in this topic.

**CAUTION:** Do not use a one-to-many extension table as an extension to a predefined one-to-many extension table. This technique causes problems with Enterprise Integration Manager and docking processes.

### *To configure objects to use a one-to-many extension table*

1. Create a new business component and new fields in the business component that references columns in the one-to-many extension table that you use to store data.
2. Define the following business component fields:
   a. **PAR_ROW_ID.** References the foreign key field that the one-to-many link uses.
   b. **NAME.** Makes the record unique for each parent record.
   c. **TYPE.** Groups records in the extension table.
      - Set a default value for the Type field.
      - Define the search specification for the business component to automatically search for records in the extension table that contain the default value. For more information, see "Options to Filter Data Displayed in an Applet" on page 120.

   To satisfy the U1 index of the one-to-many extension table, the combination of NAME, TYPE, and PAR_ROW_ID is unique.
3. Add a link and business object component that establishes the parent-child relationship between the new, child business component and the parent business component.

# Customizing an Extension Table

This topic describes options to customize an extension table. It includes the following topics:



## Creating a LONG Column on an Extension Table

You can create a LONG extension column. For more information, see "Guidelines for Creating a LONG Column" on page 69.

### *To create a LONG column on an extension table*

1. Locate an appropriate one-to-one extension table that corresponds to the base table that requires the LONG column.

   The S_EVT_ACT_X table is an example of a one-to-one extension table for the S_EVT_ACT table.

2. Create a column in the table.

3. Set the Physical Type property of the column to Long and the Length property 0.

   For more information, see "Adding an Extension Column to a Base Table" on page 238.

4. Apply the changes to your local database.

   For more information, see "Applying a Custom Table to the Local Database" on page 242.

## Manually Creating a One-to-One Extension Table

Although you can manually create a one-to-one extension table, it is recommended that you use the New Table Wizard. For more information, see "Guidelines for Creating a Custom One-to-One Extension Table" on page 70 and "Using the New Table Wizard to Create a New Table" on page 235.

### *To manually create a one-to-one extension table*

1. In Siebel Tools, in the Object Explorer, click Table.

2. In the Tables list, locate the base table on which you must create an extension table.

3. Verify that the Type property for the table contains Data (Public).

4. Click Extend.

   The Database Extension Designer automatically creates the required predefined columns and predefined indexes, and then Siebel Tools displays the extension table in the Tables list. If necessary, the designer also creates temporary columns in an interface table that Siebel Tools imports to the base table for this extension table.

5. (Optional) Define more extension columns on the custom extension table.

   For more information, see "Adding an Extension Column to a Base Table."

## Modifying a Custom Extension Table or Column

After you create a custom extension table or column, you can only modify the properties of the table or column. You can rename a column before you apply it to the Siebel Server. However, after you add the column or apply it to the Siebel Server, you cannot rename the column. You must deactivate the column and create a replacement extension column.

Be careful if you modify the Physical Type property of a column. Depending on existing data in the column, it might not be possible to make a change.

Siebel CRM does not support modifying a predefined base table or the columns of a predefined base table. You cannot modify the extension tables that come predefined with Siebel CRM. For more information, see "How an Extension Table Stores Custom Data" on page 47.

### *To modify a custom extension table or column*

1. Open Siebel Tools.
2. In the Object Explorer, click Table.
3. (Optional) Modify a custom extension column:
   a. In the Tables list, locate the table that contains the extension column you must modify.

      If you are adding a new extension table to the EIM Table Mapping list, then make sure you click Activate to create all the temporary columns that Enterprise Integration Manager (EIM) requires.

   b. In the Object Explorer, click Column.
   c. In the Columns list, locate the extension column you must modify, and then modify the properties.
4. (Optional) Rename a custom extension column:
   a. In the Tables list, locate the table you must modify, and then deactivate the unwanted column.
   b. In the Tables list, create a new table column.
   c. Export the data from the old column.
   d. Use ddlsync.ksh to synchronize the logical and physical schema and import the data.
   e. Delete the column you deactivated in Step a.
5. (Optional) Modify a custom extension table:
   a. In the Tables list, locate the extension table you must modify.
   b. Modify properties, as you require.

## Deleting a Custom Extension Table or Column

You can delete from the logical schema a custom extension table or column that you defined. Although deleting a table or column removes it from the logical schema in the Siebel repository, it does not remove it from the physical schema of the Siebel database.

**NOTE:** You can only delete a custom extension column or table. You cannot delete a predefined table or the columns of a predefined table.

After you delete an extension table, Siebel Tools does not delete any corresponding temporary columns in an interface table. You cannot use Siebel Tools to delete these columns. The columns will remain in the logical and physical schema.

If a column is empty at the database level, and if the column is in the Siebel repository, and if the column is in the development environment but is not in the production environment, then your database administrator can use a database tool to remove a column that you do not require. However the database administrator must perform a full database backup before removing a column. The administrator must be careful when deleting a column because removing a column that Siebel CRM still references might require the administrator to revert to a full backup.

Using the Siebel Database Configuration Wizard to run the Synchronize Schema Definition (ddlsync) utility does not delete a column that is inactive or that was deleted from the Siebel Repository. For more information, see *Siebel Database Upgrade Guide*.

### *To delete a predefined extension column*

1. In the Object Explorer, click Table.
2. In the Tables list, locate the table that contains the extension column you must delete.
3. In the Object Explorer, expand the Table tree, and then click Column.
4. In the Columns list, locate the extension column you must delete.
5. Choose the Edit menu, and then the Delete menu item.

   **NOTE:** Siebel Tools does not cascade the deletion of an extension column. You must delete or deactivate the attribute map after you delete an extension column. To delete an attribute map, navigate to the Attribute Mappings list in Siebel Tools, and then delete the record.

### *To delete a predefined extension table*

1. In the Object Explorer, click Table.
2. In the Tables list, locate the table you must delete.
3. Choose the Edit menu, and then the Delete menu item.

## Applying a Custom Table to the Local Database

After you customize a table you must apply your customizations to the local database. Note that Siebel CRM does not support a custom database trigger. If you create a custom trigger on a Siebel base table, then you must disable it before you update the logical database schema. You must redefine the trigger after you finish the update.

This topic describes how to apply a custom table to the local database for databases other than DB2 for z/OS. If you use DB2 for z/OS, then see *Implementing Siebel Business Applications on DB2 for z/OS*.

### *To apply a custom table to the local database*

1. In the Object Explorer, click Table.
2. In the Tables list, locate the table that includes your customization.
3. In the Tables list, click Apply/DDL.

   Note that Siebel Tools disables the Apply/DDL button for tables whose Type property is External. For more information, see *Overview: Siebel Enterprise Application Integration*.

4. In the Choose Option dialog box, do one of the following:

   - Choose the Apply option, and then click OK.

- For z/OS

As an option, you can choose Generate DDL to create a DDL file instead of applying the customization.

5 In the Warning dialog box, click OK.

6 In the Apply Schema dialog box, complete the fields using values from the following table.

| Field | Description |
|---|---|
| Tables | Choose one of the following options:<br>■ **All.** Update the local database to reflect all changes Siebel Tools makes to the dictionary. If you choose this option, then Siebel Tools compares each database object with the data dictionary and updates the dictionary, if necessary.<br>■ **Current Query.** Update the local database to reflect modifications Siebel Tools makes to the tables in the current query only.<br>■ **Current Row.** Update the local database to reflect modifications Siebel Tools makes to the table in the current row only. |
| Table space | Leave each of these fields empty. These fields are specific to DB2 for z/OS. |
| 16K table space | |
| 32K table space | |
| Index space | |
| Storage control file | Optional. The DBA provides this file. It is specific to your database. |
| Database user | Enter your database user ID, which is typically SIEBEL. Siebel Tools reads the table owner from the configuration file for Siebel Tools. |
| Database user password | Enter your user password for the local database. For example, SADMIN.<br>Because the password is case sensitive, all characters of the password must be in uppercase. For example, assume the remote user JSMITH initialized the local database and used DB2 as the password. If the user applies a schema change to the local database, then the user must use SIEBEL as the Privileged User Id and DB2 as the Password.<br>When Siebel CRM initializes the local database for a remote client, Siebel CRM changes the table owner password from SIEBEL to the password of the remote user. In this situation, use the password of the remote user in the password field. |
| ODBC data source | Verify that the ODBC connection in the ODBC Data Source text box is correct for your environment.<br>You cannot apply a schema change to any database other than the database to which you are currently connected. You cannot define the ODBC name of a different database. |

7 Click Apply.

Your custom extension table and columns are now available to use in your configuration.

8 (Optional) To activate a customization on an Enterprise Integration Manager table, choose the appropriate table, and then click Activate.

9 Test the customization.

## Applying a Data Layer Customization to the Server Database

You must apply your customization to the physical server database. Until you do so, Siebel CRM only updates the logical database schema of the server database. You can use Siebel Tools or the Database Configuration Utility to apply a customization to the data objects layer.

**CAUTION:** If a table is marked as Inactive in the Siebel Repository, and if you click Apply/DDL, then Siebel Tools drops the underlying table from the Siebel database.

### *To apply a data layer customization to the server database*

1 Test your customization in the local environment.

2 Prepare the server database:

a Make sure all remote users synchronize.

b Make sure all connected clients are disconnected from the database server.

c After Siebel CRM merges and routes all transactions for remote users, stop all Siebel Servers.

d Perform a full backup of the server database.

3 Connect to the Siebel Server.

4 Check your projects into to the server database.

5 In the Object Explorer, click Table.

6 In the Tables list, locate the table on which you must apply a change to the Siebel database.

7 In the Tables list, click Apply/DDL.

**NOTE:** Siebel Tools disables the Apply/DDL button for tables that contain External in the Type property. For more information, see *Overview: Siebel Enterprise Application Integration*.

8 In the Choose option dialog box, choose the Apply option, and then click OK.

9 In the Apply Schema dialog box, perform Step 6 on page 243.

If you receive an error message and cannot apply your customization on the server database, then you must use the Database Server Configuration Utility. For more information, see "Downloading a Data Layer Customization to Remote Users" on page 245.

10 In the Apply Schema dialog box, click Apply.

11 In the Tables list, click Activate.

Siebel Tools increases the version of the custom database schema and prepares the upgrade of the remote client. The customization now exists physically on the server database.

12 Restart the Siebel Server.

Your customization tables and columns are now available to use in your configuration.

## Downloading a Data Layer Customization to Remote Users

After you check in extensions to your server database and apply the physical database, you can download the schema changes to remote users.

### *To download a data layer customization to remote users*

1 Make sure all remote users perform a full synchronization.

2 If you use Siebel Anywhere, then do the following:

a Create an Upgrade Kit on your Server database that includes the Siebel Database Schema as the upgrade kit component.

For more information, see *Siebel Anywhere Administration Guide*.

b Click Activate on the Upgrade Kits View to make the upgrade kit available.

3 If you do not use Siebel Anywhere, then do the following:

a Log in to Siebel Tools while connected to the server database.

b In the Object Explorer, click Table.

c In the Tables list, locate the table that includes your customization.

d In the Tables list, click Activate.

Siebel Tools increases the version of the custom database schema and prepares the upgrade of the remote client.

4 To regenerate the template local database, run gennewdb.

For more information, see *Siebel Remote and Replication Manager Administration Guide*.

5 Reextract remote clients.

Each remote client must reinitialize the local database with the extracted data. This procedure differs depending on if you use Siebel Anywhere.

6 If you use Siebel Anywhere, then click Distribute in the Upgrade Configurations View.

This step makes the new custom schema version available for a schema upgrade. You must manually set the Required flag. For more information, see *Siebel Anywhere Administration Guide*.

7 If you do not use Siebel Anywhere, then manually reextract and reinitialize all remote user databases.

# 13 Configuring Business Components, Links, and Business Objects

This chapter describes how to configure business components, links, and business objects. It includes the following topics:



# Customizing a Business Component

This chapter describes how to configure a business component. It includes the following topics:



## Creating a New Business Component

You might need to create a new business component if there are no predefined business components that provide a good functional or technical fit for your business requirements. For example, if you must predefault record values to a different type as a way to differentiate certain records from other records in the same table.

For more information, see Chapter 10, “Reusing Predefined Objects”.

### *To create a new business component*

1. Make sure you cannot use a predefined business component.

   For more information, see “Determining If You Can Reuse a Predefined Business Component” on page 221.

2. In Siebel Tools, choose the File menu, and then the New Object menu item.

3 In the General tab, choose BusComp, and then click OK.

4 In the New Business Component Wizard, choose a project, enter a name for the business component, and then click Next.

5 In the Single Value Fields dialog box, choose a column in the Base table, and then enter a name for the field.

6 Click Add, and then click Finish.

   Siebel Tools displays the business component you just created in the Business Components list.

7 In the Business Components list, define the properties to meet your requirements.

For more information, see "Properties of a Business Component" on page 671.

## Determining How a Business Component Sorts Records

You can create a sort specification on a business component to determine how a business component sorts records. For more information, see "How a Business Component Sorts Records" on page 78.

### *To determine how a business component sorts records*

1 In Siebel Tools, in the Object Explorer, click Business Component.

2 In the Business Components list, locate the business component you must modify.

3 In the Sort Specification property, enter a sort specification, and then save your changes.

   You must follow a specific format. For more information, see "Guidelines for Determining How a Business Component Sorts Records" on page 81.

4 Compile and test your changes.

   For more information, see *Using Siebel Tools*.

## Determining How a Business Component Sequences Records

Sequential numbering is not predefined in any system column in a predefined table in Siebel CRM. However, you can configure a sequence field in a child business component to determine how a business component sequences records. For more information, see "How a Business Component Field Sequences Records" on page 85.

### *To determine how a business component sequences records*

1 Verify that the class of the child business component is CSSBCBase or a subclass of CSSBCBase.

   If it is not, then contact Oracle Technical Services for assistance with this procedure. For more information, see "Getting Help from Oracle" on page 192.

2 Verify that the business component to which you must add a sequence field is the child business component in a parent-child relationship.

This child is the numbered business component. Siebel CRM numbers child records beginning with 1 in each parent record.

3 Add a child field to the numbered business component using values from the following table.

| Property | Value |
|---|---|
| Name | Enter text that indicates on which data Siebel CRM performs the sort, such as Line Number or Order. |
| Column | Enter a numeric extension column, such as ATTRIB_14. |
| Type | DTYPE_NUMBER |

4 Add a child business component user prop to the numbered business component using values from the following table.

| Property | Value |
|---|---|
| Name | Sequence Field |
| Value | Enter the field name you defined in Step 3. |

5 Create a business component using values from the following table.

| Property | Value |
|---|---|
| Class | CSSSequence |
| table | Enter the name of the base table of the numbered business component. |
| Name | Enter a name using the following format:<br>*name of the numbered business component.name of the sequence value field* (Sequence) |

6 Set the Sort Spec of the business component you created in Step 5 to Sequence (DESCENDING).

7 Add a child field to the sequence business component using values from the following table.

| Property | Value |
|---|---|
| Name | Sequence |
| Column | Enter the same value you entered for the column in Step 3. |

8 Add a child field to the sequence business component.

This field is the foreign key field that establishes the parent-child relationship to the parent business component. Set the Column property to the same column as the corresponding field in the numbered business component.

9 Create a link that establishes a parent-child relationship between the parent and sequence business components.

For more information, see "About Links" on page 105.

10 Create a child business object component of the business object that uses the predefined link between the parent business component and the numbered business component. Use values from the following table.

| Property | Value |
|---|---|
| Link | Choose the link you defined in Step 9. |
| BusinessComp | Choose the sequence business component. |

11 Display the sequence value field in applets that display records from the numbered business component.

12 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Example of Defining Read-Only Behavior for a Business Component

This topic describes one example of defining read-only behavior for a business component. You might use this feature differently, depending on your business model.

In this example, if an account record includes a competitor, then the user must not choose any competitors for the account. If the Type field includes a value of Competitor, then you must make the Competitor field in the account record read-only.

For more information, see "How Siebel CRM Defines Read-Only Behavior for a Business Component Field" on page 87.

### *To define read-only behavior for a business component*

1 In the Object Explorer, click Business Component.

2 In the Business Components list, locate the Account business component.

3 In the Object Explorer, expand the Business Component tree, and then click Field.

4 In the Fields list, create a field using values from the following table.

| Property | Value |
|---|---|
| Name | Competitor Calculation<br>You can use any name. |
| Calculated | TRUE |
| Calculated Value | IIf([Type] = "Competitor", "Y", "N") |

5 In the Object Explorer, click Business Component User Prop.

6 In the Business Component User Props list, add a new record using values from the following table.

| Property | Value |
|---|---|
| Name | Field Read Only Field: Competitor |
| Value | Competitor Calculation |

When you create a business component or field, make sure the values in the Name and Value properties use the correct capitalization, spelling, and empty spaces. Also make sure that quotation marks are not present.

7 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Creating a Recursive Join on a Business Component

If you create a recursive join, then you must make sure the Alias name of the join is different from the Table Name. If you use the same name with an inner join, then Siebel tools displays the following error message: `Table 'T1' requires a unique correlation name`.

If you use the same name with an outer join, then Siebel tools displays the following error message: `Table 'T1' is in an outer join cycle.`

An inner join is a join that contains an Outer Join Flag property that does not contain a check mark. An outer join is a join that contains an Outer Join Flag property that does contain a check mark.

### *To create a recursive join on a business component*

- Make sure the Alias name of the join is different from the Table Name.

# Configuring a Business Component to Copy Child Records If the User Copies the Parent Record

C*ascade copy* is a feature on a business component that copies the child records of a business component record if the user copies a parent record. For example, if the user copies an opportunity to create a similar opportunity, then the user might require Siebel CRM to also copy the list of contacts for that opportunity.

A multi-value link that Siebel CRM uses with a multi-value field automatically copies the child records because the child records that constitute a multi-value group remain with the parent record. For example, the child account addresses, sales team, and industry list records for a parent account remain with the account. Siebel CRM uses this capability for a different purpose if cascade copy is defined for a multi-value link, and if Siebel CRM does not use the multi-value link in a multi-value field. It is not necessary to reference the multi-value link to a field in the business component. For more information, see "How Siebel CRM Constructs a Multi-Value Group" on page 474.

You can define cascade copy for a many-to-many relationship, where the Inter Table property of the destination link is not empty. In this situation, Siebel CRM creates new intersection table rows rather than new child business component records. Siebel CRM creates new associations rather than new records. These associations exist between the new parent and the existing child records.

**NOTE:** Cascade copy might cause the values in an index to not remain unique. Therefore, if copying child records causes an index to not remain unique, then Siebel CRM cancels the copy operation.

### *To create a business component to copy child records if the user copies the parent record*

1 Create a multi-value link using values from the following table.

| Property | Value |
|---|---|
| Destination Link | The name of the link in which the parent-child relationship is defined. |
| Destination Business Component | The name of the child business component. |
| No Copy | FALSE<br><br>If the No Copy property is TRUE, then Siebel CRM disables cascade copy. However, an exception to this occurs if the corresponding field is defined as the destination field in a link. In this situation, the link automatically enters data into the field and ignores the value of the No Copy property. |

2 Implement the multi-value link you created in Step 1 in the configuration for your Siebel application.

## Creating a Business Component to Allow the User to Set a Primary Team Member

You can allow the user to set a primary.

### *To create a business component to allow the user to set a primary team member*

1. In the Object Explorer, click Business Component.
2. In the Business Components list, locate the business component that the multi-value group applet references.

   For more information, see "Creating Multi-Value Groups and Multi-Value Group Applets" on page 471.
3. In the Object Explorer, expand the Business Component tree, and then click Business Component User Prop.
4. In the Business Component User Props list, locate the following business component user property:

   MVG Set Primary Restricted:*name of the multi-value link*
5. Set the Value property to FALSE.

   This configuration allows certain users to set a primary. Setting this user property to FALSE allows someone other than the Manager or Siebel Administrator to alter the Primary team member. If this user property is not set, then only a Siebel Administrator working in Admin mode or a Manager working in Manager view mode can change the Primary team member on an opportunity, account, or contact. For more information about user properties, see *Siebel Developer's Reference*.
6. Compile and test your changes.

   For more information, see *Using Siebel Tools*.

# Customizing a Business Component Field

This topic describes how to configure a business component field. It includes the following topics:

■ Example of Creating a Predefault Value for a Joined Business Component Field on page 262

# Creating a New Business Component Field

You can create a new business component field.

### *To create a new business component field*

1 Make sure you cannot reuse a business component field.

Before you create a new business component field, make sure there are no predefined fields that meet your business requirements. For more information, see the following topics:

- Determining If You Can Reuse a Predefined Business Component Field on page 219
- Guidelines for Creating a Business Component on page 80

2 In Siebel Tools, in the Object Explorer, click Business Component.

3 In the Business Components list, locate the business component to which you must add a field.

4 In the Object Explorer, expand the Business Component tree, and then click Field.

5 In the Fields list, add a new record, and then define properties for the new record.

**NOTE:** You must not map multiple business component fields to the same column in a table. If you use this technique, then the SQL query fails because it attempts to access the same column twice in the same query. This technique might cause an error message when Siebel CRM updates data, can cause problems with data integrity, and can lead to data loss for denormalized columns that reference the column.

6 Compile and test your changes.

For more information, see *Using Siebel Tools*.

# Activating a Multi-Value Field

To refresh correctly in the master applet when the user closes the multi-value group applet, you must make sure the multi-value field is activated at the business component level. For example, if the Account Entry Applet displays the Active Login Name multi-value field through the Position multi-value link, then the Force Active property of the Active Login Name field in the Position business component must equal TRUE, or the Active Login Name field must be included in the Position MVG applet that Siebel CRM uses to maintain the account Sales Team. This situation is true even if the field is not visible. For more information, see, "About the Multi-Value Field" on page 100 and "Creating Multi-Value Groups and Multi-Value Group Applets" on page 471.

### *To activate a multi-value field*

1 Do one of the following:

- Set the Force Active property of the multi-value field to True.

- Include the multi-value field in the multi-value group applet.

2 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Validating Data That the User Enters In a Business Component Field

You can configure Siebel CRM to validate the information that the user enters into a field. You can configure the error message that Siebel CRM displays if the user enters information that does not meet the validation expression.

### *To validate data that the user enters in a business component field*

1 Make sure Siebel Tools is configured to allow you to modify a text string.

For more information, see "Setting Up the Configuration File for Siebel Tools" on page 195.

2 Create the symbolic strings that Siebel CRM displays for the error message.

3 In the Object Explorer, click Business Component.

4 In the Business Components list, locate the business component that contains the field for which you must configure validation.

5 In the Object Explorer, click Field.

6 In the Fields list, locate the field for which you must configure validation.

7 In the Validation property, enter an expression that performs the desired validation.

You can use the Expression Builder to build the expression. To display the Expression Builder, click ellipsis (...) in the Validation property.

8 In the Validation Error Message - String Reference property, enter the name of the symbolic string you created in Step 2 for this error message.

As an alternative, you can use the Validation Message property to enter the error message without using a symbolic string. You can also use the Validation Message - String Override property to override the error message.

9 In the Message Display Mode property, choose one of the following display modes for the error message:

- **User Msg**. Displays only the error message that you provide.
- **User Msg with Error Code Only**. Displays the error message that you provide along with the system error code.
- **User Msg with Error Code/Msg**. Displays the error message that you provide along with the system error code and the system error message.

10 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## How Siebel CRM Validates Start and End Dates

If the user sets the completion date for an activity to occur before the start date for the activity, then Siebel CRM displays an error that is similar to the following:

```
Wrong field values or value types detected in field End.
```

Siebel CRM ignores any configuration you define in the Validation property or the Validation Message property for these date fields. For example, assume the user navigates to the Activities screen, clicks Activity List, and then sets the value in the Start field to a date that is later than the value in the End field. This Start field references the Planned field of the Action business component. If you define a value in the Validation property or the Validation Message property for the Planned field, then Siebel CRM ignores it. Instead, Siebel CRM uses one of the following specialized classes in the Action business component to perform this validation:

- CSSBCActivity for Siebel CRM version 8 of Siebel Business Applications.
- CSSBCFINSActivity Siebel CRM version 8 of Siebel Industry Applications. The parent class is CSSBCActivity.

Although you cannot configure the predefined validation in the classes, you can add script in the BusComp_PreSetFieldValue event for the business component. This script monitors updates to these fields, and then compares the field values. You can also write a custom error message in this script. For more information, see the topic about the CSSBCActivity class in *Siebel Developer's Reference*.

# Example of Creating a Business Component Field That Displays More Than One Currency

This topic describes one example of creating a business component field that displays more than one currency. You might use this feature differently, depending on your business model.

You can configure a field to display data in more than one currency. For example, assume a global deployment in the United States and in Japan, where the deployment in the United States requires data to display in dollars and the deployment in Japan requires data to display in yens.

**NOTE:** You cannot configure a Forecast business component to display dual currency because the list columns that display monetary values do not reference fields. The list columns display values that reference buttons that use specialized methods to perform the calculation.

### *To create a business component field to display more than one currency*

1. In Siebel Tools, in the Object Explorer, click Business Component.
2. In the Business Components list, locate the Opportunity business component.
3. In the Object Explorer, expand the Business Component tree, and then click Field.

4 In the Fields list, create a new field using values from the following table.

| Property | Value |
|---|---|
| Name | My_Currency |
| Type | DTYPE_TEXT |
| Join | S_OPTY_X |
| Column | ATTRIB_03 |
| PickList | PickList Currency |

Siebel Tools stores the field in an unused column in the S_OPTY_X extension table.

5 In the Object Explorer, expand the Field tree, and then click Pick Map.

6 In the Pick Maps list, create a new pick map using values from the following table.

| Property | Value |
|---|---|
| Field | My_Currency |
| Pick List Field | Currency Code |

7 In the Object Explorer, click Field, and then add a field to the Opportunity business component for the converted revenue using values from the following table.

| Property | Value |
|---|---|
| Name | My_Cvt_Revenue |
| Calculated | TRUE |
| Calculated Value | [Revenue] |
| Currency Code Field | My_Currency<br>The Currency Code Field property references the currency code field of Step 4. |
| Exchange Date Field | Sales Stage Date |
| Type | DTYPE_CURRENCY |

**CAUTION:** Make sure the Exchange Date Field property on the originating currency field is defined in a way that is similar to the converted currency field. If it is not, then Siebel CRM bases the exchange date that it uses to convert the currency on the exchange date of the originating currency field.

For more information, see "Requirements for the Field That Contains the Converted Currency Amount" on page 258.

8 In the Object Explorer, click Applet.

9 In the Applets list, locate the Opportunity List Applet.

10 In the Object Explorer, expand the Applet tree, expand the List tree, and then click List Column.

11 In the List Columns list, add a list column using values from the following table.

| Property | Value |
|---|---|
| Field | My_Currency |
| Display Name | Converted Currency Code |

12 In the List Columns list, add a list column using values from the following table.

| Property | Value |
|---|---|
| Field | My_Cvt_Revenue |
| Display Name | Converted Revenue |
| Runtime | TRUE |

It is not necessary to create a pick or detail applet because Siebel CRM automatically opens the default applet that matches the field type.

13 Compile the Oppty and Oppty (SSE) projects.

For more information, see *Using Siebel Tools*.

14 Make sure the underlying currency business component contains a minimum number of valid values:

a In the Siebel client, navigate to the Administration - Application screen, then the Currencies view.

This view lists currencies, conversion dates, and exchange rates.

b Make sure each currency that is involved in the conversion is marked as active.

c Make sure at least one exchange rate is defined for each currency that is involved in the conversion.

d Make sure at least one of the exchange rates for a given exchange direction includes a date that occurs at or before the date that Siebel CRM uses as the Exchange Date.

15 Test your changes.

## Requirements for the Field That Contains the Converted Currency Amount

The field in the business component that contains the converted currency amount must meet the following requirements:

- The Type property of the field must equal DTYPE_CURRENCY.
- The field must be a calculated field.

- The Type property of the field that the Calculated Value property references must equal DTYPE_CURRENCY. For example, if the expression in the Calculated Value property is [Revenue], then the Type property of the Revenue field must equal DTYPE_CURRENCY.
- The Exchange Date Field property must reference a field that contains a Type property that is DTYPE_DATETIME.

## Configuring Client-Side Import to Update a Business Component Field

You can use client-side import to update a business component field. Client-side import uses the import functionality of the applet menu in the Siebel client. You use the Import Object object type in Siebel Tools to identify the business component fields into which Siebel CRM enters data.

For an example of how client-side import is configured, in Siebel Tools examine the predefined import object that is defined for the Contact business component. The Contact business component is defined as an Import Object and it contains fields that are defined as Import Field objects.

You cannot use client-side import with a specialized business component or specialized applet. For more information, see "Class Property of a Business Component" on page 78, and *Siebel Object Types Reference*.

### *To configure client-side import to update a business component field*

1. Display the object type named import object.

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2. Lock the project to which the business component belongs.
3. In the Object Explorer, click Import Object.
4. In the Import Objects list, add a new record using values from the following table.

| Property | Value |
|---|---|
| Business Component | Choose the business component into which Siebel CRM must import data.<br><br>Make sure this business component is a parent business component. Siebel CRM only supports client-side import for a parent business component. |

5. In the Object Explorer, expand the Import Object tree, and then click Import Field.
6. In the Import Fields list, add a new record for each business component field that Siebel CRM must update.

   Note that you can also add an import field to an import object that already exists, such as Contact.

7. Make sure the No Insert property of the applet that is defined for client-side import is False.

8 Compile locked projects, and then test your changes.

For more information, see *Using Siebel Tools*.

Siebel CRM displays the new fields in the Select a Siebel Field dialog box. You can map them to fields in the External Data Source Field dialog box when you import data.

## Creating a Joined Business Component Field

You can add a join to a business component and then reference the join in a field.

### *To create a joined business component field*

1 In Siebel Tools, in the Object Explorer, click Business Component.

2 In the Business Components list, locate the business component on which you must add a join.

3 In the Object Explorer, expand the Business Component tree, and then click Join.

4 In the Joins list, add a new record, using values from the following table.

| Property | Value |
|---|---|
| Table | Name of the joined table. For example, enter S_ADDR_ORG to access address data. |
| Alias | Name of the join. For example, Contact - S_ADDR_ORG.<br>It is recommended that you define the alias so that it is different from the table. |
| Outer Join Flag | If you must retrieve all the records in the business component even if the joined fields are empty, then set Outer Join Flag to TRUE. |
| Comments | Optional. |

5 In the Object Explorer, expand the Join tree, and then click Join Specification.

6 In the Join Specifications list, add a new record, using values from the following table.

| Property | Value |
|---|---|
| Name | Name of the join specification. For example, Primary Address Id. |
| Destination Column | Primary key column in the joined table. For example, ROW_ID.<br><br>If you create a join on a column other than ROW_ID, then you must enter a value in the Destination Column property. An empty value in the Destination Column property indicates that the destination column is ROW_ID, which is typically the primary key.<br><br>For a join to a party table, the destination column must reference the PAR_ROW_ID column in the joined table. |
| Source Field | Foreign key field in the business component. For example, Primary Address Id.<br><br>If empty, then the Source Field references the Id field, which indicates a one-to-one relationship between the business component and the joined table. |

7 (Optional) Add a Join Constraint:

a In the Object Explorer, expand the Join Specification tree, and then click Join Constraint.

b In the Join Constraints list, add a new record, using values from the following table.

| Property | Value |
|---|---|
| Name | Name of the join constraint. For example, Primary Address Id. |
| Destination Column | Column in the joined table to which you must apply a search specification. For example, OU_ID. |
| Value | The search specification. For example:<br><br>`GetProfileAttr("Primary Address Id")`<br><br>For more information, see "Options to Filter Data Displayed in an Applet" on page 120. |

8 In the Object Explorer, click the Field object type in the Business Component tree.

9 In the Fields list, add a new record, using values from the following table.

| Property | Value |
|---|---|
| Name | Name of the joined field. |
| Join | Join alias for the table from which this field retrieves data. For example, Primary Account Address. |

| Property | Value |
|---|---|
| Column | Column in the joined table from which this join retrieves data. For example, ADDR_NAME. |
| Text Length | Same length as the column from which this join retrieves data. |
| Type | Data type that is compatible with the column from which this join retrieves data. For example, DTYPE_TEXT for a Varchar column. |

10 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Example of Creating a Predefault Value for a Joined Business Component Field

This topic describes one example of defining a predefault value for a joined field. You might use this feature differently, depending on your business model.

Because Siebel CRM cannot update a joined field, if no value is included when Siebel CRM inserts a record, then you cannot use a predefault value as a default field value. To display the field value immediately when Siebel CRM inserts the new record, you can use a predefault value for a joined field.

### *To create a predefault value for a joined business component field*

1 Create a join on the S_OPTY table in the Opportunity Product business component.

2 Define two new fields that reference the join.

One field displays the Opportunity Sales Stage. The other field displays the Name.

3 Add the two fields to the Opportunity Product applet.

4 Compile all locked projects.

5 Test you changes:

a In the Siebel client, use the predefined Opportunities - Products view to add a new product for an opportunity.

Note that Siebel CRM does not update the joined fields. Note that Oppty Id contains data, which is the source field for the join.

b Requery the applet.

Note that Siebel CRM now displays the values.

6 In Siebel Tools, set the Predefault property of the Opportunity Name field using values from the following table.

| Property | Value |
|---|---|
| Pre Default Value | Parent:'Opportunity.Name' |

You must use the following format:

Parent:'*Parent Business Component.Name of the Joined Field*'

7 In Siebel Tools, set the Predefault property of the Opportunity Sales Stage field using values from the following table.

| Property | Value |
|---|---|
| Pre Default Value | Parent: 'Opportunity.Sales Stage' |

8 Set the Link Specification property of the Name and Sales Stage fields in the parent business component to TRUE.

9 Compile all locked projects.

10 In the Siebel client, add a new product for an Opportunity.

Note that Siebel CRM immediately enters data into the joined fields.

# Customizing a Link

This chapter describes how to configure a link. It includes the following topics:



## Configuring a Link to Delete Child Records if the User Deletes the Parent Record

The Cascade Delete property of a link determines if Siebel CRM deletes a child record if the user deletes the parent record.

### *To configure a link to delete child records if the user deletes the parent record*

- Set the Cascade Delete property on the link using values in the following table.

| Value | Description |
|---|---|
| Delete | If the user deletes the parent record, then Siebel CRM also deletes all child records.<br><br>Use Delete to delete values that are stored in a one-to-many extension table where the only related record is the parent record.<br><br>Do not use Delete if the child business component in this link is also a child business component in another link. In this situation, use CLEAR instead. |
| Clear | If the parent record is deleted, then Siebel CRM removes the foreign key reference and clears the value in the foreign key column. Use this setting if a child record might be shared with another parent. |
| None | If the parent record is deleted, then Siebel CRM does not delete any records and does not clear the foreign key column. The default setting is None. |

## Guidelines for Using Cascade Delete

If you use the Cascade Delete property, then use the following guidelines:

**CAUTION:** Be careful. If set incorrectly, the Cascade Delete property might cause data integrity problems or orphaned records.

- Cascade Delete is not available for a many-to-many link. Because a child might be the child of more than one parent when Siebel CRM uses a many-to-many link, Siebel CRM automatically deletes the intersection record but leaves the child record intact.
- If you delete a record that a foreign key of another table references, then Siebel CRM might or might not delete the reference to the record. If Siebel CRM does not delete the reference, then row IDs might reference records that do not exist. If used with a multi-value group, then Siebel CRM might convert the foreign key to display No Match Row Id.
- The link applies to parent child relationships. Because Siebel CRM treats a one-to-one extension table as an extension of the parent, it automatically keeps the extension table synchronized with the parent.
- Use a link except for a one to many extension table that involves two different business components.
- To involve grandchild records, use the Deep Delete business component user property. For more information, see *Siebel Developer's Reference*.

## Configuring a Link to Create a One-to-Many Relationship

You can configure a link to create a one-to-many relationship. The Account/Account Note link is an example of this type of link. One Account can include many note records. The ID is the source field of the parent Account record. Siebel CRM stores it in the Account Id field of the Note record, which is the destination field.

### *To configure a link to create a one-to-many relationship*

1. Define the child business component.
2. Define the destination field on the child business component.
3. Define the parent business component.
4. Define the source field on the parent business component.

   If you do not define the source field, then Siebel CRM defaults to the ID of the parent business component.

## Configuring Two Links to Create a Many-to-Many Relationship

Siebel CRM uses two links with opposite parent-child settings to establish a many-to-many relationship that reference an intersection table. The Opportunity/Account link is an example of this type of link. The intersection table is S_OPTY_ORG. The Inter Child Column is OU_ID, which is the ID in the Account business component. The Inter Parent Column is OPTY_ID, which is the ID in the Opportunity business component. For more information, see "How an Intersection Table Defines a Many-To-Many Relationship" on page 53.

### *To configure two links to create a many-to-many relationship*

- Set the Inter Table, Inter Parent Column, and Inter Child Column properties of the two links to establish the connection between the links and the intersection table.

## Creating Multiple Associations Between the Same Parent and Child Records

If you create a link and an intersection table to create a many-to-many relationship between a parent business component and a child business component, then Siebel CRM can only associate two business component records at one time even if the unique keys in the intersection table allow multiple associations. The link between the two business components only considers the ROW_ID values of the parent and child records that Siebel CRM requires to maintain the many-to-many relationship. This behavior is expected.

For more information, see "How an Intersection Table Defines a Many-To-Many Relationship" on page 53.

### *To create multiple associations between the same parent and child records*

- Create an intersection business component.

  For more information, see "Using an Intersection Business Component" on page 266.

## Using an Intersection Business Component

You can use an intersection business component to define multiple associations. An *intersection business component* is a type of business component that references the intersection table and a one-to-many link between the parent business component and the intersection business component. With this configuration, the child list applet or multi-value group applet references the intersection business component. To choose the child record, the user accesses a pick applet that references the child business component instead of using an association applet.

# Creating a Business Object

To create a business object, you create an object definition for the business object, and then define child business object components of the business object. For more information, see "Guidelines for Creating a Business Object" on page 111.

### *To create a business object*

1. In Siebel Tools, click Business Object in the Object Explorer.
2. In the Business Objects list, create a new record using values from the following table.

| Property | Description |
|---|---|
| Name | Enter a name for the business object that is unique among business objects in the Siebel repository. Siebel CRM uses the name to reference the business object. |
| Query List Business Component | The default value is Query List. It identifies the business component that stores predefined queries for the business object. |
| Primary Business Component | You cannot define this property until after you define the business object components. |

3. In the Object Explorer, expand the Business Object tree, and then choose Business Object Component.
4. In the Business Object Components list, create a new record using values from the following table.

| Property | Description |
|---|---|
| Bus Comp | Choose the business component that the business object references. |
| Link | (Optional) Create a link relationship between two business components. |

5 Repeat Step 4 for each business component that you must reference in the business object.

You must define each of the following business components as a business object component:

- Any business component whose data displays in an applet on a view that references the business object
- Any business component whose data Siebel CRM exports in a report from a view that references the business object

6 Define the Primary Business Component property.

For more information, see Step 2.

# 14 Configuring Views, Screens, and Applications

This chapter describes tasks you perform to configure views, screens, and applications. It includes the following topics:



## Process of Creating a View

To create a view, perform the following tasks:

1. Creating a View on page 269
2. Editing the Layout of a View on page 270
3. Registering and Associating a View with a Responsibility on page 271

### Creating a View

This task is a step in "Process of Creating a View" on page 269.

You typically create a new view to display a new business component, business object, or applet. The New View Wizard assists you with creating a view.

#### *To create a view*

1. Make sure the ClientConfigurationMode parameter is not All.

   For more information, see "Setting Up the Configuration File for Siebel Tools" on page 195.
2. In Siebel Tools, choose the File menu, and then the New Object menu item.
3. In the New Object Wizard, in the General Tab, click View, and then click OK.
4. In the New View dialog box, do the following, and then click Next:
   a. Choose the project.
   b. Enter a unique name for the new view.
   c. Choose the business object whose data the view displays.

d Enter the title for the view.

5 In the View Web Layout - Select Template dialog box, choose the template you must use for your new view, and then click Next.

For more information, see "About Siebel Web Templates" on page 147 and *Siebel Developer's Reference*.

6 In the Web Layout - Applets dialog box, choose the applets that Siebel Tools must include in the Web layout, and then click Next.

7 In the Finish dialog box, review your choices, and then click Finish.

Siebel Tools displays the Web Layout Editor, which allows you to edit the view layout if necessary. For more information, see "Editing the Layout of a View" on page 270.

## Editing the Layout of a View

This task is a step in "Process of Creating a View" on page 269.

You edit the layout of a view in the Web Layout Editor. This editor allows you to edit the mapping between applets in the view and placeholders in the template.

### *To edit the layout of a view*

1 In Siebel Tools, in the Object Explorer, click View.

2 Locate the view you must modify in the Views list.

3 Right-click the view in the Views list, and then choose Edit Web Layout.

If a template is associated with the view, then Siebel Tools displays the Web Layout Editor. The Web Layout Editor renders mapped and unmapped placeholders from the underlying view web template.

If Siebel Tools does not display the applets properly in the editor, then exit the editor and make sure that the Applet Mode property for each view web template item includes a valid value. To do this, open the pick applet for the property of each applet. Open the editor again to make sure the applets render properly.

4 (Optional) Do the following:

- To add an applet to the Web layout, drag an applet from the Applets window and drop it onto an applet placeholder in the template.

  The Applets window displays all applets that reference business components in the business object of the view. When you add an applet to a placeholder, Siebel Tools displays the applet in the position that Siebel CRM displays it in the Siebel client.

- To delete an applet from the layout, click the applet, and then press the DELETE key.

- To preview the view, right-click the Web Layout Editor, and then choose Preview.

  In preview, Siebel Tools removes unmapped placeholders and simulates how Siebel CRM displays the view in the Siebel client. Although this preview is not an exact representation of the final HTML output, it does provide a close approximation of how Siebel CRM displays the view in the Siebel client.

- To export the preview to an HTML file:
  - Choose Export from the File menu
  - Choose a file name and location in the Save As dialog box.
- To change the web template, click Change Template that Siebel Tools displays next to the Template text box in the Controls/Columns window.

  This technique might result in an invalid mapping if the corresponding placeholder ID does not exist in the new template. To test for an invalid mapping, right-click, and then choose Check Mapping.

5 Save your changes.

## Registering and Associating a View with a Responsibility

This task is a step in "Process of Creating a View" on page 269.

Registering a view adds a new record for the view in the Siebel database and associates a responsibility with the view. The user who is assigned that responsibility can access the new view the next time the user logs in to Siebel CRM. In a development environment, a developer typically registers the view. In a production environment, the administrator typically registers the view.

**NOTE:** If you define a view but do not provide the user access to the view, then Siebel CRM does not display the view in the Siebel client for that user.

### *To register and associate a view with a responsibility*

1 In the Siebel client, navigate to the Administration - Application screen, Views view.

2 In the View Name field, choose the down arrow.

3 In the View list, choose the name of the view, and then click OK.

4 Navigate to the Administration - Application screen, Responsibilities view.

5 Choose the responsibility that you must associate to the view.

**NOTE:** You cannot modify the SADMIN responsibility that is provided as seed data with Siebel CRM.

6 In the Views list, enter a new record for the view.

7 Depending on the nature of the new view and the users who access it, you might need to do the following:

a Add new responsibilities.

b Add employees to the new responsibilities.

c Make views read-only for a given responsibility.

The read-only feature allows you to use the Siebel client to define a read-only view instead of creating objects in the Siebel repository.

For more information about responsibilities and employees, see *Siebel Security Guide*.

# Customizing a View

This topic describes options for customizing a view. It includes the following topics:



## Using the Views List to Create a View

You can use the Views list to create a new view. However, it is recommended that you use the New View Wizard because the wizard prompts you for all necessary information and automatically defines all the required objects. For more information, see "Creating a View" on page 269.

### *To use the Views list to define a view*

1 In the Object Explorer, click View.

2 In the Views list, add a new view, using values from the following table.

| Property | Description |
|---|---|
| Name | Required. Enter the name of the view. References to the view are defined through the name. |
| Business Object | Required. Enter the name of the business object that the view references. The business object determines the relationship between business components that the applets reference. |
| Screen Menu | If TRUE, then Siebel CRM includes the view in the Site Map. |
| Title | Enter a text string. Siebel CRM displays this string in the window title when it renders the view in the Siebel client. |

3 In the Views list, right-click the record, and then choose Edit Web Layout.

4 In the Select Template dialog box, choose a view web template, and then click Next.

5 In the Applet dialog box, choose the applets that Siebel CRM must display on the view, and then click Next.

6 Review your choices, and then click Finish.

For information about configuring visibility, see *Siebel Security Guide*.

## Customizing the Thread Bar

The *thread bar* is a navigation device that Siebel CRM displays immediately below the application toolbar. It helps the user track the navigation path among views. For more information, see "Using Web Templates to Customize the Thread Bar" on page 531.

Figure 38 displays the following example of the thread bar:

```
Opportunity:2013 4700 Desktops - 2500 units > Contact:Carlson > Activity
```

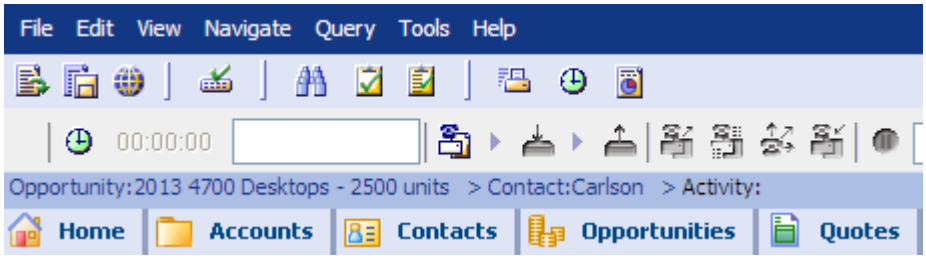



Figure 38. Example of the Thread Bar

### *To customize the thread bar*

1 In the Object Explorer, click View.

2 In the Views list, locate the view you must modify, and then set properties for the view using values from the following table.

| Property | Description |
|---|---|
| Thread Applet | The applets in the view that supply a value for the thread field. |
| Thread Field | The name of the field that Siebel Tools displays to the right of the greater than sign (>) in the thread bar. This field is in the business component that the Thread Applet references. |
| Thread Title | The text that Siebel Tools displays to the left of the greater than sign (>) in the thread bar. This text identifies the view. For example, the Thread Title property is Acct for most views that display accounts, such as Account List view and Account Detail - Contacts view. |

3 Repeat Step 2 for each view that requires a thread bar.

4 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Defining the Drilldown Sequence to Customize Search for an Account

If the user issues a query for an Account from the Account Home page, then the visibility that the user possesses determines how Siebel CRM conducts the search in the following sequence:

1 All Across

2 All

3 My Team

4 My

The Sequence property of the drilldown objects that are defined for the Account Home Search Virtual Form Applet determines the sequence.

### *To define the drilldown sequence to customize search for an account*

1 In Siebel Tools, in the Object Explorer, click Applet.

2 In the Applets list, locate the Account Home Search Virtual Form Applet.

3 In the Object Explorer, expand the Applet tree, and then click Drilldown Object.

4 In the Drilldown Objects list, modify the Sequence property according to your required search sequence.

   Siebel Tools lists several predefined drilldowns, such as Account List View, All Account List View, and All Accounts across Organization. Siebel CRM begins the search in the view that is defined for the drilldown object that contains the highest sequence.

   It is not necessary to define other properties, such as Hyperlink Field.

5 Compile and test your changes.

   For more information, see *Using Siebel Tools*.

### Customizing Search When No Drilldown Object is Defined

If no drilldown object is defined, then the Mirror Search GotoView applet user property on the Account Home Search Virtual Form Applet determines which view Siebel CRM searches. Although the value for this user property is predefined to Account List View, you can modify it to customize search if no drilldown object is defined. For example, changing the value of the Mirror Search GotoView applet user property to All Account List View causes Siebel CRM to search all accounts.

## Example of Creating an Applet Toggle

This topic describes one example of configuring an applet toggle. You might use this feature differently, depending on your business model. For more information, see "Options to Toggle Between Applets in a View" on page 143.

Assume you use the Contact business component to store information about the preferred payment method that your customer uses. Payment methods are cash, credit card, or check.

Table 34 describes the data requirements for each payment method.

Table 34. Payment Methods and Data Requirements for the Applet Toggle Example

| Payment Method | Data Requirement |
|---|---|
| Cash | There are no special data requirements.<br>The default payment method is Cash. |

Table 34. Payment Methods and Data Requirements for the Applet Toggle Example

| Payment Method | Data Requirement |
|---|---|
| Credit Card | The following data is required:<br>■ Credit Card Type<br>■ Credit Card Number<br>■ Expiration Date |
| Check | The following data is required:<br>■ Checking Account Number<br>■ Routing Number<br>■ Driver License Number<br>■ Driver License State |

You can use a static toggle applet or a dynamic toggle applet for this example:

- To allow the user to toggle between the different applets, a static toggle applet requires the user to choose the applet from the Show list.
- A dynamic toggle automatically toggles between applets that reference the value in the Payment Type field.

### *To create an applet toggle*

1. In Siebel Tools, display the applet toggle object type.

   For more information, see "Displaying a System Field in an Applet" on page 361.

2. Create the following fields in the Contact business component:
   - Payment Method. Use a static, bound list that contains Cash, Credit Card, and Check.
   - Credit Card Type.
   - Credit Card Number.
   - Expiry Date.
   - Checking Account Number.
   - Routing Number.
   - Driver License Number.
   - Driver License State.
3. Display the Payment Method Field in the Contact Form Applet.

   This applet is the default applet that Siebel CRM uses if the preferred payment method of the contact is Cash.

4 Create two copies of the Contact Form Applet.

Name one applet Contact Form Applet - Credit Card and the other applet Contact Form Applet - Check.

5 Display the following fields in the Contact Form Applet - Credit Card applet:

- Credit Card Type
- Credit Card Number
- Expiry Date BC Fields

If the preferred payment method of the contact is Credit Card, then the Contact Form Applet - Credit Card applet allows the user to enter credit card information for the contact.

6 Display the following fields in the Contact Form Applet - Check applet:

- Checking Account Number
- Routing Number
- Driver License Number
- Driver License
- State BC Fields

If the preferred payment method of the contact is Check, then the Contact Form Applet - Check applet allows the user to enter checking account information for the contact.

7 In the Object Explorer, click Applet, and then locate the Contact Form Applet in the Applets list.

8 In the Object Explorer, expand the Applet tree, click Applet Toggle, and then create a new applet toggle in the Applet Toggles list using values from the following table.

| Property | Value |
|---|---|
| Applet | Contact Form Applet - Check |
| Auto Toggle Field | Payment Method |
| Auto Toggle Value | Check |
| Name | Contact Form Applet - Check |
| Parent Name | Contact Form Applet |

To create this example with a static toggle applet, leave the Auto Toggle Field and Auto Toggle Value properties empty.

9 Create another new applet toggle in the Applet Toggles list using values from the following table.

| Property | Value |
|---|---|
| Applet | Contact Form Applet - Credit Card |
| Auto Toggle Field | Payment Method |
| Auto Toggle Value | Credit Card |
| Name | Contact Form Applet - Credit Card |
| Parent Name | Contact Form Applet |

To create this example with a static toggle applet, leave the Auto Toggle Field and Auto Toggle Value properties empty.

10 Set the Immediate Post Changes property of the Payment Method business component field to TRUE.

If the Immediate Post Changes property is FALSE, then the toggle does not occur until the user saves the record.

11 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Defining High Interactivity for a View

If the High Interactivity Enabled property of the underlying class of an applet in the view is set to 2, 3, 4, or 5, then Siebel CRM displays the view in high interactivity.

Table 35 describes values for the High Interactivity Enabled property.

Table 35. Values for the High Interactivity Enabled Property of a Class

| Value | Works with High Interactivity | Works with Standard Interactivity | Cachable |
|---|---|---|---|
| 1 | No | Yes | No |
| 2 | Yes | No | Yes |
| 3 | Yes | No | No |
| 4 | Yes | Yes | Yes |
| 5 | Yes | Yes | No |

For more information, see “About Standard Interactivity and High Interactivity” on page 36.

### *To define high interactivity for a view*

1. Display the class object type.

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.
2. In the Object Explorer, click Applet.
3. In the Applets list, locate an applet that Siebel CRM displays in the view.
4. Note the value in the class property.
5. In the Object Explorer, click Class.
6. In the Classes list, locate the class you noted in Step 4.
7. Set the High Interactivity Enabled property of the class to the appropriate value, as described in Table 35.
8. Repeat Step 3 through Step 7 for each applet that Siebel CRM must display in the view.
9. Compile and test your changes.

   For more information, see *Using Siebel Tools*.

## Controlling How the User Can Change View Layout

Certain views in Siebel CRM, such as the home page view, allow the user to change the layout of the view. For example, the user can do the following in some views:

- Reorder applets
- Collapse or expand applets
- Show or hide applets

For more information, see *Siebel Fundamentals*.

### *To control how the user can change view layout*

1. In Siebel Tools, click View in the Object Explorer.
2. In the Views list, locate the view you must modify.
3. In the Object Explorer, expand the View tree, and then click View Web Template.
4. In the View Web Templates list, set the User Layout property to TRUE.
5. In the Object Explorer, expand the View Web Template tree, and then click View Web Template Item.

6 In the View Web Template Items list, set properties using values from the following table.

| Property | Description |
|---|---|
| Display Size | Determines if Siebel CRM minimizes or maximizes the applet. If you set Display Size to Always Maximized, then the user cannot minimize the applet. |
| Display Visibility | Determines if Siebel CRM displays or hides the applet. If you set Display Visibility to Always Show, then the user cannot hide the applet. |
| Move Range | Defines a range in which the user can move the applet. For example, on an application home page that contains two columns, applets require a move range of Column1 or Column2. Any applet with a move range of Column1 is movable only in the left-side column. Any applet with a move range of Column2 is movable only in the right-side column.<br><br>If this property is not defined, then the user cannot move the applet.<br><br>The location of an applet is fixed in the view. For example, a move range is typically defined for the salutation applet on the home page. |

This step defines the default layout of the view.

7 In the View Web Template Items list, add the layout control applet to the view:

- If the view includes a standard interactivity (SI) applet, then add the Layout Controls SI Applet.
- If the view does not include a standard interactivity applet, then add the Layout Controls Applet.

For more information, see "How the Layout Control Applet Works" on page 281.

8 Map the layout control applet to a placeholder in the web template.

9 Add the following controls to the appropriate applet in the view.

- ButtonMoveAppletUp
- ButtonMoveAppletDown
- ButtonHideApplet
- ButtonShowApplet
- ButtonMinimizeApplet
- ButtonMaximizeApplet

These view layout controls use invoke methods to manipulate the user preferences of the view layout.

10 For each control you added in Step 9 add a corresponding applet web template item, and then map the control to the appropriate placeholder in the web template.

11 Compile and test your changes.

For more information, see *Using Siebel Tools*.

### How the Layout Control Applet Works

The layout control applet serves as a container for the controls that handle operations that occur in the view, such as Reset Default Layout. The following modes determine how Siebel CRM displays the applet:

- **Show Mode.** Allows the user to use controls that Siebel CRM displays at the top of each applet to edit the layout. For example, Siebel CRM displays a home page view in Show mode until the user clicks Edit Layout. Siebel CRM displays the layout control applet as the Edit Layout button.
- **Edit Layout mode.** Provides the user with more edit capabilities than the Show mode. Siebel CRM uses the Layout Controls applet to present the Edit Layout mode. Siebel CRM displays this applet if the user clicks Edit Layout. It displays all applets on the view, and allows the user to click Done to choose one of the following options:
  - Hide All Applets
  - Show All Applets
  - Reset Default Layout
  - Return to Show mode

## Creating a Secure View

You can use the HTTPS protocol to define a secure view for your Siebel application. If a view is marked as secure, then the Siebel Web Engine verifies that the current request uses the HTTPS protocol, thereby preventing a user from typing HTTP into the browser to access a secure view instead of typing HTTPS.

### *To create a secure view*

1. In Siebel Tools, click View in the Object Explorer.
2. In the Views list, locate the view you must modify.
3. Set the Secure property to TRUE.

   For the Siebel client, the Siebel Web Engine specifies the HTTPS protocol when it generates URLs to the view.

**NOTE:** The implementation of the HTTPS protocol is external to the Siebel Web Engine. The browser and the Web Server negotiate the HTTPS. The Siebel Web Engine only specifies that HTTPS must be used for a specific view. Therefore, HTTPS must be allowed on any server that provides a secure view.

## Creating a View That Requires an Explicit User Login

The user can log in to a Siebel Web Engine application in the following ways:

- Explicitly typing the username and password in the login dialog box.

- With a cookie after the user has logged in and chosen Save My Username and Password.

To display a view that provides access to a sensitive part of the Web site, you can require the user who logs in with a cookie to explicitly supply the user name and password.

### *To create a view that requires an explicit user login*

1. In Siebel Tools, click View in the Object Explorer.
2. In the Views list, locate the view you must modify.
3. Set the Explicit Login property to TRUE.

   If the user logs in with a cookie, and if the user attempts to access this view, then Siebel CRM prompts the user to enter the user name and password. The user is required to perform this login only one time for each session. All subsequent visits that the user makes to this view during the session do not require the explicit login.

## Restricting Access to Records in a View

The Read Only View field of the Responsibilities list in the Administration - Application screen allows you to restrict access to records in a view according to responsibility. If Read Only View contains a check mark, then Siebel CRM does the following:

- Disables New and Delete buttons in the view. Only the Query button remains active. Siebel CRM does not disable other buttons that it might display in the applet, such as New Contact Call or other custom buttons.
- If the Siebel Mobile Web Client is connected to the server database, then makes the view read only.
- If the Siebel Mobile Web Client is connected to the local database, then makes the view not read only.

For more information, see Article ID 484433.1 on My Oracle Support.

### *To restrict access to records in a view*

1. In the Siebel Mobile Web Client, navigate to the Administration - Application screen, and then the Views list.
2. In the Views list, locate the view to which you must limit access.
3. In the Responsibilities list, locate the responsibility to which you must limit access.
4. In the Responsibilities list, make sure the Read Only View field contains a check mark.

# Troubleshooting a View That Siebel CRM Does Not Display in the Siebel Client

To resolve a problem with a view that Siebel CRM does not display in the Siebel client, look for it in the list of Diagnostic Steps or Cause column in Table 36.

Table 36. Problems with a View That Siebel CRM Does Not Display in the Siebel Client

| Diagnostic Steps or Cause | Solution |
|---|---|
| The view does not exist in the SRF file. The spelling of the view name does not match the view name in the SRF file. | A view name that is not spelled correctly when you register the view in the Views view of the Administration - Application screen might cause this problem. Make sure the spelling is correct, then compile the SRF file using the All Projects option. |
| The view belongs to a screen that is not included in the Siebel application that is currently running. | In Siebel Tools, make sure the screen is defined as a child screen menu item of the Siebel application.<br><br>Make sure the name of the Siebel application is spelled correctly in the configuration file of the Siebel application. |
| The view is not included in one of the responsibilities for the user who is currently logged in. | Use the Administration - User screen, Employees view to determine which responsibilities are assigned to the user.<br><br>Use the Administration - Application screen, Responsibilities view to determine to include or not include the view. |
| The view is hidden using personalization rules. | Use the Administration - Personalization screen, Views view to determine if the view is hidden. For testing purposes, you can also switch off the EnablePersonalization parameter in the configuration file for Siebel Tools. For more information, see “Setting Up the Configuration File for Siebel Tools” on page 195. |
| Siebel CRM does not display the view in the menu or in the view tabs. The user must drill down from another view to access the view. | In Siebel Tools, make sure the Screen Menu property of the View object is TRUE. It must be TRUE in order for Siebel CRM to include the view in the Site Map.<br><br>Make sure the view is included in a screen and that the Viewbar Text property of the Screen View child object of the screen is set appropriately.<br><br>Make sure the Visibility Applet and Visibility Applet Type properties of the view are set correctly. For more information, see *Siebel Security Guide*. |
| The view does not belong to the same business object as the default view for the screen. | Make sure the view references the same business object. |

Table 36. Problems with a View That Siebel CRM Does Not Display in the Siebel Client

| Diagnostic Steps or Cause | Solution |
|---|---|
| Siebel CRM does not translate the screen menu item or page tab into the appropriate language. | Make sure a translated string is available for each language for each screen menu item and each screen menu item locale. If a translated string is not available, then Siebel CRM does not display the screen in the Site Map.<br><br>For a page tab to display, the page tab must include a translated string and a page tab locale that contains the appropriate language code.<br><br>For example, if Siebel CRM runs in Norwegian, then the Language Code property of the screen menu item locale and page tab locale must be NOR.<br><br>For more information, see Chapter 26, "Localizing Siebel Business Applications." |
| The view is not available because of an upgrade problem. | If you performed an upgrade, then examine the log files that Siebel CRM created during the upgrade to make sure the upgrade was successful. These log files are located in the DBSERVER_ROOT\DB_PLATFORM directory. |
| The view is not included in your license keys. | Make sure the view is included in your license keys. Send the license keys to Oracle for examination. For more information, see Article ID 475818.1 on My Oracle Support. This document was previously published as Siebel Alert 41. |

# Process of Creating a Screen

To create a screen, perform the following tasks:

1 Creating a Screen on page 284

2 Creating a Page Tab on page 285

3 Creating a Screen Menu Item on page 285

4 Creating a Screen View on page 286

5 Defining the Sequence in Which Siebel CRM Displays Screen Views on page 287

A screen includes groups of related views. A screen view identifies the views and categories that you must associate to the screen. You create a screen view for each category and each view that Siebel CRM must display in a given screen.

## Creating a Screen

This task is a step in "Process of Creating a Screen" on page 284.

You create a new screen in the Screens list in Siebel Tools.

### *To create a screen*

1 In the Object Explorer, click Screen.

2 In the Screens list, add a new screen using values from the following table.

| Property | Description |
|---|---|
| Name | Name of the screen. Other objects use this name to reference the screen. |
| Default View | View that Siebel CRM displays if the user clicks a page tab in the screen.<br><br>You must add the view to the screen before you can define the view as the default view. |

## Creating a Page Tab

This task is a step in "Process of Creating a Screen" on page 284.

For more information, see "Page Tab" on page 26 and "Troubleshooting a View That Siebel CRM Does Not Display in the Siebel Client" on page 283.

### *To create a page tab*

1 In the Object Explorer, expand the Application tree, and then click Page Tab.

2 In the Page Tabs list, create a new record using values from the following table.

| Property | Description |
|---|---|
| Screen | The screen you must display through a page tab. |
| Sequence | The order of the page tabs as Siebel CRM displays them in the Siebel client. |
| Text | Text string that Siebel CRM displays in a screen tab in the Siebel client.<br><br>(Optional) To modify the text style that Siebel CRM renders in the Siebel client, you can add an HTML tag in this property. This technique works if Siebel CRM runs in standard interactivity. It does not work if Siebel CRM runs in high interactivity. For more information, see "Changing the Text Style of a Control or List Column in an Applet" on page 347. |

## Creating a Screen Menu Item

This task is a step in "Process of Creating a Screen" on page 284.

Siebel CRM does not display on the Site Map a view that filters data according to a visibility rule. Example visibility rules include My Accounts, My Team's Accounts, and so forth. Siebel CRM displays screen menu items on the Site Map in alphabetical order. For more information, see "Screen Menu Item" on page 26.

### *To create a screen menu item*

1 Make sure Siebel Tools is configured to allow you to modify a text string.

For more information, see "Setting Up the Configuration File for Siebel Tools" on page 195.

2 In the Object Explorer, expand the Application tree, and then click Screen Menu Item.

3 In the Screen Menu Items list, add a new record using values from the following table.

| Property | Description |
|---|---|
| Screen | The screen that Siebel CRM displays if the user clicks the menu item. |
| Text | The text string that Siebel CRM displays in the Site Map in the Siebel client.<br>For more information, see the description for the Text property in Step 2 on page 285. |

## Creating a Screen View

This task is a step in "Process of Creating a Screen" on page 284.

If you define a screen view, then consider the following:

- Use categories to group views, where appropriate.
- Use the Screen View Sequence Editor to define the sequence. Do not edit the Sequence property of the screen view. For more information, see "Defining the Sequence in Which Siebel CRM Displays Screen Views" on page 287.

For more information, see "About Screen Views" on page 135.

### *To create a screen view*

1 In the Object Explorer, click Screen.

2 In the Screens list, locate the screen you must modify.

3 In the Object Explorer, expand the Screen tree, and then click Screen View.

4 In the Screen Views list, add a new record.

When you create a new record, Siebel Tools sets the type property to Detail View and the Category Name and Category Default View properties to read-only.

5 Create a value for the Type property.

6 Define values for other properties.

For more information, see "Properties of a Screen View" on page 678.

# Defining the Sequence in Which Siebel CRM Displays Screen Views

This task is a step in "Process of Creating a Screen" on page 284.

You can use the Screen View Sequence Editor to define the sequence in which Siebel CRM displays views and categories in the Siebel client. The editor is a visual design tool that allows you to view and edit the hierarchy of screen views at each level of navigation. It displays the hierarchy in a tree format and allows you to move individual screen views or categories to different positions in the sequence. You cannot move an item out of the current category of the item or to another level in the hierarchy. If you do not define a sequence, then Siebel CRM orders views alphabetically.

The Sequence property of a screen view displays a number to indicate the sequence in the hierarchy. Siebel Tools updates this field if you open the Screen View Editor, make changes, and then save the changes. To view the hierarchy that Siebel CRM displays in the Siebel client, you can sort on the Sequence column in the Screen Views list. If the Sequence property is empty, then Siebel CRM renders that Screen View as the last item in the sequence.

**NOTE:** A screen view sequence does not affect how Siebel CRM displays the view in the Site Map. Siebel CRM displays screen views in Site Map in alphabetical order below the screen name.

### *To define the sequence in which Siebel CRM displays screen views*

1. In the Object Explorer, click Screen.
2. In the Screens list, locate the screen you must modify.
3. Right-click, and then choose Edit Screen View Sequence.

   Siebel Tools displays the Screen View Editor and uses a tree to display the screen and the child screen views. A screen view displayed in bold indicates that it is the Category Default View for the category.
4. In the Screen View Editor, choose a screen view, then right-click and use options described in the following table to move the screen view up or down in the tree.

| Option | Description |
|---|---|
| Move to Next Higher Position | Moves the screen view up one position. |
| Move to Next Lower Position | Moves the screen view down one position. |
| Move to Highest Position | Moves the screen view to the highest position in the current level of the hierarchy. |
| Move to Lowest Position | Moves the screen view to the lowest position in the current level of the hierarchy. |

5. Save your changes, and then exit the Screen View Editor.
6. Compile and test your changes.

   For more information, see *Using Siebel Tools*.

# Process of Creating a Screen Home Page View

To create a screen home page view, perform the following tasks:

1 Defining Business Components for the Screen Home Page View on page 288

2 Creating Links to Frequently Accessed Data on page 291

3 Determining How Siebel CRM Displays Recent Records on page 292

4 Defining the Business Object for the Screen Home Page View on page 294

5 Creating Simplified Screen Home Page Applets on page 295

6 Creating a Screen Home Page View on page 297

7 Adding the Screen View to the Screen on page 299

This process provides a general guideline for creating a screen home page view. The actual tasks you perform and the sequence in which you perform them varies depending on your implementation requirements.

A screen home page view provides the user with a simplified way to access data in a screen. Typically, a screen home page view contains applets that help the user search and add records, and applets that display iHelp items, view links, and recent records. A screen home page view exists for various entities, such as accounts, contacts, opportunities, service, and households. You can also define a screen home page view for other entities.

## Defining Business Components for the Screen Home Page View

This task is a step in "Process of Creating a Screen Home Page View" on page 288.

The Rapid Search and Rapid Add applets reference virtual business components that reference the parent business component of a given business object. For example, the Account Home Search Virtual and the Account Home Add Virtual business components reference the Account business component.

To improve performance, you can use a virtual business component for each applet. When Siebel CRM loads the screen home page view, it does not execute an SQL query until the user submits a query or adds a record. It also provides applets with access to data from the business component, and avoids display problems that might occur if the applets reference the same nonvirtual business component.

For more information, see "About Business Components, Fields, Joins, and Links" on page 73.

### *To define business components for the screen home page view*

1 In the Object Explorer, click Business Component.

2 In the Business Components list, define the Home Search Virtual business component:

a Create a virtual business component using values from the following table.

| Property | Value |
|---|---|
| Name | Use the following naming format to keep similar records in the Siebel repository consistent:<br>■ *business component* Home Search Virtual<br>For example, Account Home Search Virtual. |
| Class | CSSBCVMirrorAdd.<br>This class uses rapid add and rapid search to improve performance. |

This virtual business component represents the data that the target business component presents. You must use the Business Components list in Siebel Tools to define a virtual business component. You cannot use the Business Component New Object Wizard because it forces you to associate the business component with a table.

b In the Object Explorer, expand the Business Component tree, then Field.

c In the Fields list, define fields that represent the fields from the target business components that Siebel CRM must display in the search applet on the home screen.

The field names in the virtual business component must match the field names in the target business component.

**NOTE:** Siebel CRM does not support a multi-value group on a rapid search or rapid add applet.

d In the Object Explorer, click Business Component User Prop.

e In the Business Component User Props list, create a new record using values from the following table.

| Property | Value |
|---|---|
| Name | Mirror Search Target BusComp |
| Value | Enter the name of target business component. For example, Account. |

f In the Business Component User Props list, create a new record using values from the following table.

| Property | Value |
|---|---|
| Name | Mirror Search Target BusObj |
| Value | Enter the name of target business object. For example, Account. |

3 Create the Home Add Virtual business components:

a Repeat Step a on page 289 through Step c on page 289. Use *business component* Home Add Virtual as the business component name.

b In the Object Explorer, click Business Component User Prop.

c In the Business Component User Props list, create a new record using values from the following table.

| Property | Value |
|---|---|
| Name | Mirror Add Target BusComp |
| Value | Enter the name of target business component. For example, Account. |

d In the Business Component User Props list, create a new record using values from the following table.

| Property | Value |
|---|---|
| Name | Mirror Add Target BusObj |
| Value | Enter the name of target business object. For example, Account. |

e (Optional) In the Business Component User Props list, create a new record using values from the following table.

| Property | Value |
|---|---|
| Name | Mirror Field *field name*<br>For example, Mirror Field Account. |
| Value | Pick, *target field*, *mirror pick Id field*<br>For example, Pick, Account, Account Id. |

You use this business component user property to display a dynamic list that does not use a list of values. It identifies a pick field, the corresponding field in the target business component, and the base table Id field in the virtual business component.

f (Optional) Complete this step only if you complete Step f on page 290. In the Business Component User Props list, create a new record using values from the following table.

| Property | Value |
|---|---|
| Name | Mirror Add *mirror pick Id field name*<br>For example, Mirror Add Account Id. |
| Value | Ignored<br>Prevents Siebel CRM from adding the Mirror Pick Id Field to the target business component, which might cause a record insertion failure. |

# Creating Links to Frequently Accessed Data

This task is a step in "Process of Creating a Screen Home Page View" on page 288.

The View Links area on a screen home page displays links to the frequently accessed lists of data. Administrators and users can define view links. For more information, see *Siebel Fundamentals* and *Siebel Applications Administration Guide*.

### *To create links to frequently accessed data*

1. Display the Business Component User Prop object type.

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2. In the Object Explorer, click Business Component.
3. In the Business Components list, locate the SRF Vlink Screen business component.
4. In the Object Explorer, expand the Business Component tree, and then click Business Component User Prop.
5. In the Business Component User Properties list, add a new record using values from the following table.

| Property | Value |
|---|---|
| Name | VlinkScreen: *name of the screen home page*<br>For example, VlinkScreen: Accounts Screen. |
| Value | Y |

6. In the Business Components list, enter the following query in the Name property:

   ```
   *Private View Link
   ```

7. Choose the Public and Private View Link business component.
8. In the Business Component User Properties list, add a new record using values from the following table.

| Property | Value |
|---|---|
| Name | Enter `Vlink Bo Screen Map` *name of the screen home page*.<br>For example, Vlink Bo Screen Map Account Home. |
| Value | Enter the name of the screen home page.<br>For example, Accounts Screen. |

This user property is required. It uses the business object to associate the view link you define for a screen to the View Link Applet.

9 Make sure the Siebel application in which the view links are checked contains the home page that you defined in Step 5.

### Requirements for a View Link

A view link must comply with the following requirements:

- An aggregate category link can include multiple aggregate view, detail category, and detail view links.
- A detail category link can only include detail links.
- You can define an aggregate view link in the following ways:
  - Without a parent category
  - With an aggregate category as the parent category
- You cannot define a detail category as the parent category of an aggregate view link.
- You must define an aggregate category or detail category as the parent category of a detail view link.
- You cannot use a detail category as the parent category of an aggregate view.
- An aggregate category cannot define a parent category.

## Determining How Siebel CRM Displays Recent Records

This task is a step in "Process of Creating a Screen Home Page View" on page 288.

The Recent Records area on a screen home page view displays a list of the last five records in the current screen that the user created, modified, or accessed.

**NOTE:** Recent Records only works with business components that reference the CSSBCBase class or subclasses of the CSSBCBase class.

#### *To determine how Siebel CRM displays recent records*

1 In the Object Explorer, click Business Component.

2 In the Business Components list, locate the Recent Record business component.

3 In the Object Explorer, expand the Business Component tree, and then click Business Component User Prop.

4 In the Business Component User Props list, add a record using values from the following table.

| Property | Value |
|---|---|
| Name | Recent Record Track BC-*screen home page business object name*<br>For example, Recent Record Track BC-Account Home. |
| Value | Name of the target business component.<br>For example, Account. |

This business component user property associates a tracked business component to a screen home page view through the business object.

5 In the Business Components list, locate the target business component, such as Account.

6 In the Business Component User Props list, add a record using values from the following table.

| Property | Value |
|---|---|
| Name | Recent Record Enabled |
| Value | Y |

7 In the Business Component User Props list, add a record using values from the following table.

| Property | Value |
|---|---|
| Name | Recent Record Name Field |
| Value | Enter the business component field that tracks recent records. |

This business component user property specifies the field that tracks recent records. Siebel CRM displays this field on the Recent Record applet on the screen home page view. You can use a calculated field.

8 (Optional) In the Business Component User Props list, add a record using values from the following table.

| Property | Value |
|---|---|
| Name | Recent Record Type Field |
| Value | Enter the field that Siebel CRM uses in the dynamic drilldown.<br><br>The value must reference a field in the parent business component. For example, Order Type LIC in Order Entry - Orders. |

This business component user property specifies the field to track. Siebel CRM does not display this field on the Recent Record applet. You can use it to define a dynamic drilldown so that the user can navigate to a different view according to a given value. If you configure dynamic drilldown in the recent record applet, then the dynamic drilldown destination objects must reference the Type field in the Recent Record business component.

For example, if the Recent Record Order Entry - Orders List Applet is the recent record applet, then the Sales Order and Web Order dynamic drilldown destination objects must reference the Type field in the Recent Record business component.

## Defining the Business Object for the Screen Home Page View

This task is a step in "Process of Creating a Screen Home Page View" on page 288.

A screen home page view uses a separate, scaled-down copy of the business object that the other views in a screen reference. For example, in the Accounts screen the Account Screen Home Page View references the Account Home business object. Other views in the screen reference the Account business object. For more information, see "About Business Objects" on page 107.

### *To define the business object for the screen home page view*

1 In Siebel Tools, create a new business object using information from the following table.

| Property | Value |
|---|---|
| Name | *name of the target business component* Home<br><br>For example, Account Home. |
| Project | ScreenHomePage |

2 In the Object Explorer, expand the Business Object tree, and then click Business Object Component.

3 In the Business Object Components list, create a new business object component for each of the following business components:

- *Name of the target business component*. For example, Account.
- *Name of the target business component* Home Add Virtual. For example, Account Home Add Virtual.
- *Name of the target business component* Home Search Virtual. For example, Account Home Search Virtual.
- Recent Record.
- Public View Link.
- Private View Link.
- Salutation (eApps).
- Screen Home Task Assistant.

### Associating iHelp Items to Business Objects

Because a screen home page view references a different business object than the other views in the screen, you must associate iHelp items to the business objects. For example, to display the Create a New Account iHelp task on the Activities screen home page view and on the Activities screen views, you must associate the Action Home and the Action business objects with the iHelp item. My Activities, My Team's Activities, are examples of Activities screen views.

## Creating Simplified Screen Home Page Applets

This task is a step in "Process of Creating a Screen Home Page View" on page 288.

An applet that Siebel CRM displays in a screen home page view is a simplified version of the same applet that Siebel CRM displays in another view. These simplified predefined applets result in a screen home page view that is simple to use and easy to manage. For more information, see "About Applets, Controls and List Columns" on page 113.

### *To create simplified screen home page applets*

1. Copy a predefined banner applet.
2. Define properties for the new applet you created in Step 1. Use values from the following table.

| Property | Value |
|---|---|
| Name | *Name of the target business component* Home Screen Homepage Banner<br>For example, Account Home Screen Homepage Banner. |
| Title | Name of the home screen. Siebel CRM displays this value in the middle area of the home screen and above the list of view links. |

The Account Home Screen Homepage Banner applet is an example of a banner applet.

3 Create a copy of a predefined rapid search applet, such as the Account Home Search Virtual Form Applet.

4 Define properties for the new applet you created in Step 3. Use values from the following table.

| Property | Value |
|---|---|
| Name | *Name of the target business component* Home Search Virtual Form Applet<br>For example, Account Home Search Virtual Form Applet. |
| Business Component | *Name of the target business component* Home Search Virtual<br>For example, Account Home Search Virtual.<br>You created this business component in "Defining Business Components for the Screen Home Page View" on page 288. |

5 Create a copy of a predefined rapid add applet, such as the Account Home Add Virtual Form Applet.

6 Define properties for the new applet you created in Step 5. Use values from the following table.

| Property | Value |
|---|---|
| Name | *Name of the target business component* Home Add Virtual Form Applet<br>For example, Account Home Add Virtual Form Applet. |
| Business Component | *Name of the target business component* Home Add Virtual<br>For example, Account Home Add Virtual.<br>You created this business component in "Defining Business Components for the Screen Home Page View" on page 288. |

7 Do the following for each applet you defined in Step 3 and Step 5:

a Remove existing controls from the applet that represent fields from the original business component.

b Add new controls to represent fields from the target business component that you must display in the search applet.

Make sure that the controls reference fields defined in the business component. You can reuse each control that does not represent a field. You do not need to remove them.

8 Do the following for each applet you defined in Step 3 and Step 5:

a Remove existing web template items that represent controls from the original applet.

b Add new web template items to represent controls for the new applet.

c Repeat Step b for each applet web template mode.

For example, add and remove web template items for Base and Edit Mode. For more information, see "Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data" on page 118.

For the Item Identifier property, use a number between 1300 and 1340. This range is available for Rapid Add and Rapid Search applets.

9 (Optional) Identify the target view that Siebel CRM displays when the user clicks Go:

- If a drilldown object is defined on the source applet, then modify the drilldown object in the new applet. For more information, see "Options to Drill Down to Another View" on page 140.
- If the Mirror Add GotoView or the Mirror Search GotoView applet user property is defined on the source applet, then modify this value in the new applet.

## Creating a Screen Home Page View

This task is a step in "Process of Creating a Screen Home Page View" on page 288.

After you define the business components, business objects, and applets, you can define the screen home page view to display the objects and data in the Siebel client. For more information, see "Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data" on page 118 and see "Creating a View" on page 269.

### *To create a screen home page view*

1 In Siebel Tools, choose the File menu, and then the New Object menu item.

2 In the New Object Wizards dialog box, click the General tab, click View, and then click OK.

3 Complete the New View dialog box using values from the following table, and then click Next.

| Property | Description |
|---|---|
| Project | Choose ScreenHomePage. |
| Name | Use the following format:<br>■ *Name of the target business component* Screen Homepage View<br>For example, Account Screen Homepage View. |
| Title | Use the following format:<br>■ *Name of the target business component* Home<br>For example, Account Home. |
| Business Object | Choose the business object for the home page.<br>For example, Account. For more information, see "Defining the Business Object for the Screen Home Page View" on page 294. |

4 In the View Web Layout - Select Template dialog box, choose View 25 50 25, and then click Next.

The View 25 50 25 view web template provides a three column layout.

5 In the Web Layout - Applets dialog box, move the following applets to the Selected Applets window:

- Layout Controls Applet or Layout Controls SI Applet
- *Name of the target business component* Home Screen Homepage Banner
- Public and Private View Link List Applet
- Recent Record *Name of the target business component* List Applet
- Screen Home Task Assistant List Applet
- *Name of the target business component* Home Search Virtual Form Applet
- *Name of the target business component* Home Add Virtual Form Applet Rapid Search Virtual

For more information about the Rapid Add and Rapid Search applets, see "Creating Simplified Screen Home Page Applets" on page 295.

6 Click Next, and then click Finish.

7 In the View Web Layout editor, verify the layout of the screen home page view using values from the following table.

| Applet | Location |
|---|---|
| Rapid Search | Left top |
| Rapid Add | Left bottom |
| Homepage Banner | Center To |
| Public and Private View Link | Center bottom |
| Edit Layout | Right top button |
| Screen Home Task Assistant List Applet | Right top |
| Recent Record | Right bottom |

8 Close the Web Layout Editor.

9 In the Object Explorer, expand the View tree, expand the View Web Template tree, and then click View Web Template Item.

10 In the View Web Template Items list, verify that the Applet Mode and Item Identifier properties are set correctly for each applet. Use values from the following table.

| Applet | Applet Mode | Item Identifier |
|---|---|---|
| Rapid Search | Query | 102 |
| Rapid Add | Edit | 103 |
| Homepage Banner | Base | 202 |

| Applet | Applet Mode | Item Identifier |
|---|---|---|
| Public and Private View Link | Base | 203 |
| Edit Layout | Base | 901 |
| Screen Home Task Assistant List Applet | Base | 302 |
| Recent Record | Base | 303 |

## Adding the Screen View to the Screen

This task is a step in "Process of Creating a Screen Home Page View" on page 288.

To display the new screen home page view in Siebel CRM, you must create a new Screen View object to represent it.

### *To add the screen view to the screen*

1. In the Object Explorer, click Screen.
2. In the Screens list, locate the screen you must modify.
3. In the Object Explorer, expand the Screen tree, and then click Screen View.
4. In the Screen Views list, create a new record using information from the following table.

| Property | Value |
|---|---|
| View | Choose the name of screen view.<br>For example, Accounts Screen Homepage View. |
| Type | Aggregate View |
| Viewbar Text | Enter the text that Siebel CRM must display in the viewbar.<br>For example, Accounts Home. |

5. Right-click in the Screen Views list, choose Edit Screen View Sequence, and then define the sequence for the screen view.

   For more information, see "Defining the Sequence in Which Siebel CRM Displays Screen Views" on page 287.

6. Compile and test your changes.

   For more information, see *Using Siebel Tools*.

# Creating and Deploying an Application

This topic describes how to define and deploy an application. It includes the following topics:

## Creating a New Application

You can modify a predefined application to meet most of your business requirements. However, you can create a new application, if necessary. For more information, see "About Applications" on page 144 and Chapter 10, "Reusing Predefined Objects".

### *To create a new application*

1. In Siebel Tools, click Application in the Object Explorer.
2. In the Applications list, create a new record.

   **TIP:** To create a new application, you can copy a predefined application and then modify the properties and child objects of the new application. However, a field in an applet that is specific to the original application is not available in the new application, as determined by the application name.

3. Enter values for the Project and Name properties.

   For more information, see "Guidelines for Creating an Application" on page 145.

4. Add a page container template to the application for your home page.

   For more information, see "About the Container Page" on page 151.

5. For each of the following properties, choose a value from the list of available Web pages:

   - Login Web Page
   - Error Web Page
   - Acknowledgement Web Page

   For more information, see "How Siebel CRM References Web Pages" on page 151.

6. Associate the application with screens.

## Deploying A Siebel Application in Standard Interactivity or High Interactivity

An employee application is configured to use high interactivity by default. You can modify the HighInteractivity parameter to configure an employee application to run in standard interactivity.

If an application runs in high interactivity, then the Web framework attempts to display a view in high interactivity only if every applet that is contained in the view supports high interactivity. Otherwise, Siebel CRM displays the view in standard interactivity.

**NOTE:** Siebel CRM does not support high interactivity for a customer application.

For more information, see "About Standard Interactivity and High Interactivity" on page 36.

You can deploy Siebel CRM in one of the following ways:


- Enabling High Interactivity for the Siebel Web Client on page 301
- Enabling High Interactivity for the Siebel Mobile Web Client on page 301
- Using Standard Interactivity to Deploy a High Interactivity Application on page 302


## Enabling High Interactivity for the Siebel Web Client

You use the administrative screens in the Siebel client to enable high interactivity for the Siebel Web Client.

### *To enable high interactivity for the Siebel client*

1. Verify that the Siebel application is an employee application.
2. In the Siebel client, navigate to the Administration-Server Configuration screen, and then the Servers view.
3. In the Siebel Servers list, choose the appropriate Siebel Server.
4. Click the Components tab.
5. In the Components list, choose the appropriate Siebel Server.
6. Click the Parameters tab that is located below the Components list.
7. In the Component Parameters list, query for HighInteractivity, then set the HighInteractivity parameter to True.

   To disable high interactivity, set the HighInteractivity parameter to False.

## Enabling High Interactivity for the Siebel Mobile Web Client

You modify the configuration file of the Siebel application to enable high interactivity for the Siebel Mobile Web Client.

### *To enable high interactivity for the Siebel Mobile Web Client*

1. Verify that the Siebel application is an employee application.
2. Use a text editor to open the configuration file for the Siebel application.
3. In the InfraUIFramework section of the configuration file, set the HighInteractivity parameter to true:

```
HighInteractivity=TRUE
```

To disable high interactivity, set the HighInteractivity parameter to FALSE.

4 Save and close the configuration file.

## Using Standard Interactivity to Deploy a High Interactivity Application

You can use standard interactivity to deploy Siebel CRM that typically runs in high interactivity. For more information, see "Calendar Views That Siebel CRM Supports with Standard and High Interactivity" on page 40.

### *To use standard interactivity to deploy a high interactivity application*

1 Remove any high interactivity calendar views from all user responsibilities that the Siebel application you are deploying uses.

For information, see *Siebel Security Guide*.

2 Add all standard interactivity calendar views to all user responsibilities.

3 Retarget any links to calendar views so that they reference the appropriate calendar views that are in standard interactivity.

4 If you must simultaneously run an application in high interactivity for some users and in standard interactivity for other users, then do the following:

a Create two sets of responsibilities, one set for high interactivity users and another set for standard interactivity users.

b Assign each user to the responsibility for the level of interactivity in which the user runs Siebel CRM.

c It is recommended that you deactivate links to the calendar views because the same link cannot reference a high interactivity view and a standard interactivity view.

## Removing High Interactivity from Internet Explorer

You can remove High Interactivity from Internet Explorer.

### *To remove High Interactivity from Internet Explorer*

1. In Internet Explorer, choose the Tools menu, and then the Internet Options menu item.
2. In the Internet Options dialog box, in the Browsing History section, click Settings.
3. In the Temporary Internet Files and History Settings dialog box, click View Objects.

   Internet Explorer opens a new Windows Explorer window.
4. In the new Windows Explorer window, choose a file that includes Siebel in the Program File column.

   For example, choose Siebel High Interactivity Framework.
5. Choose the File menu, and then the Remove Program File menu item.
6. Repeat Step 5 for each item that includes Siebel in the Program File column.

   For example, Siebel Calendar, Siebel Desktop Integration, and so forth.

# Configuring a Standard Interactivity Application to Run Without HTML Frames

To configure a standard interactivity application to run without HTML frames, you create a new web template and web page and use a predefined, frameless Siebel web template file. For more information, see "About Standard Interactivity and High Interactivity" on page 36.

### *To configure a standard interactivity application to run without HTML frames*

1. In Siebel Tools, lock the project for the Siebel application you must configure.

   For example, to configure Siebel eSales to run without HTML frames, choose the eSales project.
2. In the Object Explorer, click Web Template.
3. In the Web Templates list, create a new record using values from the following table.

| Property | Value |
|---|---|
| Name | Enter any meaningful value. For example, Page Container Frameless. |
| Project | Choose the project you locked in Step 1. |
| Type | Web Page Template |

   For more information, see "About Siebel Web Templates" on page 147.
4. In the Object Explorer, expand the Web Template tree, and then click Web Template File.

5 In the Web Template Files list, create a new record using values from the following table.

| Property | Value |
|---|---|
| Name | Enter any meaningful value. For example, Page Container Frameless. |
| Filename | Enter one of the following values:<br>■ CCPageContainer_NoFrames.swt<br>■ dCCPageContainer_NoFrames.swt |

6 In the Object Explorer, click Web Page.

7 In the Web Pages list, locate the container page for the Siebel application you are configuring.

For example, CC Container Page (eSales). For more information, see "About the Container Page" on page 151.

8 Right-click the container page you located in Step 7, and then choose Copy Record.

9 Create the new web page using values from the following table.

| Property | Value |
|---|---|
| Name | Enter any meaningful value. For example, My Frameless Page Container. |
| Project | Choose the project you locked in Step 1. |
| Web Template | Choose the web template you created in Step 3. For example, Page Container Frameless. |

## Using a Predefined Template to Configure a Standard Interactivity Application to Run Without HTML Frames

You can use the predefined DotCom Page Container No Frames web template. This template includes the dCCPageContainer_NoFrames.swt file web template file.

### *To use a predefined template to configure a standard interactivity application to run without HTML frames*

- Complete the task described in"Configuring a Standard Interactivity Application to Run Without HTML Frames" on page 303 with the following modifications:
  - Skip the following steps:
    - Step 3 on page 303
    - Step 4 on page 303
  - In Step 6 on page 304, enter `DotCom Page Container No Frames` in the Web Template field.

# Customizing the Sort Order for Siebel CRM

To customize the Sort Order dialog box for Siebel CRM, you set the Sort Web Page property of the application object to use the template file for the Sort Order dialog box. You can use the Sort Dialog to display one or more instances of a list of fields on which to sort, and the sort order to use. You can use a control that calls the SortOrder method to call the Sort Dialog. You can use this control only in a base template of a list applets. For information about other sort capabilities, see "How a Business Component Sorts Records" on page 78.

You use the swe:sort-field tag to display the list of sortable fields and the sort order options. This sequence attribute is a required attribute of the swe:sort-field tag that specifies the order in which Siebel CRM sorts the chosen columns. For information how to configure tags and web templates, see "About Siebel Web Templates" on page 147.

The following code is an example of the format for the swe:sort-field tag:

```
<swe:sort-field sequence="1"/>
```

This tag renders the following HTML select lists:

- A list that includes the fields that the user can sort. Siebel CRM maps these fields to the swe:control tags in the base template for the applet.
- A list that includes Ascending and Descending, which determines the sort order.

You can include as many swe:sort-field tags in the sort web page as you require.

### *To customize the sort order for Siebel CRM*

1. Open Siebel Tools.
2. In the Object Explorer, click Web Page.
3. In the Web Pages list, locate the web page that you will use for the sort web page, and then note the web template that this page references.
4. Add your custom code to the web template that the sort web page references.

   For an example, see "Code Fragment from an Example Sort Web Page" on page 305.
5. In the Object Explorer, click Application.
6. In the Applications list, locate the Siebel application you must modify.
7. Set the Sort Web Page property to the web page you located in Step 3.
8. To create the link or button that executes the sort, create a web page item that calls the ExecuteSort method. It is not necessary to define the View and Applet parameters for this method because these parameters default to the currently active view and applet.
9. Compile and test your changes.

   For more information, see *Using Siebel Tools*.

## Code Fragment from an Example Sort Web Page

The following code is a fragment from an example sort web page:

```
<swe:form>
<table width=100% bgcolor=”#EEEEEE” border=0 cellspacing=0 cellpadding=3>
<tr>
   <td><swe:pageitem id=”1” property=”DisplayName”/></td>
   <!--”Sort By” Label -->
</tr>
<tr>
   <td><swe:sort-field sequence=”1”/></td>
   <!-- First column to sort on -->
</tr>
<tr>
   <td><swe:pageitem id=”2” property=”DisplayName”/></td>
   <!-- “Then By” Label -->
</tr>
<tr>
   <td><swe:sort-field sequence=”2” /></td>
   <!-- Second column to sort on -->
</tr>
<tr>
   <td><swe:pageitem id=”2” property=”DisplayName”/> </td>
   <!-- “Then By” Label -->
</tr>
<tr>
   <td><swe:sort-field sequence=”3”/></td>
   <!-- Third column to sort on --></tr>
<tr>
   <td><swe:pageitem id=”5” property=”FormattedHtml”/></td>
   <!-- Execute Sort -->
</tr>
</table>
```

```
</swe:form>
```

# Configuring Keyboard Shortcuts for an Application or Applet

This topic describes how to configure keyboard shortcuts. It includes the following topics:



For more information, see "Adding a Keyboard Shortcut That Opens Help" on page 662.

## About Keyboard Shortcuts

A *keyboard shortcut* is a series of key sequences that Siebel CRM automatically executes in response to a user action. For example, the user can simultaneously press the CTRL and N keys to create a new record. For more information, see *Siebel Applications Administration Guide*.

### Object Types Siebel CRM Uses with a Keyboard Shortcut

To create a keyboard shortcut, you use the accelerator object type, which is a child of the command object type. Because Siebel CRM maps a shortcut directly to a command, the scope of the actions that the shortcut represents applies to one of the following contexts:

- The active applet
- The entire application

For example, a shortcut to initiate a new query uses a specific context on the current applet. A shortcut to call the Site Map is independent of the current application context.

Siebel CRM must load commands into the active menu structure for the Siebel client. The command that each shortcut represents must be available to the user. For a command to be available to the user, it must be associated with the application menu or the applet menu for the currently active applet.

For more information, see "Creating a Command Object" on page 502.

### Keyboard Shortcuts and Standard Interactivity

For a keyboard shortcut to work in a standard interactivity application, the EnableSIFocusTracking parameter for the application object manager must be set to the default value of True. Keyboard shortcuts do not work in frameless mode. For more information, see "About Standard Interactivity and High Interactivity" on page 36. For more information about application object manager, see *Siebel System Administration Guide*.

## Guidelines for Creating Keyboard Shortcuts

If you create a keyboard shortcut, then use the following guidelines:

- For a Siebel application that runs in extended keyboard mode, do not override browser functionality that the user already uses. For example, CTRL+C is a common shortcut that many users already use. It copies a text string to the clipboard in Microsoft Internet Explorer.
- Group related shortcuts according to the key sequence. For example, to assist the user in remembering shortcuts that perform similar roles, group key sequences that start with CTRL+ALT for query management functions.
- Do not map a frequently used command to a key sequence that is similar to a sequence that performs a significant action that the user cannot reverse. For example, assume CTRL+Shift+X performs a log out. In this situation, do not map the CTRL+ALT+X sequence because the user might accidently press CTRL+Shift+X.
- You use the administrative screens in the Siebel client to configure a keyboard shortcut that is related to the Siebel Communications Server. If you define a shortcut through the Siebel Communications Server administrative screens, and if this shortcut uses the same key sequence as a shortcut defined in the Siebel Repository File, then the shortcut defined through the Siebel Communications Server takes precedence. Any shortcut in the Siebel Communications Server takes precedence over any shortcut you define in Siebel Tools and then compile to the Siebel Repository File. For more information, see *Siebel Communications Server Administration Guide*.

## Creating a Keyboard Shortcut

This topic describes how to create a keyboard shortcut.

### *To create a keyboard shortcut*

1. In Siebel Tools, display the command object and all child objects of the command object.

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2. Make sure the command that you require for the shortcut exists.

   If the command does not exist, then you must add it. For more information, see "Creating a Command Object" on page 502.

3. Make sure the command is included as part of the active menu hierarchy at the application or the applet level for the application contexts in which the shortcut is active.
4. In the Object Explorer, click Command.
5. In the Commands list, locate the command you must modify.
6. In the Object Explorer, expand the Command tree, and then click Accelerator.

7 In the Accelerators list, add a new record using values from the following table.

| Property | Description |
|---|---|
| Name | Enter a name that describes the action that the shortcut performs. |
| Key Sequence | Enter the key sequence. For example, `Ctrl+Shift+O`. |
| Display Name | Enter the display name. |
| Browser Platform | Choose one of the following values:<br>■ **Extended.** For extended mode only.<br>■ **Basic.** For basic mode only.<br>■ **All.** For Extended and Basic modes. |

8 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Modifying or Hiding the Key Sequence

You can modify or hide the key sequence for a shortcut.

### *To modify or hide the key sequence for a shortcut*

1 In Siebel Tools, in the Object Explorer, click Command.

2 In the Commands list, locate the command you must modify.

3 In the Object Explorer, expand the Command tree, and then click Accelerator.

4 (Optional) In the Accelerators list, modify the Key Sequence property.

For more information, see "Guidelines for Creating Keyboard Shortcuts" on page 308.

5 (Optional) Hide the key sequence:

a In the Object Explorer, expand the Accelerators tree, and then click Accelerator Locale.

b In the Accelerator Locales list, make sure the Display Name property is empty.

You can hide the key sequence so that it does not display in the Siebel client. The Display Name property of the accelerator locale defines the key sequence for a given shortcut. To hide the key sequence, leave this property empty.

6 Compile and test your changes.

For more information, see *Using Siebel Tools*.

# 15 Configuring Applet Layouts

This chapter describes how to use the Applet Layout Editor to configure the appearance of an applet. It includes the following topics:



## Process of Using the Applet Layout Editor

To use the applet layout editor, perform the following tasks:

1. Setting the Language Mode of the Applet Layout Editor on page 595
2. Setting the Configuration Context on page 311
3. Defining the Applet Mode on page 312
4. Adding a Control or List Column to an Applet Layout on page 313
5. Previewing the Applet Layout on page 315
6. (Optional) Exporting an Applet Preview to an HTML File on page 316

The *Applet Layout Editor* is a visual editing tool that allows you to modify the layout of an applet, which includes adding and removing controls and list columns. It provides a canvas and a preview mode that allows you to view how Siebel CRM renders the applet in the Siebel client.

The constrain mode affects certain text strings. For more information, see "Setting Up the Configuration File for Siebel Tools" on page 195.

### Setting the Configuration Context

This task is a step in "Process of Using the Applet Layout Editor" on page 311.

Capabilities vary between browsers. For example, some browsers support frames and JavaScript. Before you edit the layout of an applet, you set the context so that the Web Layout Editor displays objects that the browser supports. For more information, see "Displaying Different Sections of a Template Depending on the Browser Type" on page 523.

### *To set the configuration context*

1 In Siebel Tools, choose the View menu, Toolbars, and then make sure the Configuration Context menu item contains a check mark.

The Configuration Context toolbar includes the Target Browser list. This list allows you to specify the target browser.

2 In the Configuration Context toolbar, Choose the Target Browser list, and then choose Target Browser Config.

3 In the Available browsers window of the Target Browser Configuration dialog box, choose a browser you must map, and then click the right arrow.

You can view capability information about the browser in the Capability Name and Value sections of the dialog box.

4 Repeat Step 3, and then click OK.

The target browser determines how Siebel Tools handles conditional template tags in the Web Layout Editor. If you choose more than one browser, then the group of target browsers determines how Siebel Tools handles these tags.

If you do not choose a browser in the Target Browser field, then Siebel Tools displays an error message when you open the Applet Layout Editor.

**CAUTION:** Do not change the Configuration Context after you start to modify an applet layout.

5 In the Object Explorer, click Applet.

6 In the Applets list, locate the applet you must modify.

7 Right-click, and then choose Edit Web Layout.

The Web Layout Editor displays information differently depending on the target browser you choose. For example:

- **The Target Browser is IE 5.0.** The editor displays a placeholder for the applet in the frame with an underlying identifier of 101. You can drag and drop a specific applet to the placeholder. This is because IE 5.0 includes a FrameSupport capability.
- **The Target Browser is IE 1.5.** The editor does not display the placeholder because the FrameSupport capability for IE 1.5 is FALSE.

It might be necessary for you to define different applet layouts to support different browser capabilities.

If the applet you chose does not reference an applet web template, then Siebel CRM displays a dialog box that allows you to open the Applet Wizard so that you can reference a web template.

## Defining the Applet Mode

This task is a step in "Process of Using the Applet Layout Editor" on page 311.

### *To define the applet mode*

1 In the Mode list of the Controls/Columns window, choose the applet mode that you must edit.

   Make sure you choose an active web template. Siebel Tools displays active and inactive web templates. Siebel Tools labels uses *inactive* to label an inactive web template.

   Siebel Tools does not automatically apply changes you make to an applet layout in one mode to an applet layout in another mode.

2 In the Application field of the Configuration Context toolbar, choose an application.

   Choose All Applications to apply changes to all applications. Choose a specific application to apply changes to only one application. For more information, see "Options to Determine How Siebel CRM Displays Controls and List Columns in a Siebel Application" on page 124.

3 (Optional) To display the standard interactivity placeholder, choose the Interactivity list on the Configuration Context toolbar, and then choose Standard.

   A placeholder exists in the header of a list or form applet that allows you to add a button that Siebel CRM only renders in standard interactivity. The item ID of the placeholder is 580. For more information, see "About Standard Interactivity and High Interactivity" on page 36.

4 Edit the applet layout.

   If you add a new control or list column to the applet layout, then you can use the Properties window to define an object property, such as Field or Name.

5 Save your changes to the Web layout.

## Adding a Control or List Column to an Applet Layout

This task is a step in "Process of Using the Applet Layout Editor" on page 311.

In the Applet Layout Editor you can add a predefined or custom control or list column. You can add a predefined control or list column that is a child object of the applet that exists in the Siebel repository but is not mapped to the applet web template.

You can also add a custom control or list column to an applet layout. For example, you can add a custom control to the applet layout that displays a custom business component field. If you add a control, then the Applet Layout Editor automatically creates the corresponding child objects to the applet, including the control or list column, and the applet web template item.

For more information, see "About Applet Controls and List Columns" on page 115.

### *To add a control or list column to an applet layout*

1 In Siebel Tools, click Applet in the Object Explorer.

2 In the Applets list, locate the applet you must modify, right-click, and then choose Edit Web Layout.

3 Make sure Siebel Tools displays the Controls/Columns window.

   To display the Controls/Columns window, choose the View menu, Windows, and then the Controls Window menu item.

4 Drag and drop the control or list column you must add from the Controls/Columns window to the canvas.

   Siebel Tools displays the control or list column in the canvas and creates the corresponding web template item. If this is a custom control, then Siebel Tools also automatically creates an object definition for the control.

5 (Optional) Use the Properties window to define the properties for the control.

   If the Properties window is not open, choose View menu, Windows, and then the Properties Window menu item.

6 To add a control or list column in a layout that does not use a grid, drag and drop the control or list column from the Controls/Columns window to any empty placeholder in the canvas.

   The predefined placeholders in the web template determines the locations that are available for a control in an applet that references a web template that does not use a grid. For example, with a list applet. For these applets, you drag and drop a control onto an empty placeholder in the canvas. For more information, see "About Nongrid Form Applet Templates" on page 160.

   An applet header and footer is designed for a button control. Avoid placing a non-button control, such as a field, on an applet header or footer.

7 Save your changes.

## How Siebel Tools Treats Labels and Controls in a Grid Layout

If an applet references an applet web template that uses a grid layout, then Siebel Tools treats the labels and controls as separate items. Siebel Tools does this to provide more flexibility when you design the layout. However, this functionality requires you to map the control and the label of the control onto the applet layout. A label includes the same name as the control, except that Siebel Tools appends the label with the word *label*. For more information, see "Using Grid Layout for an Applet" on page 322.

## Deleting a Control or List Column

You can cut or delete a control or list column from an applet layout. It is not necessary to delete the object definition for the control or list column. For important caution information, see "Deleting a Control or List Column While in Language Override Mode" on page 595.

### *To delete a control or list column*

1 In Siebel Tools, click Applet in the Object Explorer.

2 In the Applets list, locate the applet you must modify, right-click, and then choose Edit Web Layout.

3 In the canvas, choose the control you must delete.

**TIP:** To choose multiple controls, hold down the Shift key, and then choose the controls you must delete.

4 Do one of the following:

- Choose the Edit menu, and then choose the Cut menu item.
- Press CTRL+X.
- Right-click, and then choose Delete.

Siebel Tools removes the item from the canvas and deletes the corresponding applet web template object definitions from the Siebel repository.

## Previewing the Applet Layout

This task is a step in "Process of Using the Applet Layout Editor" on page 311.

You can preview the applet layout to view how Siebel CRM displays the applet in the Siebel client. You can preview the layout in the following ways:

- In different applet modes.
- In high interactivity or standard interactivity. For more information, see "About Standard Interactivity and High Interactivity" on page 36.
- For a specific application.

When working with the preview mode, consider the following:

- To view the layout in full view, hide any docked windows, such as the Object Explorer or the Properties window.
- Siebel Tools displays a grid in the preview mode that allows you to estimate the width of the applet layout. The default grid includes cells that measure 100 pixels by 100 pixels. A red bar in the preview mode indicates the right edge of the layout, beyond which the user must scroll horizontally. The bar is two grid cells wide. For the default grid, Siebel CRM displays the bar at 969 pixels, which is optimized for a resolution of 1024 pixels.

  You can change the background grid of the preview to optimize the layout for different monitor settings. For more information, see *Using Siebel Tools*.
- If Siebel Tools displays the layout of a grid applet in preview mode, then Siebel Tools might compress spaces between fields and the spaces in labels. However, Siebel Tools does not compress fields.

### *To preview the applet layout*

1 In Siebel Tools, click Applet in the Object Explorer.

2 In the Applets list, locate the applet you must modify, right-click, and then choose Edit Web Layout.

3 In the Mode list of the Controls/Columns window, choose the applet mode that you must edit.

4 Right-click the canvas, and then choose Preview.

Siebel Tools displays an approximation of how Siebel CRM displays the applet in the Siebel client.

## Exporting an Applet Preview to an HTML File

This task is a step in "Process of Using the Applet Layout Editor" on page 311.

You can export a preview to an HTML file for later viewing.

### *To export an applet preview to an HTML file*

1 While in Preview mode, choose the File menu, and then the Export menu item.

2 In the Save As dialog box, choose a file name and locate the following directory:

*ORACLE_HOME*\tools\public\enu

You must choose this directory so that Siebel Tools correctly renders image files that exist in the HTML file, such as buttons.

# Options for Customizing an Applet Layout

This topic describes options for customizing an applet layout. It includes the following topics:



## Customizing the Display Name for a Control Caption or List Column

You can customize the caption of a control or the display name of a list column.

For more information, see "Setting Up the Configuration File for Siebel Tools" on page 195.

### *To customize the display name for a control caption or list column*

1. In Siebel Tools, click Applet in the Object Explorer.
2. In the Applets list, locate the applet you must modify, right-click, and then choose Edit Web Layout.
3. In the canvas, double-click a control or list column.
4. Choose the text in the display name or caption, and then type new text.

   Siebel Tools searches for a symbolic string that is an exact match to the text you type, and that is unique, and then does the following:

   - If Siebel Tools finds an exact match, then Siebel Tools references the symbolic string from the control or list column and enters the value of the current string in the Display Name or Caption field. After you save your work, Siebel Tools updates the Display Name property for the control or list column.
   - If Siebel Tools does not find an exact match, or if the match is not unique to a single symbolic string, then Siebel Tools displays an error message.
5. (Optional) You can also use the Controls or List Columns list to change the control caption or list column display name:
   - Define the Caption property for a control in the Controls list.
   - Define the Display Name property in the List Columns list.

## Displaying a Parent Applet Field in the Title of a Detail Applet

You can display the value of a field from the parent record as the title of a detail form applet. Siebel CRM often uses a form applet as a detail applet. Displaying the title in this way helps the user to understand the relationship between the parent and child applet.

### *To display a parent applet field in the title of a detail applet*

1. In Siebel Tools, click Applet in the Object Explorer.
2. In the Applets list, locate the detail applet you must modify, right-click, and then choose Edit Web Layout.
3. Drag and drop a text control into the placeholder for the title that is positioned on the canvas.
4. Give the control a useful name, such as *business component name* Title.
5. Change the HTML Type property of the control to PlainText.
6. In the Field property of the control, choose the parent business component field whose value you must display, for example Name.
7. Compile and test your changes.

   For more information, see *Using Siebel Tools*.

# Displaying a Subset of Fields or CRM Records

You can display a subset of fields in a form applet or a limited number of CRM records in a list applet. If the user clicks Show More/Less, then the applet displays more fields or records. The applet includes a Less mode and a More mode. The user can toggle between these modes to display more or fewer controls or list columns.

The Mode property of the applet web template item determines the mode in which Siebel CRM displays a control or list column. For more information, see "Displaying a Field Only If the User Chooses Show More" on page 319.

If no web template item is defined in the More mode for an applet, then Siebel CRM does not display the Show More/Less button. Siebel CRM does not support the More/Less feature for a pop-up applet. For more information, see "Customizing Pop-Up Applets and Windows" on page 335.

### *To display a subset of fields or CRM records*

1. In Siebel Tools, click Applet in the Object Explorer.
2. In the Applets list, locate the detail applet you must modify.
3. Right-click the applet, and then choose Edit Web Layout.
4. In the Applet Layout Editor, drag a Link control from the Palette window and then drop it in the placeholder at the upper right portion of the applet.
5. In the Properties window, set properties for the control using values from the following table.

| Property | Value |
|---|---|
| HTML Bitmap | BTTNS_MORE |
| HTML Display Mode | EncodeData |
| HTML Icon Map | Set one of the following values:<br>■ For a form applet, use ToggleLayout.<br>■ For a list applet, use ToggleListRowCount. |
| HTML Type | Link |
| Method Invoked | Set one of the following values:<br>■ For a form applet, use ToggleLayout.<br>■ For a list applet, use ToggleListRowCount. |
| Name | Set one of the following values:<br>■ For a form applet, use ToggleLayout.<br>■ For a list applet, use ToggleListRowCount. |
| Read Only | FALSE |
| Runtime | FALSE |
| Show Popup | FALSE |

| Property | Value |
|---|---|
| Sort | FALSE |
| Visible | TRUE |

6 Close the Applet Layout Editor, then step off the applet record to save changes.

7 Choose the applet, and then confirm that it now includes the ToggleLayout or ToggleListRowCount applet web template item.

8 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Displaying a Field Only If the User Chooses Show More

You can define a control so that Siebel CRM only displays the field that references the control if the user chooses Show More.

### *To display a field only if the user chooses show more*

1 In Siebel Tools, click Applet in the Object Explorer.

2 In the Applets list, locate the detail applet you must modify, right-click, and then choose Edit Web Layout.

3 In the canvas, right-click the control, and then choose More.

Siebel Tools displays the control in the canvas with a down arrow. In the Siebel client, Siebel CRM only displays this control after the user chooses Show More.

For more information, see "Displaying a Subset of Fields or CRM Records" on page 318.

## Setting the Tab Order for Fields in an Applet

You can set the sequence of fields that Siebel CRM activates each time the user presses the tab button.

### *To set the tab order for fields in an applet*

1 In Siebel Tools, click Applet in the Object Explorer.

2 In the Applets list, locate the applet you must modify, right-click, and then choose Edit Web Layout.

3 From the Format menu, choose Set Tab Order.

   Siebel Tools changes the mode of the Applet Layout Editor to Set Tab Order and displays a number next to each control. If the user repeatedly presses the tab button, then the number indicates the sequence in which the user progresses through the controls.

4 To create the tab order, click each control in the same sequence in which the user progresses through the controls.

   Siebel Tools assigns a sequence number to each control when you click the control.

5 After you assign all the desired controls, click the canvas.

   Siebel Tools returns the Applet Layout Editor to normal edit mode. If necessary, you can start at Step 1 to reset the tab order.

6 Save your changes.

7 From the Format menu, choose Set Tab Order.

   Siebel Tools returns the Applet Layout Editor to normal edit mode.

8 Repeat steps Step 1 through Step 7 for each applet web template mode.

## Setting the Input Method Editor Mode on a Control or List Column

An *input method editor* (IME) is an editor that allows you to enter complex characters directly from the keyboard. For example, the characters in an Asian language. Several IME input modes handle different types of characters. For example, the Microsoft Windows Japanese IMEs include Hiragana, Katakana, English, Double-width English, and so forth. You create a control or list column user property in Siebel Tools to set the IME mode for a control or list column.

**NOTE:** You can only use the input method editor in high interactivity. You cannot use the input method editor in standard interactivity. For more information, see “About Standard Interactivity and High Interactivity” on page 36.

### *To set the input method editor mode on a control or list column*

1 In Siebel Tools, make sure the Control User Prop and List Column User Prop object types are displayed.

   For more information, see “Displaying Object Types You Use to Configure Siebel CRM” on page 196.

2 Click Applet in the Object Explorer.

3 In the Applets list, locate the applet you must modify.

4 In the Object Explorer, expand the Applet tree, and then do one of the following:

   - Click Control
   - Expand the List tree, and then click List Column.

5 In the Controls or List Columns list, locate the control or list column you must modify.

6 In the Object Explorer, expand the Control or List Column tree, and then choose Control User Prop or List Columns User Prop.

7 In the Control User Props list or in the List Columns User Props list, add the required records.

The following table lists the values for several example records.

| Name | Value |
|---|---|
| IME | E0010411:Hiragana |
| IME | E0010411:Full-Width Katakana |
| IME | E0010411:Half-Width Katakana |
| IME | E0010411:Full-Width Ascii |
| IME | E0010411:Half-Width Ascii |
| IME | E0010411:Direct |
| IME | E0010411:IMEOFF<br>This setting can be useful for a field that must only contain numeric data, such as a phone number. In this situation, you can restrict the data the user enters to only numeric characters. |

The code for the IME version varies. For example, a Microsoft Windows IME uses the following code:

| Version | Code |
|---|---|
| IME 2000 | E0010412 |
| IME 2002 | E0010411 |
| IME 2003 | E0200411 |
| IME 2007 | E0200411 |

8 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Copying Controls and Labels from an Applet to a Web Template

You can copy controls and labels from an applet to a web template.

### *To copy controls and labels from an applet to a web template*

1 In Siebel Tools, click Applet in the Object Explorer.

2 In the Applets list, locate the applet you must modify, right-click, and then choose Edit Web Layout.

3 In the canvas, hold down the Shift key, and then choose the items you must copy.

4 From the Edit menu, choose Copy.

5 In the Object Explorer, navigate to the web template where you must copy the items, and then choose Paste from the Edit menu.

- If you paste into the same applet web template that the applet references, or if you paste into a different applet, then Siebel Tools creates new controls and applet web template items.
- If you paste into the same applet but to another mode, then Siebel Tools creates only the applet web template items.

### Undoing Changes or Deleting an Applet Web Template Item

If you choose Undo from the Edit menu or delete an applet web template item from a layout, then Siebel Tools does not automatically delete controls. If you must delete the controls, then you must delete them manually. For important caution information, see "Deleting a Control or List Column While in Language Override Mode" on page 595.

## Verifying the Map Between a Control or List Column and a Placeholder

In some situations, the map between a control or list column and a placeholder in a web template can become invalid. This might occur if Siebel CRM deactivates or deletes the object definition for a control or list column from the Siebel repository but that Siebel CRM still displays on the web template. It might also occur if you reference a new web template from an applet, and if the predefined placeholder ID for the control or list column does not exist in the new template.

You cannot assign the same placeholder ID to more than one object.

#### *To verify the mapping between a control or list column and a placeholder*

1 In Siebel Tools, click Applet in the Object Explorer.

2 In the Applets list, locate the applet you must verify, right-click, and then choose Edit Web Layout.

3 Right-click the canvas of the Applet Layout Editor, and then choose Check Mappings.

If a map between a control or list column and a placeholder is invalid, then Siebel Tools prompts you to delete the placeholder from the web template.

# Using Grid Layout for an Applet

This topic describes how to use grid layout for an applet. It includes the following topics:

*Grid layout* is a design technology in the Applet Layout Editor and certain applet web templates that allows you to modify the layout of a form applet without having to directly modify the underlying applet web template. The work space is a grid canvas where controls snap to a grid. You use a palette of layout tools to define the layout of the form applet, such as resizing, aligning, and centering.

If you define a form applet, then it is recommended that you use a template that uses a grid. A template that uses a grid allows you to use the Applet Layout Editor, which helps you to control the layout of the form applet.

For more information, see "About Grid Form Applet Templates" on page 159.

### *To use grid layout for an applet*

1. In Siebel Tools, choose the View menu, Toolbars, and then make sure the Format Toolbar menu item contains a check mark.
2. Click Applet in the Object Explorer.
3. In the Applets list, locate the applet you must modify.
4. In the Object Explorer, expand the Applet tree, and then click Applet Web Template.
5. In the Applet Web Templates list, make sure the Web Template property references the appropriate template.

   For more information, see "Applet Web Templates That Support Grid Layout" on page 324.
6. In the Applets list, right-click, and then choose Edit Web Layout.
7. Add and delete controls, and then arrange controls, as necessary.
8. For more information, see "Guidelines for Arranging Controls in Grid Layout" on page 329.

### Applet Web Templates That Support Grid Layout

Table 37 describes the applet web templates that support grid layout. For more information, see "About Grid Form Applet Templates" on page 159.

Table 37. Applet Web Templates That Support Grid Layout

| Web Template | File Name | Description |
|---|---|---|
| Applet Form Grid Layout | CCAppletFormGridLayout.swt | Use with all modes of form applets.<br>This template includes buttons in the applet header. |
| Applet Popup Form Grid Layout | CCAppletPopupFormGridLayout.swt | Use with all modes of popup form applets.<br>This template includes buttons in the applet footer. |

## Accessing Grid Layout Web Templates

You can access grid layout web templates.

#### *To access grid layout web templates*

1. In Siebel Tools, choose the View menu, Windows, and then the Web Templates menu item.
2. In the Web Template Explorer, expand the Siebel Web Templates tree, and then choose CCAppletFormGridLayout.

   Siebel Tools displays the code for the CCAppletFormGridLayout file in the Web Template File window. You can use this template for a form applet.
3. To view the template, click CCAppletPopupFormGridLayout in the Siebel Web Templates tree.

   You can use this template for a popup form applet.

## Using the Conversion Wizard to Convert a Form Applet to Grid Layout

The Applet Web Template Conversion Wizard allows you to convert an applet that does not use a grid layout to an applet that does use a grid layout. This conversion is useful in the following situations:

- You must convert a form applet to use grid layout, you did not previously convert the applet to use a grid layout, and you preserved the custom layout during an upgrade.
- You must convert a custom applet you defined that uses a template that does not use a grid.

### *To use the Conversion Wizard to convert a form applet to grid layout*

1. Make sure the applet or applet web template you must convert can be converted.

   For more information, see "Identifying an Applet or Applet Web Template That You Cannot Convert to a Grid Layout" on page 327.

2. In the Configuration Context Toolbar, make sure the Application field contains the context you require.

   For more information, see "How the Siebel Application Context Affects Controls That the Applet Web Template Conversion Wizard Converts" on page 326.

3. If you work in Language Override mode, then make sure your Tools Language Mode is configured for the language you must convert.

   For more information, see "About Localization in the Development Environment" on page 594.

4. In Siebel Tools, click Applet in the Object Explorer.
5. In the Applets list, locate the applet you must convert.
6. From the Tools menu, choose the Convert to Grid Layout menu item.
7. In the Applet Web Template Conversion Wizard, move the applets you must convert from the Available Applets window to the Selected Window.
8. Choose more options:
   - It is recommended that you choose the Backup Existing Applet Web Templates option.
   - If you choose the Label on the Left of the Fields Option, then the Conversion Wizard creates a new form template that does not use a grid, moves labels to the left, and then converts that template to grid layout.
   - If you choose the Launch Web Layout Editor Upon Completion option, then the editor displays the applet web template for the last applet that you chose in Step 7.
9. Click Next.

   The wizard converts the active web templates to grid layout web templates:

   - If no error occurs, then you can use the Applet Layout Editor to edit the layout of these applets. For more information, see "Process of Using the Applet Layout Editor" on page 311.
   - If an error occurs, then the Applet Web Template Conversion Wizard displays the error in a dialog box. Siebel Tools stores this information in a log file. For more information, see "Troubleshooting a Grid Layout Conversion Problem" on page 328.

   **NOTE:** If an item in an applet header or footer does not convert properly, then you might be required to manually modify the item after the conversion. This situation can occur if you map a field to a placeholder in an applet header or footer. You typically map a button control rather than a field to a header or footer.

### How the Siebel Application Context Affects Controls That the Applet Web Template Conversion Wizard Converts

The Applet Web Template Conversion Wizard only converts controls that are valid in the current application context that is chosen in the Application field of the Configuration Context Toolbar. For example, if the Siebel ERM application is chosen, then Siebel Tools only converts the controls that are valid in the context of the Siebel ERM application. If a control is not valid in the chosen application context, then Siebel Tools displays a dialog box that provides you the option to cancel the conversion or to continue. If you choose continue, then Siebel Tools creates an entry in a log file for each control that it does not convert. For more information, see "Troubleshooting a Grid Layout Conversion Problem" on page 328.

## Modifying the Web Template to Convert a Form Applet to Grid Layout

To convert the applet to a grid layout, you can change the web template that the applet references. In Siebel Tools, you change the web template file that is associated with each applet mode to a template that supports a grid layout. You manually perform this task for each applet you must convert.

### *To modify the web template to convert a form applet to grid layout*

1. Make sure the applet or applet web template you must convert can be converted.

   For more information, see "Identifying an Applet or Applet Web Template That You Cannot Convert to a Grid Layout" on page 327.

2. In the Object Explorer, choose the Applet object type.
3. In the Applets list, right-click the applet that you must convert to a grid layout, and then choose Edit Web Layout.
4. In the Controls/Columns window, click Change Template.

   If the Controls/Columns window is not visible, then choose the View menu, Windows, and then the Controls Window menu item.

5. In the Choose Template dialog box, choose the appropriate template.

   For more information, see "Applet Web Templates That Support Grid Layout" on page 324.

6. Repeat Step 5 for each applet mode.

   After you reference a grid layout template, you can use the Applet Layout Editor to edit the applet. For more information, see "Process of Using the Applet Layout Editor" on page 311 and "Guidelines for Working with Grid Layout" on page 329.

# Identifying an Applet or Applet Web Template That You Cannot Convert to a Grid Layout

You cannot convert certain applets and applet web templates to a grid layout.

### *To identify an applet web template that you cannot convert to a grid layout*

1. In Windows Explorer, navigate to the *Tools_Install*\BIN directory.

   If you use another operating system, then use the appropriate navigation software.

2. Open the awtcvtcfg.txt file.

   The awtcvtcfg.txt file is the configuration file for the Applet Web Template Conversion Wizard. It lists applets and applet web templates that you cannot convert.

3. Make sure the applet or applet web template you must convert is not listed.

   **NOTE:** Do not modify the list of applet classes and applet web template files that are listed in the configuration file for the Applet Web Template Conversion Wizard. Siebel CRM does not support modification of these classes or files.

You cannot convert the following web templates to grid layout:

- SWLS DetailApplet Template
- SWLS Edit Template

# Changing the Background Color of an Applet

To change the background color of an applet that references a grid layout web template, you can modify the relevant selectors in the main.css (Cascading Style Sheet). For more information about main.css, see *Siebel Developer's Reference*.

### *To change the background color of an applet*

- If the applet is the parent applet, then modify the AppletStyle1 selector.

  The parent applet is the top applet in a view. For example:

  ```
  /*Parent Applet Style*/

  .AppletStyle1{background-color : #f00000; color:#00f0ff; }
  ```

- If the applet is the child applet, then modify the AppletStyle3 selector.

  The child applet is not the top applet in a view. For example:

  ```
  /*Child Applet Style*/

  .AppletStyle3 {background-color: #f0f000;}
  ```

# Troubleshooting a Grid Layout Conversion Problem

This topic describes guidelines for troubleshooting a grid layout conversion problem.

To resolve a grid layout conversion problem, look for it in the list of Symptoms or Error messages column in Table 38.

Siebel Tools displays these errors in a dialog box at the end of the conversion process. Siebel Tools creates an entry in a log file for each control that it does not convert or for errors that it encounters when it converts an applet to grid layout. The log file is named awtconversion.txt and is located in the *tools_install*\temp directory.

Table 38. Problems That Occur During Conversion to Grid Layout

| Symptom or Error Message | Diagnostic Steps or Cause | Solution |
|---|---|---|
| Cannot map a control or label. | This problem might be due to an applet web template item that is not explicitly mapped to a control on the original applet web template. To display on the new grid applet web template, the Control property on each web template item must contain a value. | Use the Applet Layout Editor to map a control to the applet layout. For more information, see "Adding a Control or List Column to an Applet Layout" on page 313. |
| Cannot convert an applet. | The following items might cause the problem:<br>■ The applet does not reference a web template.<br>■ Siebel CRM does not support an applet class or associated web template for grid layout. For more information, see "Identifying an Applet or Applet Web Template That You Cannot Convert to a Grid Layout" on page 327. | Use Edit Web Layout to associate a valid web template to the applet. |
| The applet web template is configured for more than one application context. | For more information, see "How the Siebel Application Context Affects Controls That the Applet Web Template Conversion Wizard Converts" on page 326. | Choose the appropriate application in the Application field of the Configuration Context toolbar and run the Conversion Wizard again.<br>For more information, see "Using the Conversion Wizard to Convert a Form Applet to Grid Layout" on page 324. |

# Guidelines for Working with Grid Layout

If you use a grid layout, then use the following guidelines:

- Controls snap to a grid in which each grid cell measures 8 pixels by 8 pixels.
- A grid layout only partially resizes a field according to the monitor resolution that is set on the computer on which the Siebel client runs. For example, if a grid form applet is designed to run on a monitor with a resolution of 1024 by 768, and if Siebel CRM displays the applet on a monitor with a resolution of 800 by 600, then the user must scroll to the right to view the right-most edge of the layout. If Siebel CRM displays the same applet on a monitor set to a resolution of 1280 by 1024, then the form does not occupy the entire width of the screen.

  To reduce the potential for horizontal scroll, the browser eliminates as much padding as possible. Field sizes do not change, but empty characters at the beginning or end of a label do change. For example, an applet that is 150 grid cells wide is 1200 pixels wide, and can render in the width of a screen that is set at a width resolution of 1028. The Tools Preview mode reflects this functionality. You can use the preview mode to track how many cells the form crosses, and to approximate how wide the form is when Siebel CRM renders it in the browser.
- If you configure a control in an applet that uses a grid layout, then place controls marked for More mode at the bottom of the applet. The grid layout applet does not compress empty space in the applet.
- In the Applet Layout Editor, Siebel CRM displays a label as an item that is separate from the corresponding control, which provides you with a way to independently position the label. Siebel CRM uses labels as constructs in the Applet Layout Editor only. A label does not exist as a separate control in the Siebel repository. A label is defined as an applet web template item. Although it uses the Caption and Text Alignment- Label properties of the corresponding control, other properties from the control do not apply.
- The Item Identifier property of the applet web template item indicates the position of the label or control in the grid. For example, in the Edit applet web template of the Account Form Applet, the value of the Item Identifier for Country is 8,072. The label is CountryLabel and is located at 8,064.
- If you save an applet layout, then the Applet Layout Editor checks for overlapping controls. If an overlapping control exists, then Siebel Tools displays an error message and you cannot save the layout.
- If you use the alignment buttons on the Format toolbar, then the last item you choose on the canvas is the item to which Siebel Tools aligns, centers, and spaces all other items.

## Guidelines for Arranging Controls in Grid Layout

The Format Toolbar includes several tools that help you arrange controls that Siebel Tools displays in the Applet Layout Editor. If you arrange controls in grid layout, then use the following guidelines:

- To determine the action a tool performs, scroll over the tool and view the small pop-up label that Siebel Tools displays.
- A tool in the Format Toolbar is only active if the action that the tool performs in the Applet Layout Editor is actionable. For example, the Align Lefts tool is only active if you choose more than one control.

- To resize or position a control, always use the Applet Layout Editor. Do not modify the property of a control in the Controls list.
- You can use the arrow keys to move a control or controls to the desired position.

# 16 Configuring Applets

This chapter describes tasks you perform to configure an applet. It includes the following topics:



## Creating an Applet

This topic describes how to create an applet. It includes the following topics:



### Related Topics

For more information, see the following topics:


- Chapter 6, “About Applets, Controls and List Columns”
- Configuring Applet Layouts on page 311
- Configuring Special-Purpose Applets on page 379
- Configuring Lists and Pick Applets on page 437
- Customizing Menus and Toolbars on page 502


## Creating a List Applet

You use the List Applet Wizard to define a list applet. The List Applet Wizard helps you configure the applet properties correctly and automatically creates child objects, such as web template items. The List Applet Wizard does the following:

- Creates the list applet
- Creates the applet web template
- Creates the list, list columns, and controls
- Creates applet web template items

To create a new applet, you can also manually add a record to the Applets list, and then define all the necessary properties and child objects.

### *To create a list applet*

1 Make sure the ClientConfigurationMode parameter is not All.

For more information, see "Setting Up the Configuration File for Siebel Tools" on page 195.

2 In Siebel Tools, choose the File menu, and then the New Object menu item.

3 In the New Object Wizards dialog box, click the Applets tab, choose List Applet, and then click OK.

4 The General dialog box of the List Applet Wizard, enter values using information from the following table, and then click Next.

| Property | Example Value | Description |
|---|---|---|
| Project | Account | Choose the project to associate with this applet. Siebel Tools displays only locked projects in the list. |
| Applet Name | New Account List Applet | Enter a unique name for the applet. For more information, see "Guidelines for Naming an Applet" on page 126. |
| Display Title | Accounts | Enter the title that Siebel CRM must display in the Siebel client. For more information, see "Guidelines for Creating an Applet Title" on page 127. |
| Business Component | Account | Choose the business component that the applet references. |
| Upgrade Behavior | Preserve | Choose how Siebel CRM upgrades the applet during an upgrade. |

The wizard uses this information to create an applet and to define properties for the applet.

5 In the Web Layout - General dialog box, enter the web templates to use for each applet mode, and then click Next.

The Web Template Type filters the web templates that the wizard displays. To display all templates, choose Show All Templates. For more information, see "Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data" on page 118.

Siebel Tools displays a thumbnail image for most templates when you choose the template name. For more information about templates, see *Siebel Developer's Reference*.

6 In the Web Layout - Fields dialog box, choose the fields that Siebel CRM must display in the applet, and then click Next.

Siebel Tools displays the fields for the business component you defined in Step 4. It displays these fields in the Available Fields window.

7 In the Web Layout - Fields dialog box, choose the controls in the Available Controls window that Siebel CRM must display in the applet, and then click Next.

For more information, see "Configuring How Siebel Tools Enters Data Into the Selected Controls Window" on page 333.

8 Review the information the wizard displays in the Finish dialog box, and then click Finish.

You can click Back to return to a previous dialog box, if necessary.

The List Applet Wizard creates the applet and supporting object definitions according to the choices you made. Siebel Tools opens the Applet Layout Editor and displays the layout of the new list applet ready for you to edit. For more information, see "Process of Using the Applet Layout Editor" on page 311.

9 Compile and test your changes.

For more information, see *Using Siebel Tools*.

### Configuring How Siebel Tools Enters Data Into the Selected Controls Window

Siebel Tools adds all the available controls to the Selected Controls window by default. Siebel Tools derives the available controls from the Model HTML Controls applet. This applet specifies the available controls and the template to which each control is mapped.

#### *To configure how Siebel Tools enters data into the Selected Controls window*

- Add controls to or remove controls from the Model HTML Controls applet.

## Creating a Form Applet

You use the Form Applet Wizard to create a form applet. The Form Applet Wizard helps you define the applet properties and automatically creates child objects, such as web template items. The Form Applet Wizard does the following:

- Creates the form applet
- Establishes a reference from the applet to an applet web template
- Creates the controls
- Creates applet web template items. This work establishes a relationship in a control, which makes sure the control references a web template.

#### *To create a form applet*

1 Make sure the ClientConfigurationMode parameter is not All.

For more information, see "Setting Up the Configuration File for Siebel Tools" on page 195.

2 In Siebel Tools, choose the File menu, and then the New Object menu item.

3 In the New Object Wizards dialog box, click the Applets tab, choose Form Applet, and then click OK.

4 In the General dialog box of the Form Applet Wizard, enter values using information from the following table, and then click Next.

| Property | Example Value | Description |
|---|---|---|
| Project | Account | Choose the project to associate with this applet. Siebel Tools displays only locked projects in the list. |
| Applet Name | New Account List Applet | Enter a unique name for the applet. For more information, see "Guidelines for Naming an Applet" on page 126. |
| Display Title | Accounts | Enter the title that Siebel CRM must display in the Siebel client. For more information, see "Guidelines for Creating an Applet Title" on page 127. |
| Business Component | Account | Choose the business component that the applet references. |
| Upgrade Behavior | Preserve | Choose how Siebel CRM upgrades the applet during an upgrade. |
| Use Grid Layout | Check mark | Leave at the default setting, which includes a check mark. For more information, see "Using Grid Layout for an Applet" on page 322. |

The wizard uses this information to create an applet object and to define the applet properties.

5 Do one of the following:

- If you chose Use Grid Layout in the previous dialog box, then choose to display or not display the applet in Base mode. Siebel Tools automatically displays the appropriate web template for Edit Mode.
- If you did not choose Use Grid Layout in the previous dialog box, then choose the web template you must use for each mode.

In most situations, use Edit mode. However, you can use another mode. For more information, see "Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data" on page 118.

6 In the Web Layout - Fields dialog box, choose the fields that Siebel CRM must display in the applet, and then click Next.

Siebel Tools displays the fields for the business component you defined in Step 4 in the Available Fields window.

7 In the Web Layout - Fields dialog box, choose the controls that Siebel CRM must display in the applet, and then click Next.

For more information, see "Configuring How Siebel Tools Enters Data Into the Selected Controls Window" on page 333.

8 Review the information displayed in the Finish dialog box, and then click Finish.

You can click Back to return to a previous dialog box, if necessary.

The Form Applet Wizard creates the applet and supporting object definitions according to the selections you made. Siebel Tools opens the Applet Layout Editor and displays the layout of the new list applet ready for you to edit.

9 Compile and test your changes.

For more information, see *Using Siebel Tools*.

# Customizing Pop-Up Applets and Windows

This topic describes options to customize pop-up applets and windows. It includes the following topics:



## Guidelines for Creating a Pop-Up Applet or Window

If you define a pop-up applet or window, then use the following guidelines:

- You must specify a class in the Class property of the pop-up applet that is derived from the CSSSWEFramePopup class.
- You are not required to specify a business component in the Business Component property of the pop-up applet.
- If you specify a business component for your pop-up applet, then you must specify a business component as a child of the business object of the view that contains the applet from which the pop-up applet opens.
- Siebel CRM supports one level of pop-up applet. If you activate a pop-up applet from a pop-up applet, then the most recently activated applet replaces the original pop-up applet.
- Siebel CRM does not support the *more and less* feature on a pop-up applet. For more information, see “Displaying a Subset of Fields or CRM Records” on page 318.

# Creating a Pop-Up Control in an Applet

For a control or list column that includes an HTML Type property set to Text or Field, Siebel CRM allows certain controls to pop-up in the Siebel client, depending on the data type of the field. Example controls include a calendar or a calculator.

Table 39 summarizes how the data type of the field affects which pop-up control Siebel CRM displays. If you define a list for a field that is described in Table 39, then Siebel CRM pops up a list in the Siebel client instead of a calculator or calendar.

Table 39. How the Data Type of a Field Affects which Pop-Up Control Siebel CRM Displays

| Field Data Type | Pop-Up Control That Siebel CRM Displays |
|---|---|
| DTYPE_DATE | Calendar |
| DTYPE_TIME | Time |
| DTYPE_DATETIME | Combination calendar/time |
| DTYPE_UTCDATETIME | Combination calendar/time |
| DTYPE_NUMBER | Calculator |
| DTYPE_INTEGER | The configuration for standard interactivity determines which pop-up control Siebel CRM displays. For more information, see "About Standard Interactivity and High Interactivity" on page 36. |

### *To create a pop-up control in an applet*

1. In Siebel Tools, click Applet in the Object Explorer.
2. In the Applets list, locate the applet you must modify.
3. In the Object Explorer, expand the Applets tree, and then click Control to define the properties of the control.

   To define the properties of a list, expand the List tree, and then click List Column.
4. In the Controls or List Columns list, locate the control or list column you must modify.
5. Set the Read Only property of the control or list column to FALSE.
6. Set the Runtime property of the control or list column to TRUE.
7. Compile and test your changes.

   For more information, see *Using Siebel Tools*.

# Creating a Pop-Up Applet That Siebel CRM Opens from an Applet

A pop-up applet that Siebel CRM opens from an applet occurs if the user clicks a button on an applet that calls a pop-up window. This window allows the user to edit a set of values, browse through a list, and so forth.

### *To create a pop-up applet that Siebel CRM opens from an applet*

1. Display the control user prop object type, which is a child of the applet object type.

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2. Create the pop-up applet.
   a. In the Object Explorer, click Applet.
   b. In the Applets list, create a new applet.
   c. In the Object Explorer, click Control.
   d. In the Controls list, create two new controls using values from the following table.

| Name | Method Called |
|---|---|
| Cancel | CloseApplet or UndoRecord.<br><br>This value causes the pop-up applet to close if the user clicks Cancel. |
| OK | Call a method. For more information, see "Calling a Method for an OK Control" on page 338. |

3. In the Object Explorer, click Applet.
4. In the Applets list, locate the applet from which the pop-up applet opens.
5. In the Object Explorer, expand the Applet tree, and then click Control.
6. In the Controls list, create a control with the Method Invoked property set to ShowPopup.
7. In the Object Explorer, expand the Control tree, and then click Control User Prop.

8 In the Control User Props list, create three new user properties using values from the following table.

| Name | Value |
|---|---|
| Popup | Name of the pop-up applet that you created in Step 2.<br><br>This applet must use a class that is derived from CSSSWEFramePopup. |
| Mode | (Optional) Mode of the applet, which is Base or Edit.<br><br>If you do not define this value, then the default is Base.<br><br>For more information, see "Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data" on page 118. |
| Popup Dimension | (Optional). Dimension of the pop-up window. The format is Height X Width. For example, 500 X 800.<br><br>If you do not define this value, then Siebel Tools sets the dimensions to the value that is defined in the HTML Popup Dimension property of the pop-up applet. If the HTML Popup Dimension is not defined, then Siebel Tools sets the pop-up window dimensions to 600 X 600. |

9 (Optional). Add a radio button control for any field that references a static list.

For more information, see "About Static Lists" on page 437, and the topics about the radio button and radio button group in *Siebel Business Process Framework: Task UI Guide*.

10 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Calling a Method for an OK Control

This topic describes how to call a method for an OK control.

### *To call a method for an OK control*

1 Create a method on a business service.

2 Use code or some other mechanism to handle the method you defined in Step 1. Make sure this code does the following:

- Executes the specialized behavior.
- Calls the CloseApplet method to close the applet after the specialized behavior completes.

# Creating a Pop-Up Applet That Siebel CRM Opens from a Menu Item

To call a pop-up applet through a menu item, you can use the GotoApplet method of the command object. This technique is similar to the ShowPopup method described in "Creating a Pop-Up Applet That Siebel CRM Opens from an Applet" on page 337. You can provide an argument through the Method Argument property of the command. The following examples use the GotoApplet method of the command object:

- The Spell Check feature that Check Spelling uses
- Add Items that Siebel CRM uses in the Quote Item List Applet

To view an example of this behavior, do the following in the Siebel client:

1. Navigate to the Quotes screen.
2. To drill down on a quote, click a link in the Name field.
3. Click Menu in the Line Items applet, and then choose Add Items.

Siebel CRM sets the Method Argument property of the Add Items command to Applet=Product Popup Applet, causing the applet to display if you choose Add Items.

### *To create a pop-up applet that Siebel CRM opens from a menu item*

1. Display the command object type, which is a child of the applet object type.

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.
2. In the Object Explorer, click Command.
3. In the Commands list, create a command using values from the following table.

| Property | Value |
|---|---|
| Method | GotoApplet |
| Method Argument | Applet=*name of pop-up applet*,ShowMode=*mode of pop-up applet*<br>where:<br>■ *name of pop-up applet* is the name of the pop-up applet. Required.<br>■ *mode of pop-up applet* is the mode of the pop-up applet. Optional. This value can be Base, Edit, Edit List, or Query. If you do not include the mode, then Siebel CRM uses the default, which is Base.<br>For example:<br>`Applet=Product Popup Applet,ShowMode=Edit List`<br>For more information, see "Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data" on page 118. |
| Show Pop-up | TRUE |

4 In the Object Explorer, click Applet, then locate the applet from which the popup must open.

5 In the Object Explorer, expand the Applet tree, and then click Applet Method Menu Item.

6 In the Applet Method Menu Items list, add a new command. Set the Command property for this new command to the command that you created in Step 3.

7 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Creating a Pop-Up View That Siebel CRM Opens from an Applet

Although you can define a view rather than a single applet to load into a pop-up window, it is recommended that you do not use this technique, especially in an employee application. Instead, it is recommended that you call the GotoView method to navigate to a new view in the same window.

If you define a view to load into a pop-up window, then the user must use the Close (X) button in the browser to close the pop-up view. There is no way to close the window programmatically.

### *To create a pop-up view that Siebel CRM opens from an applet*

1 In Siebel Tools, display the control user prop object type, which is a grandchild of the applet object type.

For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2 In the Object Explorer, click Applet.

3 In the Applets list, locate the applet from which to open the pop-up view.

4 In the Object Explorer, expand the Applet tree, and then click Control.

5 In the Controls list, create a new control, and set the Method Invoked property of the control to ShowPopup.

6 In the Object Explorer, expand the Control tree, and then click Control User Prop.

7 In the Control User Props list, create two new records using values from the following table.

| Name | Value |
|---|---|
| View | Set to the view that you must pop-up. |
| Popup Dimension | Set the dimensions of the pop-up. The format is height X width, for example 500 X 800. |

8 Compile and test your changes.

For more information, see *Using Siebel Tools*.

# Creating a Pop-Up Wizard

You can define a set of pop-up applets that function like a wizard. The procedure you use to define this feature is similar to the procedure you use to define a dialog box that Siebel CRM opens from an applet. For more information, see "Creating a Pop-Up Applet That Siebel CRM Opens from an Applet" on page 337.

**NOTE:** The parent applet must be in Edit mode.

### *To create a pop-up wizard*

1. In Siebel Tools, click Applet in the Object Explorer.
2. In the Applets list, locate the pop-up applet you must modify.
3. Expand the Applet tree, and then click Applet Web Template.
4. In the Applet Web Templates list, add multiple templates:
   a. Add one template for each page in your wizard.

      Set the Type property to Edit for each template.

   b. Assign a different value to the Sequence property for each template.

      Use the Sequence property to define the order in which Siebel CRM displays the templates when the user clicks through the wizard.
5. To allow the user to navigate between pages, add controls to the applet.

   For more information, see "Adding Navigation Controls to a Pop-Up Wizard" on page 341.
6. On the last template in the sequence, create a control named Finish that closes the applet, and then updates the parent applet.
7. Compile and test your changes.

   For more information, see *Using Siebel Tools*.

## Adding Navigation Controls to a Pop-Up Wizard

To allow the user to navigate between pages of a pop-up wizard, you can add navigation controls to the wizard.

### *To add navigation controls to a pop-up wizard*

1. In Siebel Tools, click Applet in the Object Explorer, and then locate the pop-up applet you modified in Step 2 on page 341.
2. In the Object Explorer, expand the Applets tree, and then click Control.

3 In the Controls list, add a new control for the Previous button using values from the following table.

| Property | Value |
|---|---|
| Name | Previous |
| Caption | Previous |
| Method Invoked | PostChanges |

The Previous button posts the changes that the user makes, and then navigates the user back to the page whose sequence number is one less than the current page.

4 In the Object Explorer, expand the Control tree, and then click Control User Prop.

5 In the Control User Props list, add a new record using values from the following table.

| Property | Value |
|---|---|
| Name | Sequence |
| Value | -1 |

6 Repeat Step 3 for the Next button using values from the following table.

| Property | Value |
|---|---|
| Name | Next |
| Caption | Next |
| Method Invoked | PostChanges |

The Next button posts the changes that the user makes, and then navigates the user to the page whose sequence number is one greater than the current page.

7 Repeat Step 5 for the Next button using values from the following table.

| Property | Value |
|---|---|
| Name | Sequence |
| Value | 1 |

## Defining the Pop-Up Start Window

You can define the pop-up window that Siebel CRM displays when Siebel CRM starts.

### *To define the pop-up start window*

1 Modify the wait.html file in the *ORACLE_HOME*\PUBLIC\enu directory on the client computer.

2 Modify image files that the wait.html file references, as necessary.

For example, in the predefined Siebel Call Center application, the wait.html file references the launch_window_anim.gif file in the *ORACLE_HOME*\PUBLIC\enu\IMAGES directory on the client computer.

# Customizing Applet Buttons, Controls and List Columns

This topic describes options to customize applet buttons, controls, and list columns. It includes the following topics:



## Configuring a Spell Check Button on an Applet

A user can call Siebel Spell Check from an applet menu item. To configure this applet menu item, you create a Check Spelling Field user property for the applet that contains the following objects:

- Check Spelling button
- Field on which Siebel CRM performs the spell check

### *To configure a spell check button*

1 In Siebel Tools, display the following object types:

- Control object and all child objects of the control object
- Applet user prop, which is a child of the applet object type

For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2 Create a check spelling button in the applet that contains the field on which Siebel CRM must perform the spell check:

a In Siebel Tools, in the Object Explorer, click Applet.

b In the Applets list, locate the applet you must modify.

c In the Object Explorer, expand the Applet tree, and then click Control.

d In the Controls list, add a new record using values from the following table.

| Property | Value |
|---|---|
| Name | ButtonCheckSpelling |
| Caption | Check Spelling |
| Field | Do one of the following:<br>■ If this is a nonrequired field, then enter the field name.<br>■ If this is a required field, then leave this property empty. |
| HTML Type | MiniButton |
| HTML Only | Contains a check mark. |
| Method Invoked | ShowPopup<br>If Siebel Tools does not display the Method Invoked in the list, then type it in manually. |

3 Define user properties for the spell check button:

a In the Object Explorer, expand the Controls tree, and then click Control User Prop.

b In the Control User Props list, create three new records using values from the following table.

| Name Property | Value Property |
|---|---|
| Mode | Edit |
| Popup | Spell Checker Popup Applet |
| Popup Dimensions | 560 X 350<br>This is the recommended initial size. |

4 Add the spell check button to the web template:

a In the Object Explorer, click Applet.

b In the Applets list, right-click the applet you modified in Step 2, and then choose the Edit Web Layout menu item.

c In the Controls/Columns window, make sure the Mode list is set to Edit.

d In the Controls window, choose the Check Spelling control, and then drag it and drop it on a placeholder in the Applet Web Template editor.

e Right-click in the Applet Web Template editor, and then choose the Preview menu item.

Siebel Tools displays an approximation of how Siebel CRM displays the Spell Check button in the Siebel client.

5 Associate the Spell Check business component with the business object of the applet you modified in Step 2:

a In the Object Explorer, click Business Object.

b In the Business Objects list, locate the business object to which you must add the Spell Check business component.

c In the Object Explorer, expand the Business Object tree, and then click Business Object Component.

d In the Business Object Components list, add a new record using values from the following table.

| Property | Value |
|---|---|
| BusComp | Spell Checker Applet VBC |

6 Create a spell check menu item:

a In the Object Explorer, click Applet.

b In the Applets list, locate the applet you modified in Step 2.

c In the Object Explorer, expand the Applets tree, and then choose Applet Method Menu Item.

d In the Applet Method Menu Items tree, add a new record using values from the following table.

| Property | Value |
|---|---|
| Command | Check Spelling |
| Menu Text | &Check Spelling |
| Position | 2 |

7 If the field you are configuring for spell check is a required field, then do the following:

a In the Object explorer, click Applet User Prop.

b In the Applet User Properties list, add a new record using values from the following table.

| Field | Value |
|---|---|
| Name | Check Spelling Field |
| Value | Enter the name of the control or list column that is mapped to the field that will use spell check. |

8 If you must configure spell check for multiple fields in an applet, then repeat Step 2 through Step 4 for each additional field.

You must create a button for each field.

9 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Calling a Method from a Button in an Applet

If Siebel CRM renders a button control in high interactivity, then the button can call a method that comes predefined with Siebel CRM, or a custom method that you program in Siebel Visual Basic, Siebel eScript, or browser script. The Method Invoked property specifies the name of the method Siebel CRM calls if the user clicks the button control. It might be necessary for you to specify your own custom method in the Method Invoked property. For example, this technique is the only way to call a Siebel Visual Basic, Siebel eScript, or browser script on a button-click event.

**NOTE:** The Runtime property must equal TRUE for a button control. Otherwise the method you specify will not execute.

### *To call a method from a button in an applet*

1 In Siebel Tools, in the Object Explorer, click Applet.

2 In the Applets list, locate the applet you must modify.

3 In the Object Explorer, expand the Applets tree, and then click Applet User Prop.

4 In the Applet User Properties list, add a new record using information from the following table.

| Property | Value |
|---|---|
| Name | CanInvokeMethod: *Name of method*<br>where:<br>*Name Of method* is the name of the method called |
| Value | Y<br>As an alternative, you can define an expression in the Value property. If the expression evaluates to TRUE in the Siebel client, then Siebel CRM calls the method. |

5 Compile and test your changes.

For more information, see *Using Siebel Tools*.

# Identifying the Controls and List Columns That Siebel CRM Displays in the Siebel Client

To identify the controls and list columns that Siebel CRM displays in the Siebel client, you can run a query that is similar to SQL. This technique can be useful to determine the combination of columns and values that are required for the applet and web template. For example, an applet might include 30 fields and the applet web template item might include 28 fields, but only 19 fields are visible in the Siebel client.

### *To identify the controls and list columns that Siebel CRM displays in the Siebel client*

- Run the following query against the Siebel database on the Siebel Server:

```
SELECT a.NAME, wtmit.*

FROM siebel.s_list_column a,

siebel.s_applet b,

siebel.s_list c,

siebel.s_appl_web_tmpl wtmp,

siebel.s_appl_wtmpl_it wtmit

WHERE b.NAME IN ('Contact List Applet')

AND c.applet_id = b.row_id

AND c.row_id = a.list_id

AND wtmp.applet_id = b.row_id

AND wtmit.appl_web_tmpl_id = wtmp.row_id

--and a.name in ('M/M','Birth Date','Suffix','Account','Postal Code'
```

# Changing the Text Style of a Control or List Column in an Applet

You can change the style of a text string that Siebel CRM displays in a control or list column.

### *To change the text style of a control or list column in an applet*

1. Make sure Siebel Tools is configured to allow you to modify a text string.

   For more information, see “Setting Up the Configuration File for Siebel Tools” on page 195.

2. Embed an HTML tag in the Caption property of a control or in the Display Name property of a list column.

   For example, consider how Siebel CRM displays the following value for the Caption property:

```
<font color="red" size=+2><b>Account Name</b></font>
```

Siebel CRM uses the value in the HTML tags to render this caption.

3 Compile and test your changes.

For more information, see *Using Siebel Tools*.

### Guidelines for Changing the Text Style of a Control or List Column in an Applet

If you change the text style of a control or list column in an applet, then use the following guidelines:

- Siebel CRM supports an HTML tag that controls text style, such as size, color, italics, and bold.
- Siebel CRM does not support other HTML tags, such as those that control alignment or position.
- You cannot use an HTML tag in a property that uses a string because the Siebel Web Engine interprets the tag as a literal value if rendered in high interactivity. For more information, see "About Standard Interactivity and High Interactivity" on page 36.

## Displaying Totals for a List Column in an Applet

This topic describes how to display totals of values that Siebel CRM displays in the list column of a list applet.

### Displaying the Sum of Values That Siebel CRM Displays in a List Column

You can display the sum of values that Siebel CRM displays in a list column in a list applet.

#### *To display the sum of values that Siebel CRM displays in a list column*

1 In Siebel Tools, in the Object Explorer, click Applet.

2 In the Applets list, locate the applet you must modify.

3 Expand the Applet tree, and then click List.

4 In the Lists list, set the properties of the List object using information from the following table.

| Property | Description |
|---|---|
| Total Displayed | Make sure the property contains a check mark. |
| Total Required | Make sure the property contains a check mark. |

5 In the Object Explorer, expand the List tree, and then click List Column.

6 Make sure the Total Required property for each list column you must total contains a check mark.

7 In the Object Explorer, in the Applet tree, choose Applet Web Template.

8 In the Applet Web Templates list, choose the Base or the Edit List web template.

9 Set the properties of the applet web template using information from the following table.

| Property | Description |
|---|---|
| Web Template | Applet List Totals (Base/EditList) |

10 In the list applet template file, set the property attribute of the swe:control tag to Total.

For example, use one of the following code:

```
<swe:control id="XXX" property="Total"/>
```

or

```
<swe:control id="XXX">
   <swe:this property="Total"/>
</swe:control>
```

If the property attribute in the swe:control tag or in the swe:this tag is *total*, and if the Total Required property for the list column contains a check mark, then Siebel CRM renders the total for the list column values. If the Total Required property does not contain a check mark, then Siebel CRM does not generate an output. This property is valid only if the swe:control tag is mapped to a list column. For more information, see About List Applet Templates on page 162.

11 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Displaying a Total Derived from an Expression in a Business Component Field

You can display a total that references an expression that is defined in a business component field. For example, the Revenue business component includes the following fields:

- Quantity
- Price
- Calculated Revenue

The following expression is defined in the Calculated Value property of the Calculated Revenue:

```
[Quantity]*[Price]
```

You can display the following values in a list applet that references this business component:

- **Total quantity.** The sum of all values in the quantity field.
- **Total revenue.** The product of the totals of the quantity and price columns.

### *To display a total derived from an expression in a business component field*

1. In Siebel Tools, display the list column user prop child object type of the list object type.

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2. Make sure an expression is defined in the business component field to which the list column is mapped.
3. Make sure the Total Required property of the list column contains a check mark.
4. In the Object Explorer, click Applet.
5. In the Applets list, locate the applet you must modify.
6. In the Object Explorer, expand the Applet tree, and then click List.
7. In the Object Explorer, expand the List tree, and then click List Column.
8. In the List Columns list, locate the column you must modify.
9. In the Object Explorer, expand the List Column tree, and then click List Column User Prop.
10. In the List Column User Props list, add a user property named TotalAsExpr.

    Adding the user property is sufficient to evaluate the totals as an expression. Siebel CRM ignores the properties of the field.

11. Set the property attribute of the swe:control tag in the template file to Total.

    For more information, see Step 10 on page 349.

12. Compile and test your changes.

    For more information, see *Using Siebel Tools*.

## Displaying Totals in a Separate Applet

You can display totals in a separate applet. For example, Siebel CRM displays a form applet below a list in the Quote Details View. This form contains totals of columns that Siebel CRM displays in the list.

### *To display totals in a separate applet*

1. Create a form applet.
2. Place the form applet below the list applet in the view.
3. Create a field in the business component that the applet references.
4. Add the following expression to the Calculated Value property of the business component field:

   ```
   Sum([multi-value field])
   ```

   **CAUTION:** Never define a Sum([multi-value field]) expression in a list column. This requires a separate query execution for each record in the list, which can result in a significant performance problem.

5. In the business component, create a multi-value link.

6 In the same business component, create a multi-value field that references the multi-value link.

The multi-value link references the business component that supports the list of values that Siebel CRM sums.

7 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Defining the Properties of a Control or List Column If HTML Type Is Text

This topic describes how to define the properties of a control or list column if the HTML Type is Text.

### *To define the properties of a control or list column if the HTML Type is Text*

1 In Siebel Tools, click Applet in the Object Explorer.

2 In the Applets list, locate the applet you must modify.

3 In the Object Explorer, expand the Applets tree, and then click Control to define the properties of a control. To define the properties of a list, expand the List tree, and then click List Column.

4 In the Controls or List Columns list, locate the control or list column you must modify.

5 Define the Field property.

Specify the field in the business component from which the text control or list column displays data.

6 Define the Display Format property.

For more information, see "Defining the Display Format Property for Data That Is Not Text" on page 352.

7 (Optional) If the Field property of the control or list column references a multi-value field, then do the following:

a In the MVG Applet property, specify the applet to use for the multi-value group applet.

b Set the Runtime property to TRUE.

For more information, see "About the Multi-Value Field" on page 100, and "How the Runtime Property Determines the Icon to Display with a Text Box" on page 352.

8 (Optional) If the control or list column must reference a pick applet, then do the following:

a Define the Pick Applet property.

b Set the Runtime property to TRUE.

The Pick Applet property identifies the pick applet to use for the list dialog box. You must define a list for the field that the control or list column references. For more information, see "How the Runtime Property Determines the Icon to Display with a Text Box" on page 352.

9 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## How the Runtime Property Determines the Icon to Display with a Text Box

If the HTML Type property of a control or list column is Text, then the Runtime property of the control or list column determines the icon to display with a text box in the Siebel client. Siebel CRM uses the values in the following properties of the control or list column:

- If the MVG Applet or Pick Applet property is not empty, then Siebel CRM does the following:
  - If the Runtime property is TRUE, then Siebel CRM activates an icon or arrow to the right of the text box.
  - If the Runtime property is FALSE, then Siebel CRM does not display an icon or arrow, making the multi-value group applet or pick applet inaccessible.
- If the MVG Applet and Pick Applet properties are empty, and if the Runtime property is TRUE, then Siebel CRM uses the data type of the field referenced in the Field property to determine to display or not display an icon for a calculator, an icon for a calendar, or a currency pop-up applet.

## Defining the Display Format Property for Data That Is Not Text

This topic describes how to define the Display Format property of a control or list column to display data that is not text.

### *To define the Display Format property for data that is not text*

1 Determine the data type of the field that this control or list column references:

   a In Siebel Tools, in the Object Explorer, expand the Business Component tree, and then click Field.

   b In the Fields list, locate the field you specified in Step 5 on page 351.

   c Examine the Type property to identify the data type for the field.

2 Define the Display Format property depending on the data type you identified in Step c.

   For more information, see "Display Format Property of a Control or List Column" on page 676.

3 (Optional) Format the postal code.

   a Specify a DTYPE_TEXT data type.

   b Create a format mask in the Display Format property that consists of number signs (#) and empty spaces. For example, ##### #### for a United States postal code that uses the zip code plus four format.

   Siebel CRM does not support hyphens in a postal code.

# Using a Control to Allow the User to Click a Link to Activate a Record

You can use the PositionOnRow control to allow the user to click a link to activate a record.

### *To use a control to allow the user to click a link to activate a record*

1. Add a control to the list applet that calls the PositionOnRow method.
2. Make sure the HTML Row Sensitive property of this control contains a check mark.
3. Place this control on the list applet where the link must choose the row.
4. Compile and test your changes.

   The user must be able to click the link to choose the record.

# Displaying the Save Button in High Interactivity

Because a Siebel application that runs in high interactivity uses an implicit save by default, the Save buttons are not visible in the predefined application. You can configure these buttons so Siebel CRM displays them in high interactivity. For more information, see "About Standard Interactivity and High Interactivity" on page 36.

This topic describes how to display the Save button in high interactivity in the Siebel Mobile Web Client.

### *To display the Save button in high interactivity*

1. Use a text editor to open the configuration file for the Siebel application.
2. Set the ShowWriteRecord parameter to the following value:

   ```
   ShowWriteRecord=TRUE
   ```

The ShowWriteRecord parameter is located in the InfraUIFramework section of the configuration file. Note that the Save buttons use the WriteRecord method.

## Displaying the Save Button in High Interactivity in the Siebel Web Client

This topic describes how to display the Save button in high interactivity in the Siebel Web Client.

### *To display the Save button in high interactivity in the Siebel Web Client*

- Do the steps described in "Enabling High Interactivity for the Siebel Web Client" on page 301, except instead of setting the HighInteractivity parameter, set the ShowWriteRecord parameter to True.

# Customizing How Siebel CRM Displays Data in an Applet

This topic describes options to customize how Siebel CRM displays data in an applet. It includes the following topics:



## Controlling How the User Creates, Edits, Queries, and Deletes CRM Data

To specify if the user can create, edit, query, or delete Siebel CRM records in an applet, you create an applet web template for each applet mode. For more information, see "Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data" on page 118.

### *To control how the user creates, edits, queries, and deletes CRM data*

1. Create a new applet web template.

   For more information, see "Adding a Web Template to an Applet" on page 354.

2. Enter text into the Name property to match one of the applet modes described in Table 18 on page 118.
3. Set the Type property to one of the applet modes described in Table 18 on page 118.
4. Repeat Step 1 through Step 3 for each applet mode that the applet must support.

   For example, create a separate applet web template in the following situations:

   - Create one applet web template for New and another applet web template for Query.
   - If the applet layout is different for New and Query modes compared to Edit mode, then create a separate web template for each mode.

### Adding a Web Template to an Applet

If you must define another mode for an applet, then you must add a web template to the applet. For more information, see "About Applet Web Templates" on page 158.

### *To add a web template to an applet*

1. In Siebel Tools, click Applet in the Object Explorer.
2. In the Applets list, locate the applet you must modify.
3. In the Object Explorer, expand the Applets tree, and then click Applet Web Template.
4. In the Applet Web Templates list, add a new record using information from the following table.

| Property | Description |
|---|---|
| Name | Enter the applet mode for the applet web template, such as Edit. For more information, see "Controlling How the User Creates, Edits, Queries, and Deletes CRM Data" on page 354. |
| Type | Choose the applet mode of the applet web template. |
| Web Template | Choose the web template to associate to the applet. |

## Controlling Query Behavior If the User Presses CTRL+ENTER

The *default method* of an applet is the method that Siebel CRM executes if the user presses CTRL+ENTER. For an applet in query mode, this method is ExecuteQuery. The user can also press ALT+ENTER to execute the query. For other modes, you can set the DefaultMethod applet user property.

**NOTE:** You must use a valid InvokeMethod for the applet, such as NewRecord or GotoNextSet.

### *To control behavior if the user presses CTRL+ENTER*

1. In Siebel Tools, click Applet in the Object Explorer.
2. In the Applets list, locate the applet you must modify.
3. Expand the Applet tree, and then click Applet User Prop.
4. In the Applet User Properties list, add a new record using information from the following table.

| Property | Description |
|---|---|
| Name | Enter `Default Applet Method`. |
| Value | Define the method you must call. |

## Filtering Data That Siebel CRM Displays in an Applet

To filter CRM data that Siebel CRM displays in the applet, you can define a search specification on an applet.

### *To filter data that Siebel CRM displays in an applet*

1. In Siebel Tools, click Applet in the Object Explorer.
2. In the Applets list, locate the applet you must modify.
3. Create a search specification in the Search Specification property.

   For more information, see "Options to Filter Data Displayed in an Applet" on page 120.

## Displaying HTML Content in an Applet

An HTML content *control* is a type of control that allows you to display HTML content in an applet in the Siebel client. HTML content can be static HTML or HTML that is derived from an external content source.

### *To display HTML content in a field*

1. in Siebel Tools, expand the Applet tree, and then click Control in the Object Explorer.
2. In the Controls list, locate the control you must modify.
3. Set properties for the control.

   For more information, see "Properties of a Control That Displays HTML Content" on page 357.
4. Compile your changes.
5. Open the Siebel client.
6. Administer host information:
   a. Navigate to the Administration - Integration screen, and then click the WI - Symbolic URL List link.
   b. Make sure the Host Administration visibility filter is chosen.
   c. Enter the name of the HTTP host in the Name field.
   d. Enter the virtual name and authentication parameters, as required for your configuration.

      For more information, see "Using the Host Administration View" on page 359.
7. (Optional) Administer fixup information:
   a. Navigate to the Administration - Integration screen, and then click the WI - Symbolic URL List link.
   b. Choose Fixup Administration from the visibility filter.
   c. Specify how to control the behavior of links that are embedded in external content.

      For more information, see "Using the Fixup Administration View" on page 359.
8. (Optional) Administer symbolic URL information:
   a. Navigate to the Administration - Integration screen, and then click the WI - Symbolic URL List link.

b Choose Symbolic URL Administration from the visibility filter.

c Define the content agent for the external host. Include the URL, host name, fixup name, and arguments.

9 (Optional) Administer content sets information:

a Navigate to the Administration - Content Center screen, and then click the Content Sets link.

b Upload and manage Web content that Siebel CRM renders.

For more information about content agents and symbolic URLs, see *Siebel Portal Framework Guide*.

## Properties of a Control That Displays HTML Content

Table 40 describes the properties of a control that you must set to display HTML content.

Table 40. Properties of a Control That Displays HTML Content

| Property | Description |
|---|---|
| ContentFixupName | Determines how to correct links after processing. You enter the name of a Fixup as displayed in the Fixup Administration View. Any value you enter does not work if the Field Retrieval Type property is HTML Attachment or Service. |

Table 40. Properties of a Control That Displays HTML Content

| Property | Description |
|---|---|
| Field Retrieval Type | Determines the type of HTML that Siebel CRM displays in the field. You can choose one of the following values:<br>■ **Field Data.** Stores the HTML content as data.<br>■ **HTML Attachment.** Displays an HTML attachment. The control renders the HTML Attachment that the field identifies.<br>■ **Service.** For more information, see "Setting the Field Retrieval Type Property to Service" on page 358.<br>■ **Symbolic URL.** Siebel CRM derives content from an external host that references a symbolic URL. You must define the necessary information that Siebel CRM requires to access the external source. This includes the format for the request, the host name, necessary arguments, and so forth. For more information, see *Siebel Portal Framework Guide*.<br>■ **URL.** Siebel CRM derives content from an external source. This source references the simple URL that is defined in the underlying field. |
| HTML Display Mode | Set the HTML Display Mode so that the HTML content renders properly in the browser. You can choose one of the following values:<br>■ **DontEncodeData.** Use this value if the field contains actual HTML text and you require Siebel CRM to display the content as HTML text.<br>■ **EncodeData.** Use this value if the field contains reserved characters. If the field contains HTML reserved characters, then Siebel CRM encodes these characters before it displays them. This way, Siebel CRM displays them correctly in the browser. Example reserved characters include angle brackets (< >), ampersand (&), and so forth. |

### Setting the Field Retrieval Type Property to Service

If you set the Field Retrieval Type property to Service, then Siebel CRM uses a business service to render the field. If you set the Field Retrieval Type property to Service, then you must do the following:

- Add a child control user prop to the control.
- Set the Name property of the control user prop to Field Retrieval Service.
- Enter the name of the business service into the Value property of the control user prop.

For example, to define a control to display a Content Center asset, you do the following:

- Set the Field Retrieval Type to Service.
- Add a Control User Property child object with the Name property set to Field Retrieval Service and the Value property set to ContentBase - Asset Publish Service.

For more information about Content Center Assets, see *Siebel Applications Administration Guide*.

## Using the Host Administration View

You use the Host Administration view to specify a host. Specifying a host allows you to do the following:

- Obscure the true server name in the generated HTML.
- Specify a set of NCSA Basic Authentication credentials for a content host that requires authentication.
- Control fixup at the host level.

For each host, you must define an external content host server. You can only fix up links that are associated with a defined host.

To view the Host Administration list, navigate to the Administration - Integration screen, choose the WI - Symbolic URL List link, and then make sure the Host Administration visibility filter is chosen.

## Using the Fixup Administration View

A *fixup* is a technique that you use to control the behavior of links that are embedded in external content. A fixup includes a Link Context that corresponds to the fixup type. You can use the Fixup Administration view to administer a fixup. The following types of fixups are available:

- **Do Nothing.** Does not affect any of the links. The links remain as they are with the content that is passed back in the original form. This principle applies to relative and absolute links.
- **Outside Application.** Uses the host and path of the parent URL to convert the relative links to absolute links. Siebel CRM does not proxy any links.
- **Inside Application or Inside Applet.** Does the following:
  - Converts each relative link to an absolute URL link.
  - To maintain the Siebel Web Engine context, proxies any links that use a host that is specified in the Host Administration view. For more information, see "Using the Host Administration View" on page 359.

**NOTE:** Fixup is required for links in a Siebel application that uses high interactivity. For more information, see "About Standard Interactivity and High Interactivity" on page 36.

### Default Link Targets

There are no default link targets applied to a fixup. However, you can add a link target to a fixup.

## Example of Rendering Fields as HTML Content

This topic describes one example of rendering fields as HTML content. You might use this feature differently, depending on your business model.

Any business component can use the Web Content Assets feature to add fields that Siebel CRM renders as HTML content. For example, you can do the following:

- Display a static HTML message in the Partner Relationship Manager application.
- Represent a product description as HTML content.

This topic uses the Partner Message business component as an example of how to configure the Web Content Assets feature.

### *To render fields as HTML content*

1 In Siebel Tools, make sure the Control User Prop object type is displayed.

For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2 In the Object Explorer, click Business Component.

3 In the Business Components list, locate the Partner Message business component.

4 In the Object Explorer, expand the Business Component tree, and then click Field.

5 In the Fields list, locate the Message field, and then set properties for the field using values from the following table.

| Property | Value |
|---|---|
| Pick List | ContentBase Asset Hierarchical PickList |

6 In the Object Explorer, click Applet.

7 In the Applets list, locate the Partner Message List Applet.

8 In the Object Explorer, expand the Applet tree, expand the List tree, and then click List Column.

9 In the List Columns list, locate the Message Body list column, and then set properties for the column using values from the following table.

| Property | Value |
|---|---|
| Pick Applet | ContentBase Asset Hierarchical PickList |

10 In the Object Explorer, click Applet.

11 In the Applets list, locate the Partner Message Entry Form Applet.

12 In the Object Explorer, click Control in the Applet tree.

13 In the Controls list, locate the Message Body Preview control.

If necessary, add a new control with the Name property set to Message Body Preview.

14 Set properties for the control using values from the following table.

| Property | Value |
|---|---|
| Field Retrieval Type | Service |

15 In the Object Explorer, expand the Control tree, and then click Control User Prop.

16 In the Control User Props list, add a new record using values from the following table.

| Property | Value |
|---|---|
| Name | Field Retrieval Service |
| Value | ContentBase - Asset Publish Service |

17 Repeat Step 6 through Step 16, except this time do the following:

a Modify the properties for the MessageBody control of the Partner Message Form Applet (SCW) applet.

b Add the control user prop to the MessageBody control.

18 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Displaying a System Field in an Applet

This topic describes how to display a system field in the list column of a list applet. You can also display a system field in the control of a form applet. It is not necessary to define a system field as a child Field object of the underlying business component. For more information, see "System Fields of a Business Component" on page 91.

### *To display a system field in an applet*

1 In Siebel Tools, click Applet in the Object Explorer.

2 In the Applets list, locate the applet you must modify.

3 In the Object Explorer, expand the Applet tree, expand the List tree, and then click List Column.

4 In the List Columns list, add a new record.

5 In the Field property of the list column, choose a system field.

6 In the Display Name property, enter a value that describes the data that the system field stores, such as Last Updated.

## Avoiding Losing Context During a Drilldown

In some custom configurations, if the user navigates through certain views, then Siebel CRM might ignore the search specification in the parent applet. Instead, it requeries the Siebel database. It does this because it detects that the current search specification that is defined on the destination applet is different from the bookmarked search specification. Siebel CRM displays the first record in the applet but also loses the record context. If a search specification is defined on the parent applet in the destination view, then Siebel CRM ignores the bookmark. For more information, see Article ID 1131190.1 on My Oracle Support.

## Configuring Quick Fill for a Custom Applet

You can configure quick fill for a custom applet.

### *To configure quick fill for a custom applet*

1. In Siebel Tools, in the Object Explorer, click Applet.
2. In the Applets list, locate the custom applet you must modify.
3. In the Object Explorer, expand the Applet tree, and then click Applet Method Menu Item.
4. In the Applet Method Menu Items list, create a separate record for each row in the following table.

| Command | Menu Text | Menu Text - String Reference | Position |
|---|---|---|---|
| ApplyTemplate | Apply Template | SBL_APPLY_TEMPLATE-1004224602-029 | 20 |
| SaveTemplate | Save as Template | SBL_SAVE_AS_TEMPLATE-1004224757-0HM | 30 |
| NewFromTemplate | New From Template | SBL_NEW_FROM_TEMPLATE-1004224722-0CD | 40 |
| NewFromLastTemplate | New From Last Template | SBL_NEW_FROM_LAST_TEMPLATE-1004224721-0CC | 50 |

These values use the Opportunity Form Applet - Child applet as a model. You must adjust the values for the Position property to meet the requirements for your custom applet.

5. Compile and test your changes.

# Customizing an Applet in Standard Interactivity

This topic describes options to customize an Applet in Standard Interactivity. It includes the following topics:

# Allowing the User to Edit Multiple Rows in Standard Interactivity

When Siebel CRM renders an applet in Edit List mode in a view, by default only the currently chosen row is editable. To edit other rows, the user must save the current changes, and then choose the next row to edit. You can configure Siebel CRM to render a list applet in Edit List mode to allow the user to edit all the rows. The user can update multiple rows and then save all the records with one call to the WriteRecord control.

Allowing the user to edit multiple rows is specific to a Siebel application that uses standard interactivity. A Siebel application that uses high interactivity implicitly saves the record to the Siebel database if the user navigates between rows of a list applet. The user can edit any row of a list applet. As the user proceeds through the records, Siebel CRM commits these changes to the database. For more information, see "About Standard Interactivity and High Interactivity" on page 36.

### *To allow the user to edit multiple rows in standard interactivity*

1. In Siebel Tools, in the Object Explorer, click Applet.
2. In the Applets list, locate the list applet you must modify.
3. Make sure the applet uses Edit List mode.

   For more information, see "Controlling How the User Creates, Edits, Queries, and Deletes CRM Data" on page 354.
4. In the Object Explorer, expand the Applet tree, and then click List.
5. In the Lists list, make sure the HTML Multi Row Edit property of the List object contains a check mark.

   **NOTE:** It is not necessary to place the WriteRecord control on each row. Siebel CRM only requires one WriteRecord control for the applet.

## Limitations with Allowing the User to Edit Multiple Rows

Note the following limitations with allowing the user to edit multiple rows:

- If an error occurs when the user commits any of the records, then the Siebel Web Engine attempts to commit as many of the records that it can, and then reports errors on all the failed records. However, the error messages might not include sufficient information regarding which rows failed.
- Siebel CRM must be allowed to submit changes in the current working set of records before the user can navigate to another working set. The user must save these changes before Siebel CRM calls GotoNextSet, GotoPreviousSet, and so forth.

You must only allow the user to edit multiple rows if the following conditions are met:

- The limitations described in this topic will not cause a significant affect on Siebel CRM usability.
- Validation errors in the editable fields of the applet are caught with validation in the client using the browser script.

- Only one user can update the records that Siebel CRM displays in this applet at any given time.
- The number of records in the applet are small enough that Siebel CRM can render them on a single page without using the Next or Previous controls.

Updating the Quantity field in the Shopping Cart applet is an example of the appropriate use of this feature.

## Allowing the User to Choose Multiple Rows in Standard Interactivity

A *multiselect list applet* is a type of applet that allows the user to choose multiple records for a transaction in the following ways:

- Use the check boxes in the left column to choose the items.
- Use the Select All button to choose all available records in the list.
- Use the Select action button to choose all of the records that are chosen for inclusion in the selection.

The multiselect list applet is specific to Siebel Business Applications that use standard interactivity. In applications that use high interactivity, multirow selection is available in all list applets where Siebel CRM uses the swe:list tag, except for pick applets. In a pick applet, the user can use the Control and Shift keys to choose multiple rows, as in a typical Windows application. For more information, see "About Standard Interactivity and High Interactivity" on page 36.

By default, multirecord selection is not enabled for list applets.

For more information, see "About List Applet Templates" on page 162.

### *To allow the user to choose multiple rows in standard interactivity*

1. Make sure you understand how to modify code of the list applet template.

   For more information, see "About List Applet Templates" on page 162.

2. In Siebel Tools, in the Object Explorer, click Applet.
3. In the Applets list, locate the list applet you must modify.
4. In the Object Explorer, expand the Applet tree, and then click List.
5. In the Lists list, make sure the HTML Multi Row Select property of the List object contains a check mark.
6. Modify the following swe:select-row tag of the list applet template that the multiselect list applet references:

   ```
   <swe:select-row property="FormattedHtml" />
   ```

   or

   ```
   <swe:select-row>
   ```

```
        <swe:this property="FormattedHtml" />
    </swe:select-row>
```

Siebel CRM uses the swe:select-row tag to render the check boxes that the user clicks to choose multiple rows. If you configure the applet for multirecord selection in Siebel Tools, then note the following:

- If you set the *property* attribute in the swe:select-row tag or in the swe:this tag to FormattedHtml, then Siebel CRM renders the check boxes.
- If you use the swe:select-row tag without the *property* attribute, then the tag acts as a conditional tag that displays only the body of the tag.

For more information, see "About List Applet Templates" on page 162.

7 Reference the controls and list columns for the list applet in the swe:form tag of the list applet template.

Any invoke method on the applet requires the form tag that contains the row selection check boxes. If the user chooses multiple records, then Siebel CRM does not call the Siebel Server. If the user chooses multiple records, then Siebel CRM does not disable controls that do not support calling methods. If the control is activated, and if the form tag does not contain the check boxes, then Siebel CRM displays a message that it cannot perform the action if multiple records are chosen.

8 (Optional) Modify the list applet template to supports all list applets.

For more information, see "Modify the List Applet Template to Support All List Applets" on page 365.

## Modify the List Applet Template to Support All List Applets

You can use the swe:select-row tag of the list applet template to create a list applet template that you can use with list applets that support multirecord selection and with list applets that do not support multirecord selection.

### *To modify the list applet template to support all list applets*

1 In the list header, use the swe:select-row tag conditionally to put in a td tag for the header for the row selection check box column.

2 In the list body, use the swe:select-row tag with the swe:this tag conditionally to put in a td tag that contains the check box.

## Comparison of the Multiselect List Applet to the PositionOnRow Control

The Siebel Web Engine calls methods that act on the multiple records that the user chooses in a list applet. Check boxes on each row allow the user to choose rows. This is different from using the PositionOnRow control to choose the current record. You can use the PositionOnRow control and allow the user to choose multiple rows on the same list applet.

When the user initially navigates to a list applet, Siebel CRM automatically chooses the record on which the business component is positioned. The user can use the check box to deselect this record. Unlike PositionOnRow, if the user uses the check boxes to choose multiple rows, then there is no round trip to the Siebel Server. Siebel CRM only marks the chosen records on the business component when it calls a method on the applet. The user can use the Next and Previous controls to choose records from different working sets or records that Siebel CRM displays across multiple pages.

# Configuring Display of the Currently Chosen Record in Standard Interactivity

In a Siebel application that uses standard interactivity, if in Base or Edit List mode, then the user can choose a record as the currently active record in a list applet. In high interactivity, the user can click anywhere in a row to choose it. This topic describes how to use the PositionOnRow control to distinguish between rows that are chosen and rows that are not chosen and how to configure the format of the currently chosen row. For more information, see "About Standard Interactivity and High Interactivity" on page 36.

## Using the PositionOnRow Control to Distinguish Between Rows That Are Chosen and Rows That Are Not Chosen

If a user chooses a row, then Siebel CRM places the PositionOnRow control on that row in a disabled state.

### *To use the PositionOnRow control to distinguish between rows that are chosen and rows that are not chosen*

- Use different images for the disabled and enabled state of the control to differentiate between rows that are chosen and rows that are not chosen.

## Defining the Format for the Currently Chosen Row

To create the format for the currently chosen row, you change the CSS style sheet class that is associated with a row, such as in a TR tag. You can use the ListRowStyle parameter for the application object manager (AOM) to associate a list applet with a named style that Siebel CRM uses to format the rows of the applet. To make sure format is consistent, this technique applies to all list applets that the Siebel application uses. For more information about application object manager, see *Siebel System Administration Guide*.

You can define any name for the row style. A new Siebel Web Style file (SWS) defines the actual style sheet classes that this named style uses. This file is similar to the Siebel Web Format file that Siebel CRM uses for custom HTML types. The SWS files must include the *sws* file name extension, and must be installed in the same folder as the template files.

Similar to Siebel Web Format (SWF) files, the UserSWSName parameter defines the SWS file that the application object manager uses. The UserSWSName parameter can override existing styles or add new styles.

### Important Tags in the SWS File

You can use the swe:style tag and swe:class tags in the SWS file to define the style sheet classes that Siebel CRM uses with a named style.

The swe:style tag includes the following qualities:

- **Format.** The swe:style tag uses the following format:

  ```
  <swe:style type="XXX" name="YYY">
  ```

  **Attributes**. The swe:style tag includes the following attributes:

  - **type.** Supports only one value, which is RowStyle.
  - **name.** Name of the style. For example, Siebel List.

The swe:class tag includes the following qualities:

**Format.** The swe:class tag uses the following format:

```
<swe:class name="XXX"/>
```

**Attributes.** The swe:class tag includes the *name* attribute, which is the Name of the CSS style sheet class. You must load the style sheet that defines this class through the template.

### Example Code in the SWS File

The following code is an example entry in an SWS file:

```
<swe:style type="RowStyle" name="Siebel List">

<swe:switch>

   <swe:case condition="Web Engine State Properties, IsErrorRow">

      <swe:class name="listRowError"/>

   </swe:case>

      <swe:case condition="Web Engine State Properties, IsCurrentRow">

   <swe:class name="listRowOn"/>

   </swe:case>

      <swe:case condition="Web Engine State Properties, IsOddRow">

   <swe:class name="listRowOdd"/>

   </swe:case>

      <swe:case condition="Web Engine State Properties, IsEvenRow">

   <swe:class name="listRowEven"/>

   </swe:case>

   <swe:default>
```

```
    <swe:class name="listRowOff"/>

    </swe:default>

</swe:switch>

</swe:style>
```

In the template file that the list applet references, you must replace the conditional tags used earlier with the RowStyle property of the applet. You can set the RowStyle property to a class attribute of any HTML tag. The format to define the RowStyle property of the list applet is similar to the format to define the TextAlignment property of a list column. The following code is an example of how to use the RowStyle property:

```
<swe:for-each-row count="7">

<tr class="swe:this.RowStyle">

<swe:for-each startValue="501" count="20" iteratorName="currentId">

    <swe:control id="swe:currentId">

    <td align="swe:this.TextAlignment" class="Row"><swe:this
    property="FormattedHtml" hintText="Field" hintMapType="ListItem"/></td>

    </swe:control>

</swe:for-each>

</tr>

</swe:for-each-row>
```

# Process of Customizing Drilldown from the Calendar Applet

This topic describes how to define a destination view if the user clicks the Contact Icon in the calendar. To customize drilldown from the calendar applet, perform the following tasks:

1. Preparing Siebel Tools on page 368.
2. Defining Fields in the Business Component on page 369.
3. Defining the Applet User Properties on page 372.
4. Creating the Drilldown Objects and Controls on page 374.
5. (Optional) Configuring a Different Icon for the Dynamic Drilldown on page 376.
6. (Optional) Configuring a Different Destination for the Dynamic Drilldown on page 377.

## Preparing Siebel Tools

This task is a step in "Process of Customizing Drilldown from the Calendar Applet" on page 368.

In this topic, you display object types and lock projects.

### *To prepare Siebel Tools*

1 Display the following object types. These object types are children of an applet:

- Applet user prop
- Control
- Dynamic drilldown destination

For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2 Lock the following projects:

- HI Calendar
- Activity
- Activity HI Calendar

## Defining Fields in the Business Component

This task is a step in "Process of Customizing Drilldown from the Calendar Applet" on page 368.

The fields you define in this topic are required to support drilldown on the contact icon and a dynamic drilldown on an activity. If you modify the drilldown definition, then you must also modify the relevant fields.

### *To define fields in the business component*

1 In the Object Explorer, click Business Component, and then locate the Action business component in the Business Components list.

2 Expand the Business Component tree in the Object Explorer, and then click Field.

3 In the Fields list, add a new field using values from the following table.

| Property | Value |
|---|---|
| Name | Primary Contact Icon |
| Calculated | True |
| Calculated Value | IIF([Primary Contact Last Name] is NULL and [Primary Contact First Name] is NULL, "", "<img src='images/icon_copy.gif' border='0'>") |

The Primary Contact Icon provides the user a way to initiate the drilldown.

4 In the Fields list, add a new field using values from the following table.

| Property | Value |
|---|---|
| Name | Type Category |
| Calculated | True |
| Calculated Value | IIF([Type] = LookupValue ("TODO_TYPE", "Appointment"), "A", (IIF([Type] = LookupValue("TODO_TYPE","Presentation"), "P", "O"))) |

5 In the Fields list, add a new field using values from the following table.

| Property | Value |
|---|---|
| Name | Open Bracket |
| Calculated | True |
| Calculated Value | IIF([Primary Contact Last Name] is NULL and [Primary Contact First Name] is NULL, "", "[") |

You use the open bracket symbol ([) and close bracket symbol (]) in Step 6 on page 373. To enclose the corresponding last and first names of the contact with brackets in Siebel CRM, these fields are defined according to the conditions that are set for them.

6 In the Fields list, add a new field using values from the following table.

| Property | Value |
|---|---|
| Name | Close Bracket |
| Calculated | True |
| Calculated Value | IIF([Primary Contact Last Name] is NULL and [Primary Contact First Name] is NULL, "", "]") |

7 In the Fields list, add a new field using values from the following table.

| Property | Value |
|---|---|
| Name | Contact Details |
| Join | S_CONTACT |
| Column | LAST_NAME<br>Siebel CRM uses the LAST_NAME column to retrieve details about the contact from the S_CONTACT table. To support drilldown on the contact icon and dynamic drilldown on the activity, details about the contact are required. If the definition of the drilldown is changed, then it might be necessary for you to change the relevant fields. |

You must define the Join property before you define the Column property.

8 In the Fields list, verify that the Primary Contact Last Name field is defined using values from the following table.

| Property | Value |
|---|---|
| Name | Primary Contact Last Name |
| Join | S_CONTACT |
| Column | LAST_NAME |

If the field does not exist, then create it. If the field is not defined correctly, then modify it.

9 In the Fields list, verify that the Primary Contact First Name field is defined with values from the following table.

| Property | Value |
|---|---|
| Name | Primary Contact First Name |
| Join | S_CONTACT |
| Column | FST_NAME |

If the field does not exist, then create it. If the field is not defined properly, then modify it.

10 Create a file name for the icon that Siebel CRM uses with the Primary Contact Icon field.

a In the Fields list, locate the Primary Contact Icon field.

b In the Calculated Value property, replace icon_copy.gif with a file name that contains an image of the icon you must display.

If a primary contact is associated to the calendar event, then Siebel CRM displays this icon on a calendar event.

11 Verify that the join to the S_CONTACT table is defined appropriately.

a Make sure the Action business component is chosen in the Business Components list.

b In the Object Explorer, click Join, then query the Alias property of the Joins list for S_CONTACT.

c Verify that the Table property contains S_CONTACT.

d In the Object Explorer, expand the Join tree, and then choose Join Specification.

e In the Join Specifications list, verify that the join specification contains the following values.

| Property | Value |
|---|---|
| Name | S_CONTACT |
| Destination Column | PAR_ROW_ID |
| Source Field | Primary Contact Id |

f If an S_CONTACT join with the alias S_CONTACT does not exist, then search for a join on the S_CONTACT table that contains the same definition.

- If a predefined join with this definition does not exist, then create a new join using values in Step b through Step e.
- If a join does exist that contains a different alias that meets this definition, then change the join values to match the values in Step b through Step e.

## Defining the Applet User Properties

This task is a step in "Process of Customizing Drilldown from the Calendar Applet" on page 368.

In this topic you define the links and tooltips for the Activity HI Calendar Applet.

### *To define the applet user properties*

1 In the Object Explorer, click Applet.

2 In the Applets list, locate the Activity HI Calendar Applet.

3 In the Object Explorer, expand the Applet tree, and then click Applet User Prop.

4 In the Applet User Properties list, locate the Display Fields applet user property, and then define the Value property using values from the following table.

| Property | Value |
|---|---|
| Value | Contact Details, Primary Contact Icon, Description |

Siebel CRM displays each field you define in the Value property as a separate link. The Contact Details and Primary Contact Icon fields provide contact details, and the Description field provides Activity information in the calendar. Siebel CRM can use an icon to represent the link.

5 In the Applet User Properties list, locate the Display Field Drilldown Object Names applet user property, then define the Value property using values from the following table.

| Property | Value |
|---|---|
| Value | Contact - Detail, Contact - Detail, Action - Detail |

This step defines the link for the drilldown object. The values must match the drilldown object.

6 In the Applet User Properties list, add a new applet user property using values from the following table.

| Property | Value |
|---|---|
| Name | Contact Details.Detailed Description Fields |
| Value | Open Bracket, Primary Contact Last Name, Primary Contact First Name, Close Bracket |

This step defines the display text for the Contact Details link that you defined in Step 4. The text that Siebel CRM displays before the period in the name of the applet user property must match the Contact Details field that you defined in the value property in Step 4.

7 In the Applet User Properties list, add a new applet user property using values from the following table.

| Property | Value |
|---|---|
| Name | Contact Details.Tooltip Fields |
| Value | Primary Contact Last Name, Primary Contact First Name |

This step defines the tooltip for the Contact Details link. The text before the period in the name of the applet user property must match the Contact Details field that you defined in the value property in Step 4.

8 In the Applet User Properties list, add a new applet user property using values from the following table.

| Property | Value |
|---|---|
| Name | Description.Tooltip Fields |
| Value | Type, Description, Planned, Planned Completion, MeetingLocation, Comment |

This step defines the tooltip for the Description link. The text before the period in the name of the applet user property must match the Description field that you defined in the value property in Step 4.

9 In the Applet User Properties list, add a new applet user property using values from the following table.

| Property | Value |
|---|---|
| Name | Description.Detailed Description Fields |
| Value | Description |

10 In the Applet User Properties list, add a new applet user property using values from the following table.

| Property | Value |
|---|---|
| Name | Primary Contact Icon.Tooltip Fields |
| Value | Primary Contact Last Name, Primary Contact First Name |

This step defines the tooltip for the Primary Contact Icon link that you defined in Step 4. The text before the period in the name of the applet user property must match the Primary Contact Icon field that you defined in the value property in Step 4.

## Creating the Drilldown Objects and Controls

This task is a step in "Process of Customizing Drilldown from the Calendar Applet" on page 368.

In this topic you define the drilldown objects and controls for the Activity HI Calendar Applet. This configuration allows the user to perform a dynamic drilldown on an activity and a static drilldown on a contact. Note that if the Activity Type is Presentation, then the target view is the Activity Participants View. Otherwise, the target view is the eCalendar Detail View.

### *To create the drilldown objects and controls*

1 Make sure Activity HI Calendar Applet is still chosen in the Applets list.

2 In the Applet tree of the Object Explorer, click Drilldown Object.

3 In the Drilldown Objects list, add a new drilldown object using values from the following table.

| Property | Value |
|---|---|
| Name | Action - Detail |
| View | eCalendar Detail View |
| Hyperlink Field | Id |
| Source Field | Id |
| Business Component | Action |

4 In the Drilldown Objects list, add a new drilldown object using values from the following table.

| Property | Value |
|---|---|
| Name | Action - Detail Participant |
| View | Activity Participants View |
| Hyperlink Field | Id |
| Source Field | Id |
| Business Component | Action |

5 In the Drilldown Objects list, add a new drilldown object using values from the following table.

| Property | Value |
|---|---|
| Name | Contact - Detail |
| View | Contact Detail View |
| Hyperlink Field | Primary Contact Last Name |
| Source Field | Primary Contact Id |
| Business Component | Contact |

6 Make sure Action - Detail is chosen in the Drilldown Objects list.

7 In the Object Explorer, expand the Drilldown Object tree, and then click Dynamic Drilldown Destination.

8 In the Dynamic Drilldown Destinations list, add a new dynamic drilldown destination using values from the following table.

| Property | Value |
|---|---|
| Name | Action - Detail |
| Field | Type Category |
| Value | P |
| Destination Drilldown Object | Action - Detail Participant |

You must complete Step 4 on page 370 before you can add the dynamic drilldown.

9 In the Applet tree of the Object Explorer, click Control.

10 In the Controls list, add a new control using values from the following table.

| Property | Value |
|---|---|
| Name | Primary Contact Id |
| Field | Primary Contact Id |
| Field Retrieval Type | Field Data |

11 In the Controls list, add a new control using values from the following table.

| Property | Value |
|---|---|
| Name | Primary Contact Last Name |
| Field | Primary Contact Last Name |
| Field Retrieval Type | Field Data |

Because each control references a drilldown object, you must define the Hyperlink Field and Source Field property in the Drilldown Object before you define the control. The exception is if the value of the Hyperlink Field or Source Field is Id, then you can define the control first.

12 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Configuring a Different Icon for the Dynamic Drilldown

This task is a step in "Process of Customizing Drilldown from the Calendar Applet" on page 368.

The optional configuration in this topic changes the link feature so that if the primary contact is an employee, then Siebel CRM displays a different icon.

### *To configure a different icon for the dynamic drilldown*

1 In the Object Explorer, click Business Component.

2 In the Business Components list, locate the Action business component.

3 In the Object Explorer, expand the Business Component tree, and then click Field.

4 In the Fields list, add a new field using values from the following table.

| Property | Value |
|---|---|
| Name | Primary Contact Employee Flag |

| Property | Value |
|---|---|
| Join | S_CONTACT.<br>As an alternative, you can use the name of the join specification that you use in Step e on page 372. |
| Column | EMP_FLG |

5 In the Fields list, modify a predefined field using values from the following table.

| Property | Value |
|---|---|
| Name | Primary Contact Icon |
| Calculated Value | IIF([Primary Contact Last Name] is NULL and [Primary Contact First Name] is NULL, "", IIF([Primary Contact Employee Flag] = "Y", "<img src='images/icon_copy.gif' border='0'>", "<img src='images/icon_alarm.gif' border='0'>")) |
| Column | EMP_FLG |

## Configuring a Different Destination for the Dynamic Drilldown

This task is a step in "Process of Customizing Drilldown from the Calendar Applet" on page 368.

The optional configuration in this topic causes the dynamic drilldown to drill down to an employee view if the primary contact is an employee. Otherwise, the drilldown displays a contact view.

### *To configure a different destination for the dynamic drilldown*

1 In the Object Explorer, click Applet.

2 In the Applets list, locate the Activity HI Calendar Applet.

3 In the Object Explorer, expand the Applet tree, and then click Drilldown Object.

4 In the Drilldown Objects list, add a new drilldown object using values from the following table.

| Property | Value |
|---|---|
| Name | Contact - Detail Employee |
| View | Employee Activity (ERM - Help Desk) |
| Hyperlink Field | Primary Contact Last Name |
| Source Field | Primary Contact Id |
| Business Component | Employee |

5 In the Drilldown Objects list, locate the Contact - Detail drilldown object.

6 In the Object Explorer, expand the Drilldown Object tree, and then click Dynamic Drilldown Destination.

7 In the Dynamic Drilldown Destinations list, add a new destination using values from the following table.

| Property | Value |
|---|---|
| Name | Employee View Drilldown.<br>Note that you can use any name. |
| Field | Primary Contact Employee Flag |
| Value | Y |
| Destination Drilldown Object | Contact - Detail Employee |

8 If necessary, make sure that the Employee Activity (ERM - Help Desk) view is defined in the ERM Employee ReadOnly Screen.The Employee Activity (ERM - Help Desk) view comes predefined. It is only necessary to perform this step if the view is deleted or modified for some reason:

a In the Object Explorer, click Screen.

b In the Screens list, locate the ERM Employee ReadOnly Screen.

c Expand the Screen tree, and then click Screen View.

d In the Screen Views list, locate the Employee Activity (ERM - Help Desk) screen view.

Because the name of this screen view contains a special character, you must enclose the name in double quotes when you issue the query.

e If the query returns an empty result, then add a new screen view using values from the following table.

| Property | Value |
|---|---|
| Name | Employee Activity (ERM - Help Desk) |
| View | Employee Activity (ERM - Help Desk) |
| Type | Detail View |
| Parent Category | Employee List |
| Viewbar Text | Activities |
| Menu Text | Employee Activities |

# 17 Configuring Special-Purpose Applets

This chapter describes how customize special-purpose applets such as chart, tree, attachment, and pop-up applets. It includes the following topics:



## Customizing a Chart Applet

This topic describes how to customize a chart applet. It includes the following topics:



For more information, see "About Chart Applet Templates" on page 168.

### About Chart Applets

A *chart applet* is a type of applet that graphically displays data from a business component in various formats so the user can analyze trends, compare categories, and examine other relationships in the data. You can include any data in a business component in a chart. The data in a chart applet reflects the current query for the business component. To update the chart with changes to the query, the user can click in the chart.

Figure 39 displays a chart applet in a view.

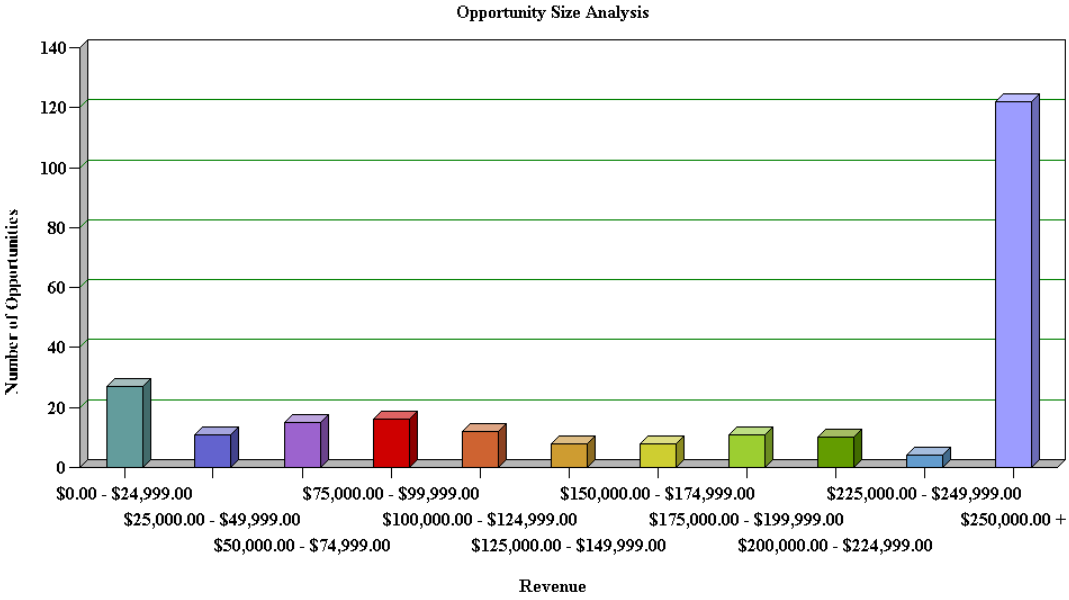



Figure 39. Opportunity Size Analysis View

This view is named Opportunity Size Analysis. The object definition for this view in Siebel Tools is named Oppty Chart View - Opportunity Size Analysis. It includes a list and a chart applet. It lists opportunities in the list applet and aggregates them by size in the Oppty Chart Applet - Competitor Frequency Analysis chart applet. By default, the chart applet in this view displays the data in the three dimensional bar chart format. The user can choose different chart types from the Type list that Siebel CRM displays in the chart applet. To change the size of the legend for a chart applet, the user can right-click the legend, and then choose one of the menu items. For more information, see "Types of Charts" on page 382, and "Considering Factors That Affect Chart Performance" on page 563.

## Example of a chart That Includes Three Axes

Figure 40 displays the Project Revenue Analysis chart, which is an example of a chart that includes three axes. In this chart, Siebel CRM does the following:

- Plots the amount of revenue on the Y data values axis
- Displays quarters on the X category axis
- To identify a different project, uses each bar color for Z, series, and axis.

In a chart that contains two Y axes, the first Y-axis refers to the vertical axis on the left side of the chart, and the second Y-axis refers to the vertical axis on the right side of the chart.

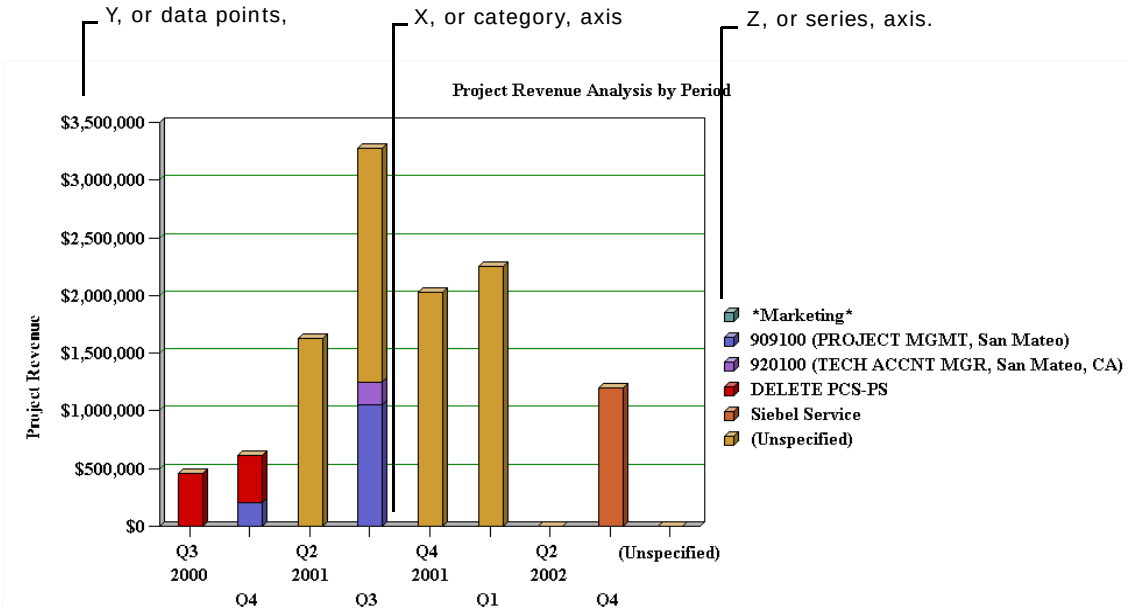



Figure 40. Project Revenue Analysis Chart in Siebel Service

## Axis Terminology

Table 41 describes each axis in a chart.

Table 41. Axis Terminology

| Axis | Name | Usage in Bar Chart | Usage in Line Chart | Usage in Pie Chart |
|---|---|---|---|---|
| X-axis | Category | The horizontal axis, except in a horizontal bar chart, in which the X-axis is the vertical axis along the left side of the chart. | The horizontal axis. | The set of pie slice labels. |

Table 41. Axis Terminology

| Axis | Name | Usage in Bar Chart | Usage in Line Chart | Usage in Pie Chart |
|---|---|---|---|---|
| Y-axis | Data Values | The vertical axis, except in a horizontal bar chart, in which the Y-axis is the horizontal axis along the bottom of the chart. | The vertical axis. | The percentage of the circle that each pie slice occupies, and the corresponding numeric value. |
| Z-axis | Series | A set of labels in the legend. In the stacked bar or cluster bar charts, each series label corresponds to a bar segment or bar of a specific color that Siebel CRM displays in each stack or cluster. | A set of labels in the legend. In a line chart, each series label in the legend corresponds to one line. | Because Siebel CRM charts only the first entry in each series, do not use a series field with a pie chart. |

## Types of Charts

This topic describes different types of charts. It includes the following topics:


- Bar Charts on page 383
- Line Charts on page 388
- Pie Charts on page 392
- Scatter Charts on page 394


**NOTE:** Siebel CRM does not support all styles for all chart applets. Siebel CRM uses data from the CHART_TYPE list of values to enter values in a chart type list.

The user can choose different chart types from the Type list that is located at the upper right in most chart applets. A chart type provides the following layout options:

- Horizontal bar
- Stacked bar
- Pie
- Line
- Scatter
- Spline
- Combo, which is a combination of a line chart and a bar chart

Several of these charts can display data in two or three dimensions. The functionality for a three dimension chart is the same as the corresponding two dimensional chart except the three dimensional chart displays thickness for the bar, line, or pie.

## Bar Charts

A bar chart compares the difference in data from one category to another category. This topic includes examples of different bar charts.

### Three Dimensional Bar Chart

Figure 41 illustrates how the three dimensional bar chart divides data from source records into categories and displays the total for each category as a vertical bar.

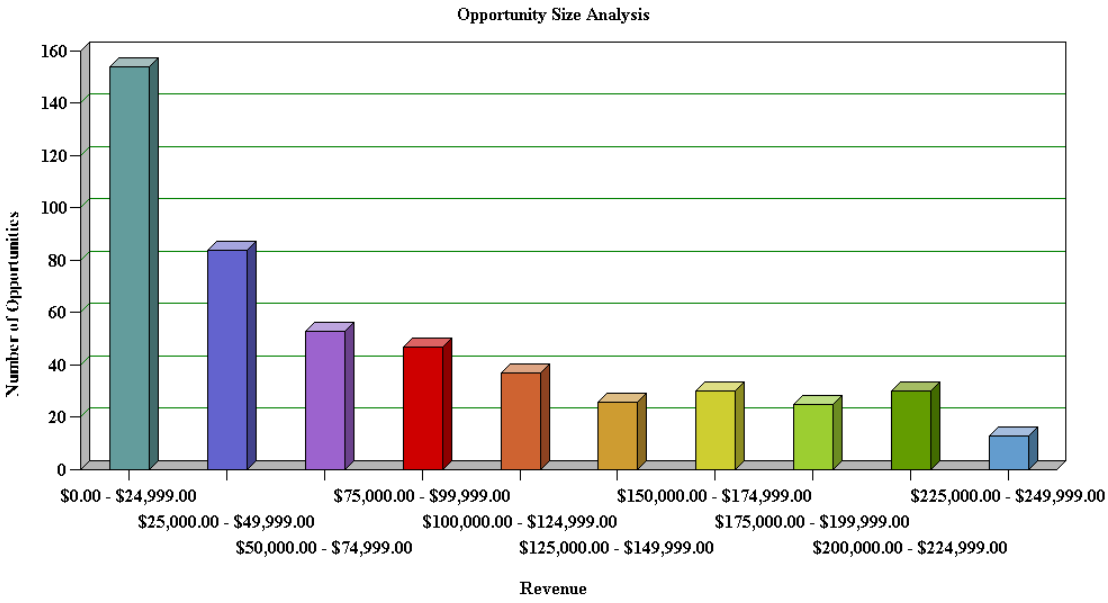



Figure 41. Example of a Three Dimensional Bar Chart

Figure 42 illustrates how Siebel CRM displays a cluster of bars for categories rather than a single bar if the chart is configured with a Z series axis.

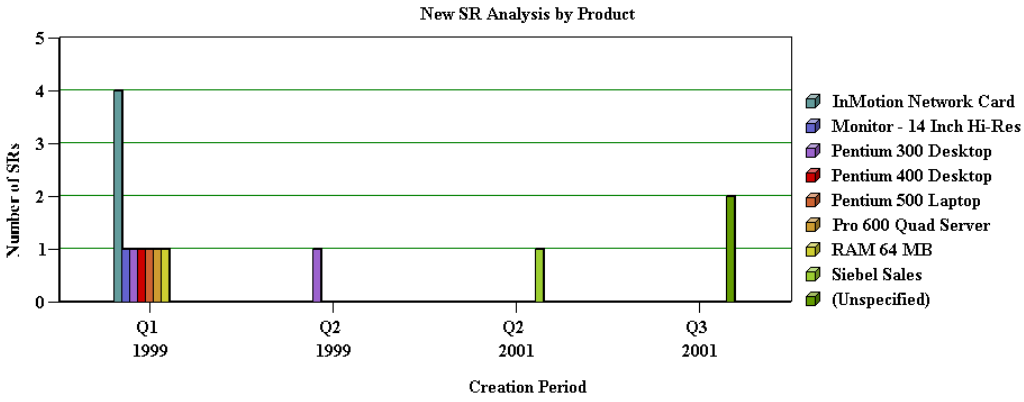



Figure 42. Example of a Three Dimensional Bar Chart With Series Axis

### Three Dimensional Horizontal Bar Chart

Figure 43 illustrates how a three dimensional horizontal bar chart is functionally equivalent to a three dimensional bar chart except the X-axis and Y-axis are switched. This layout displays horizontal bars.

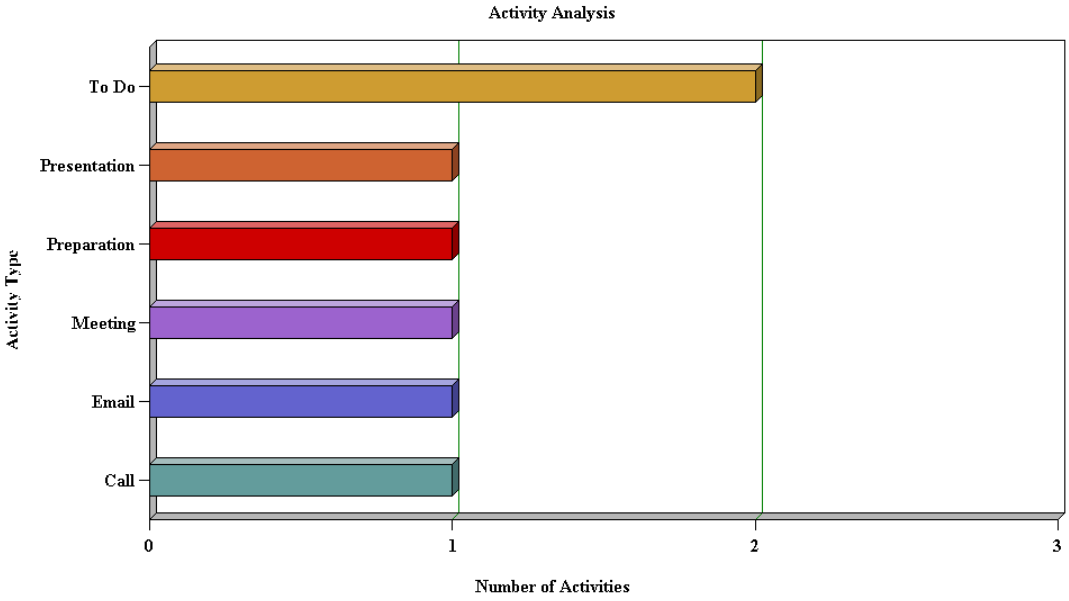



Figure 43. Example of a Three Dimensional Horizontal Bar Chart

Figure 44 illustrates how, if a series axis is present, then clusters of horizontal bars replace individual horizontal bars.

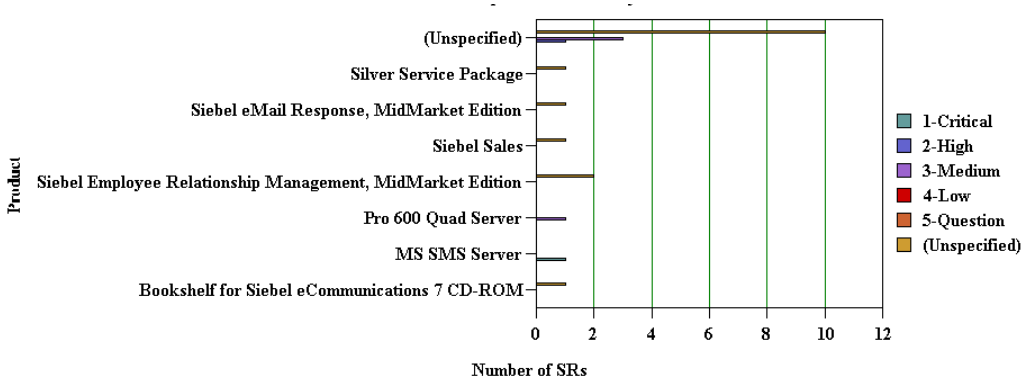



Figure 44. Example of a Three Dimensional Horizontal Bar Chart With Series Axis

### Three Dimensional Stacked Bar Chart

Figure 45 illustrates how the three dimensional stacked bar chart normally includes a series axis. The chart displays a single stack of bars for each category. A bar with a different color for each series displays in this stack of bars. A stacked bar chart displays the individual value for each series in the category and the total for the category. In this example, the Project Revenue Analysis chart displays data in the following ways:

- Data in the values axis corresponds to project revenue
- Data in the category axis corresponds to a quarter
- Data in the series axis corresponds to the project name

Each quarter along the X-axis includes a stack of bars. Each bar in the stack indicates the revenue reached in a specific quarter. The stacks in each bar indicate individual projects.

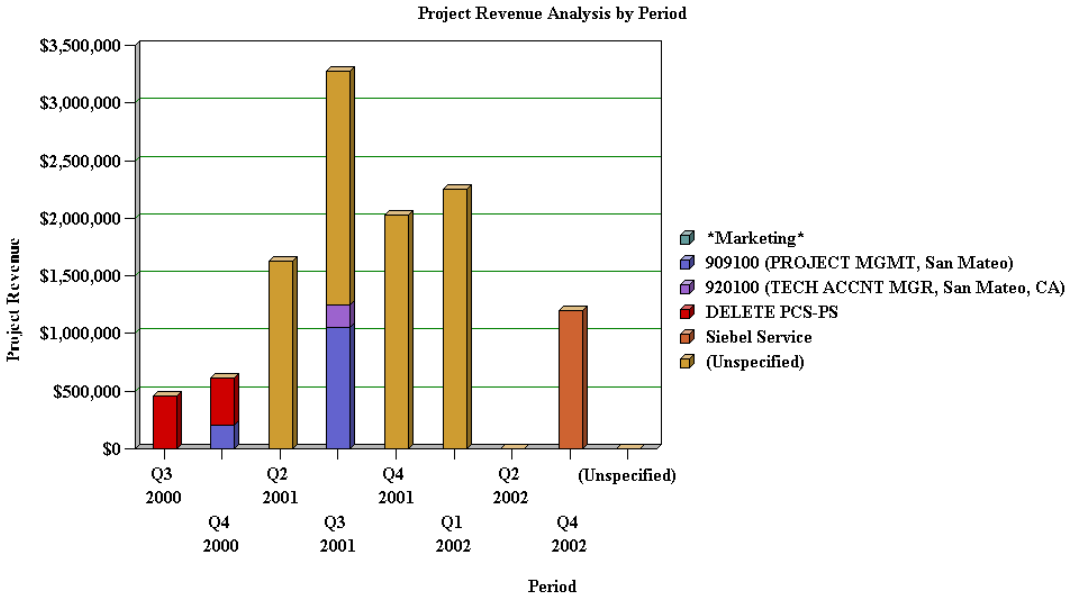



Figure 45. Example of a Three Dimensional Stacked Bar Chart

### Two Dimensional Bar Chart

Figure 46 illustrates how the two dimensional bar chart is functionally equivalent to a three dimensional bar chart except it displays data without the illusion of depth. A two dimensional chart is generally easier to read accurately but might be less visually attractive than the three dimensional chart. If a series axis is present, then the two dimensional bar chart displays bars in a cluster.

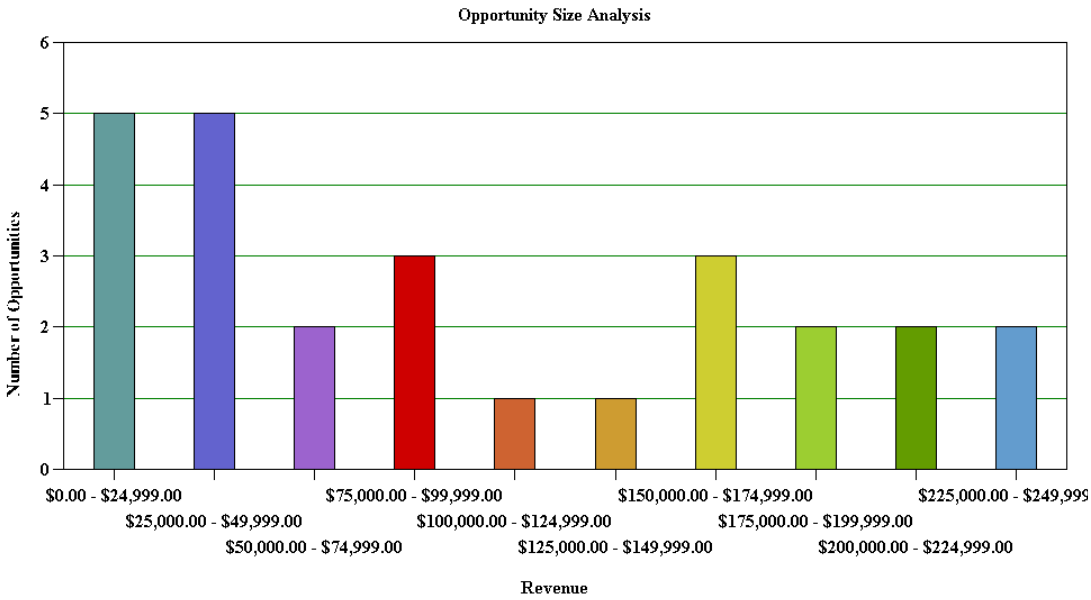



Figure 46. Example of a Two Dimensional Bar Chart

### Two Dimensional Horizontal Bar Chart

Figure 47 illustrates how the two dimensional horizontal bar chart is functionally equivalent to the three dimensional horizontal bar chart except it displays data without the illusion of depth.

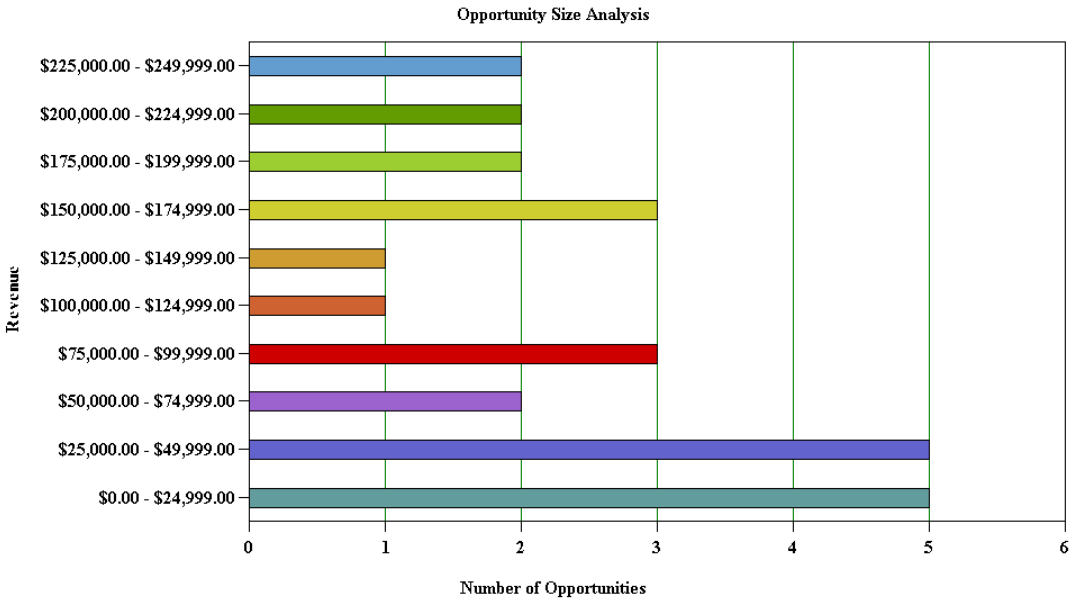



Figure 47. Example of a Two Dimensional Horizontal Bar Chart

### Two Dimensional Stacked Bar Chart

Figure 48 illustrates how the two dimensional stacked bar chart is functionally equivalent to the three dimensional stacked bar chart except it displays without the illusion of depth.

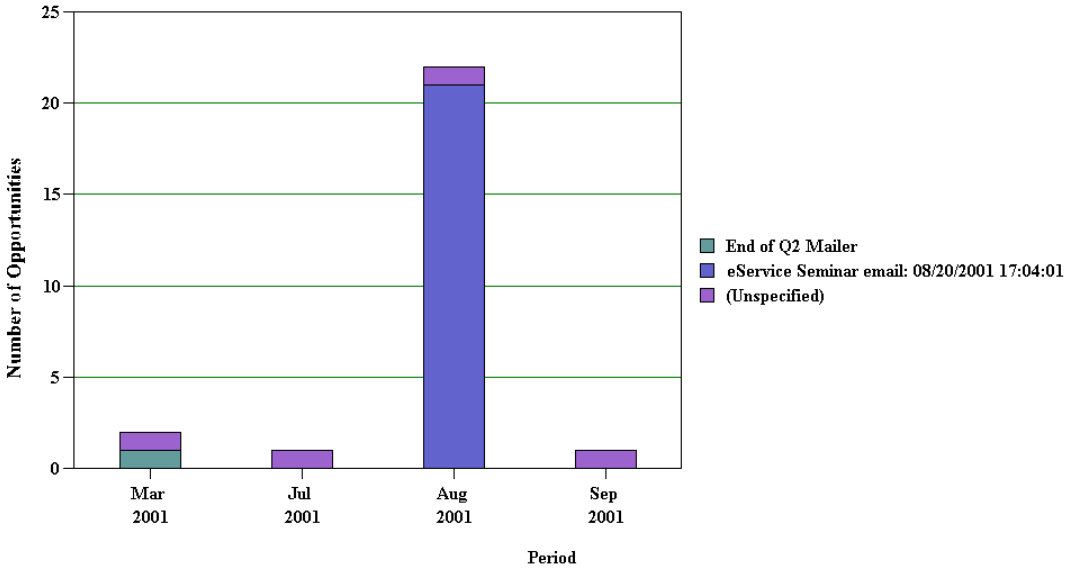



Figure 48. Example of a Two Dimensional Stacked Bar Chart

## Line Charts

A *line chart* displays trends across categories or over time.This topic incudes examples of different line charts.

### Two Dimensional Line Chart

Figure 49 illustrates how the two dimensional line chart displays one or more lines plotted against an X-Y grid. If there is no series axis, then Siebel CRM displays a single line. If there is a series axis, then Siebel CRM displays one line for each color in the legend.

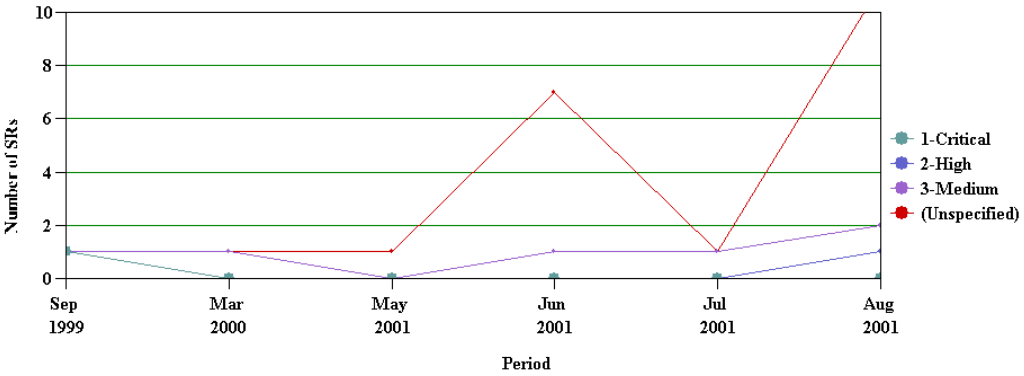



Figure 49. Example of a Two Dimensional Line Chart

### Three Dimensional Line Chart

Figure 50 illustrates how the three dimensional line chart is functionally equivalent to the two dimensional line chart except it displays with the illusion of depth.

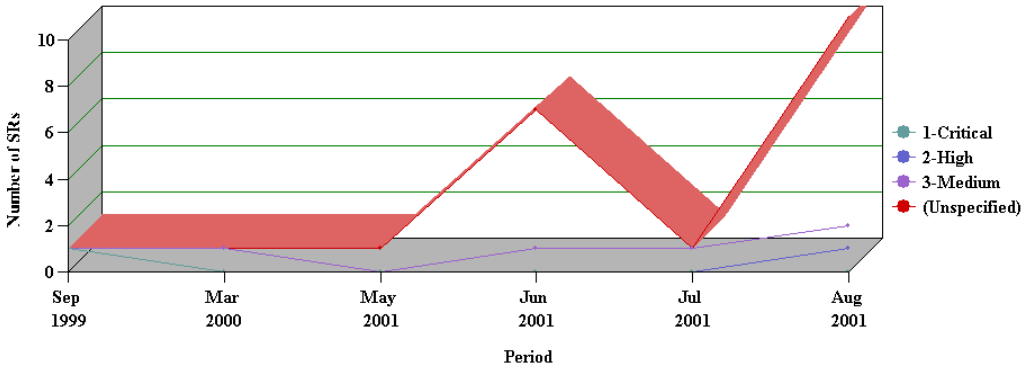



Figure 50. Example of a Three Dimensional Line Chart

### Two Dimensional Spline Line Chart

Figure 51 illustrates how the two dimensional spline line chart displays one or more lines plotted against the X-Y grid with the points plotted accurately but the line between points smoothed mathematically:

- If there is no series axis, then Siebel CRM displays a single line and set of points.

- If there is a series axis, then Siebel CRM displays one line and the corresponding set of points for each color in the legend.

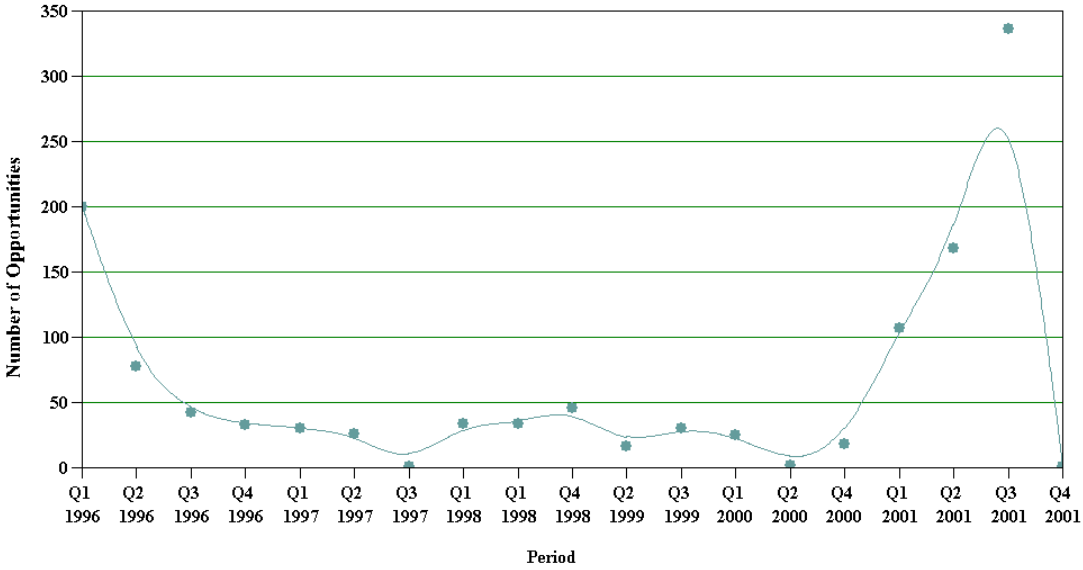



Figure 51. Example of a Two Dimensional Spline Line Chart

### Three Dimensional Spline Line Chart

Figure 52 illustrates how the three dimensional spline line chart is functionally equivalent to the two dimensional spline line chart except the three dimensional spline line chart includes the following differences:

- Displays with the illusion of depth.

- Does not display the actual data points. It only displays a smoothed line.

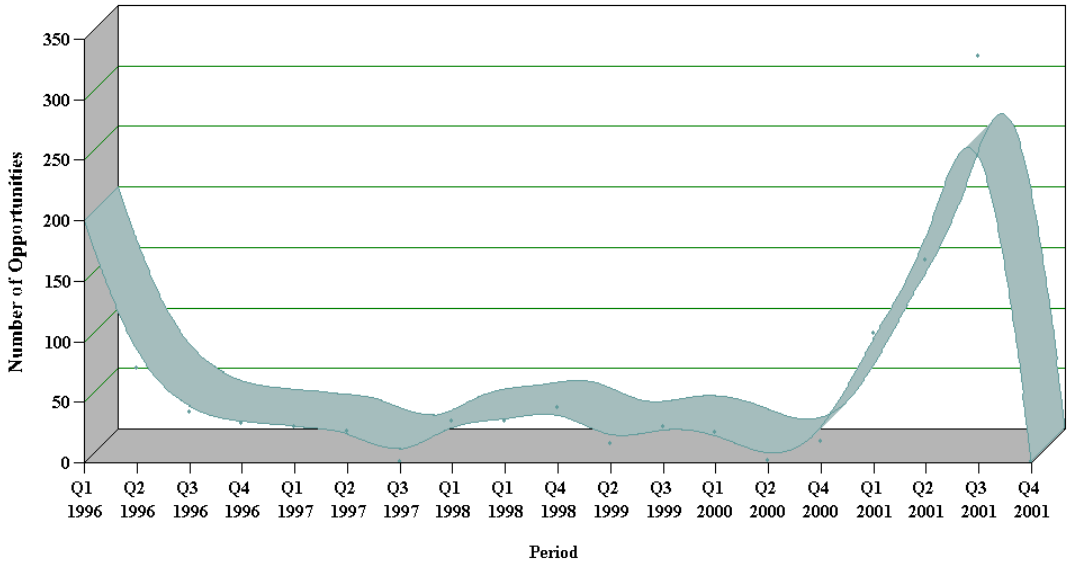



Figure 52. Example of a Three Dimensional Spline Line Chart

### Combo Line Chart

Figure 53 illustrates how a Combo line chart displays a single bar chart with superimposed dots. The two charts share the category axis but each chart includes separate data points axes that Siebel CRM displays in the following ways:

- On the left for the bar chart

- On the right for the line chart

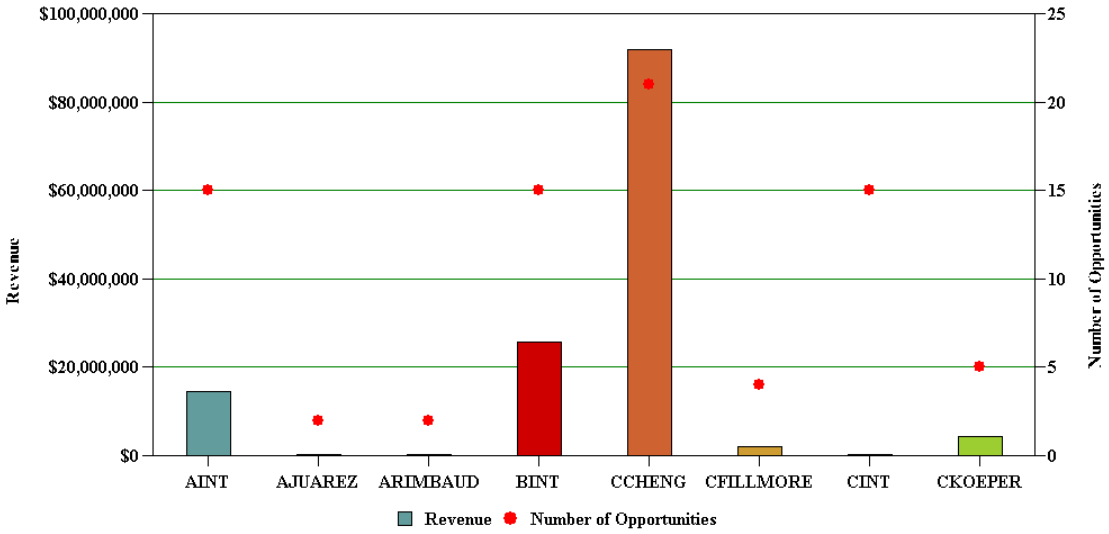



Figure 53. Example of a Combo Chart

## Pie Charts

A *pie chart* compares the relative difference across categories. It divides a circle into segments that represents the percentage of the whole for each category. This topic includes examples of pie charts.

### Three Dimensional Pie Chart

Figure 54 illustrates how the three dimensional pie chart aggregates data in the records according to category and displays each category as a separate segment in the pie:

- The category constitutes the X-axis. It is the set of pie slices and corresponding labels.
- The data points constitute the Y-axis. it determines the relative size of each pie slice as a percentage of the total.

You cannot define a series axis for a pie chart. The three dimensional pie chart gives the illusion of depth for visual attractiveness.

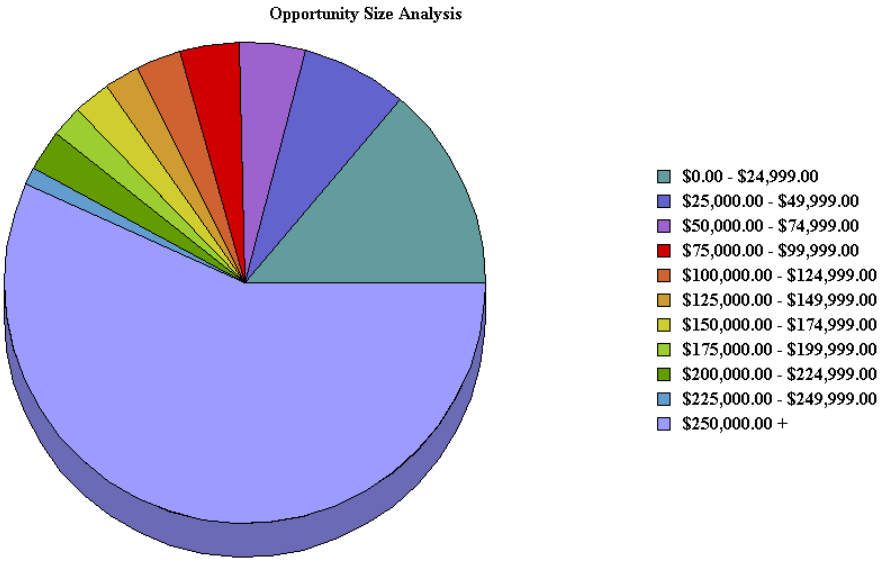



Figure 54. Example of a Three Dimensional Pie Chart

### Two Dimensional Pie Chart

Figure 55 illustrates how the two dimensional pie chart is functionally the same as the three dimensional pie chart except without the illusion of depth.

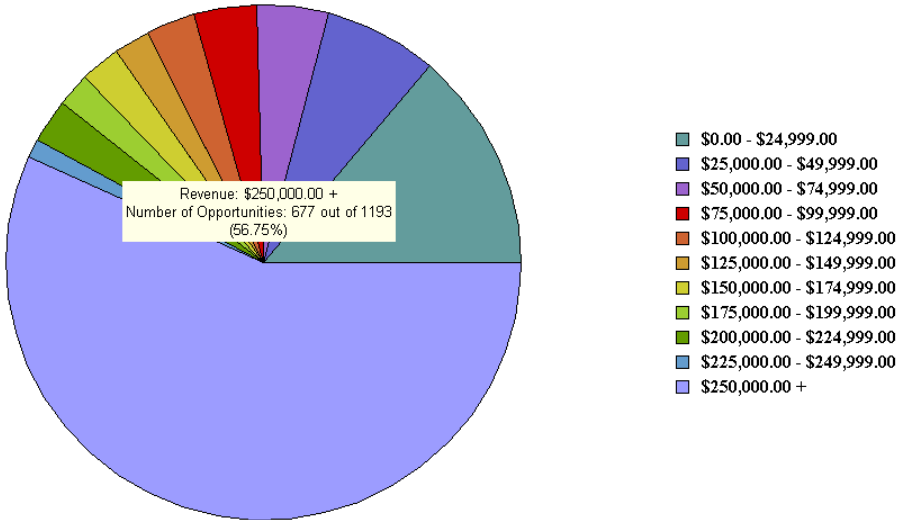



Figure 55. Example of a Two Dimensional Pie Chart

### Scatter Charts

A *scatter chart* displays the distribution of data across two dimensions, which is useful for probability distribution and other uses. Because the category axis must contain only numeric data, you cannot convert the two dimensional scatter chart to other chart types, such as the bar chart, line chart, or pie chart. For this reason, the following conditions apply for the two dimensional scatter chart:

- Does not display in the Type list
- Does not include a Type list

Figure 56 illustrates a two dimensional scatter chart.

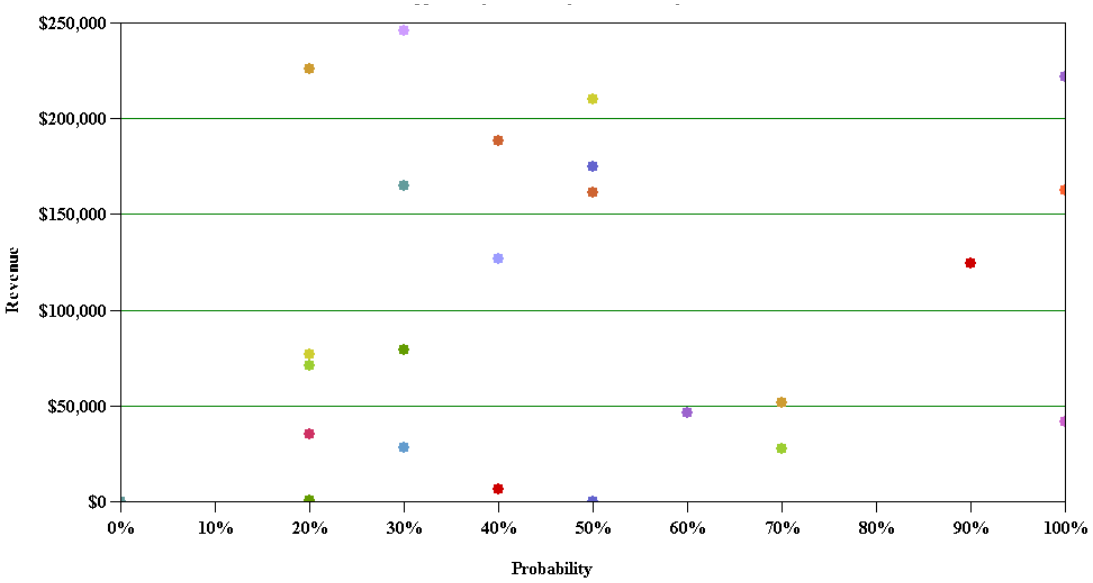



Figure 56. Example of a Two Dimensional Scatter Chart

## How Siebel CRM Constructs a Chart Applet

Siebel CRM builds a chart as an applet that contains one or more Chart object definitions. A Chart is a child of an applet. The Business Component property of a chart applet identifies the business component that provides data that Siebel CRM displays in a chart applet. Records in this business component are subject to the current view, the current query, and visibility requirements. Business component fields provide the data for the category, data point, and series axes in a chart applet. The properties of the chart object define the relationship between axes and fields.

A single bar or line graph is the simplest form of chart applet. It contains no series axis and only a category field and a data point field are defined. Siebel CRM plots pairs of category and data point field values as points or bars. If multiple records use the same category value, then Siebel CRM adds together their data point values.

Figure 57 illustrates how Siebel CRM plots the number of opportunities on the data point axis against the source of the opportunity on the category axis. Example sources include referral, magazine article, Web site, and so forth. To generate the data required for the line, Siebel CRM checks the Source field in each record and tallies the number of opportunities for each distinct source value.

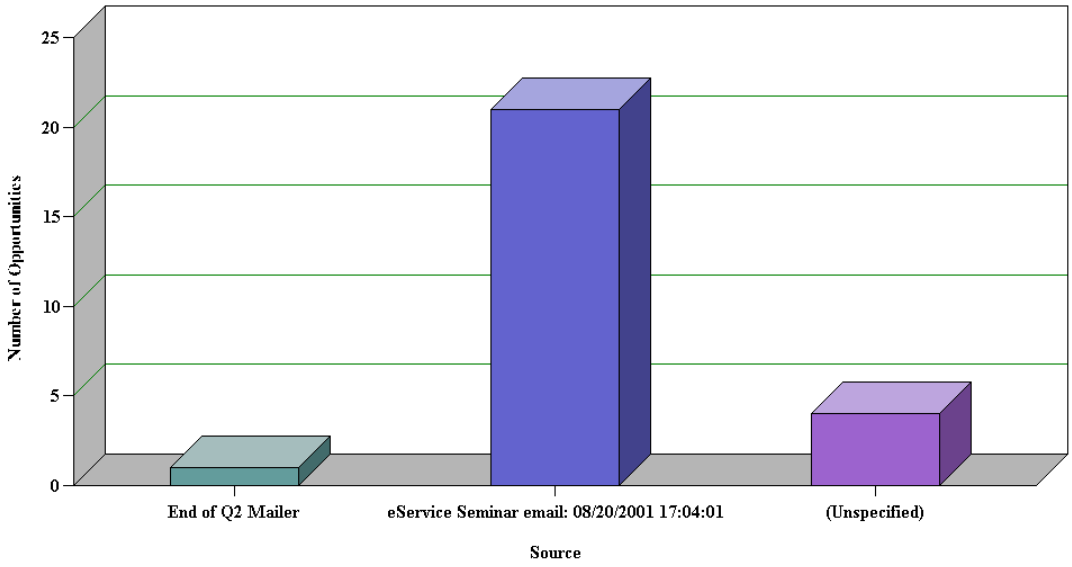



Figure 57. Oppty Chart Applet - Source Analysis

Figure 58 illustrates the result, which is a two row temporary table that includes a column for each source.

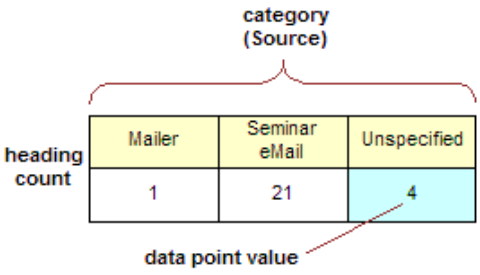



Figure 58. Temporary Table for Single Line Chart Data

Figure 59 illustrates a multiple line chart where Siebel CRM adds a row to the temporary table for each line in the series.

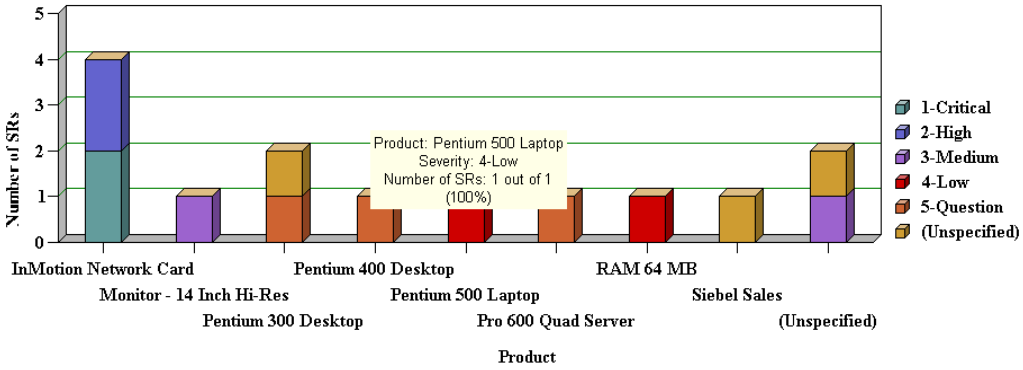
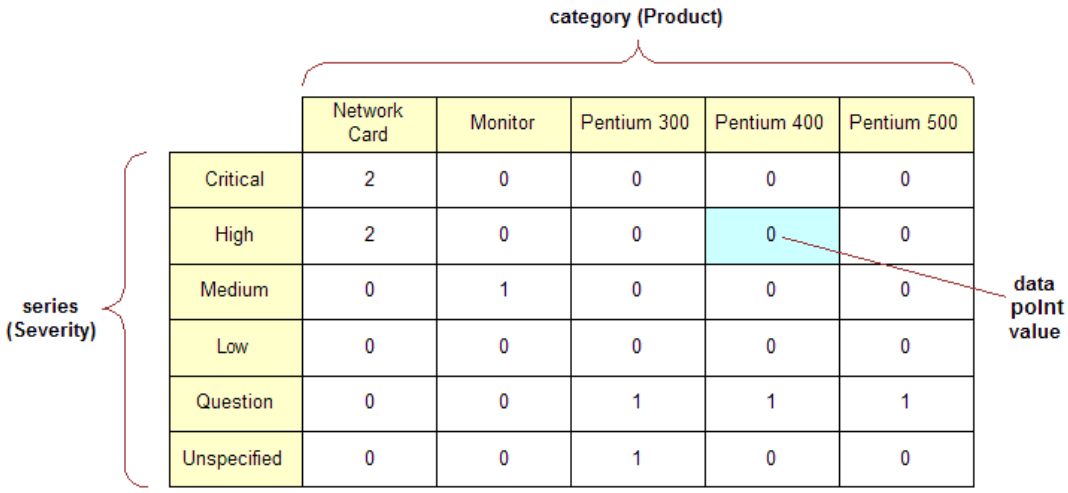



Figure 59. Example of a Multiple Line Chart

Figure 60 illustrates the temporary table for a multiple line chart.




| | Network Card | Monitor | Pentium 300 | Pentium 400 | Pentium 500 |
|---|---|---|---|---|---|
| Critical | 2 | 0 | 0 | 0 | 0 |
| High | 2 | 0 | 0 | 0 | 0 |
| Medium | 0 | 1 | 0 | 0 | 0 |
| Low | 0 | 0 | 0 | 0 | 0 |
| Question | 0 | 0 | 1 | 1 | 1 |
| Unspecified | 0 | 0 | 1 | 0 | 0 |

Figure 60. Temporary Table for Multiple Line Chart Data

## Properties of the Chart Object

To create the data mapping from the business component to the chart applet, you must define the properties of the Chart object that are described in this topic. For situations where these properties are configured differently, see "How Siebel CRM Constructs a Chart Applet" on page 394 and *Siebel Object Types Reference*.

Table 42 describes properties of the Chart Object.

Table 42. Properties of the Chart Object

| Property | Description |
|---|---|
| Category Field | Contains the name of a text or date field in the business component except for a scatter chart, which uses a numeric category field. When Siebel CRM scans the business component records, Siebel CRM maps the different values in this field to different categories. Siebel CRM displays values on the X-axis labels of the chart. |
| Data Point Field | Can contain the name of a numeric field in the business component or is not defined:<br>■ If it is defined, then Siebel CRM adds the value in this field in each record to the total for the value of the category field in the same record.<br>■ If it is not defined, then Siebel CRM increments the count for the corresponding category field.<br>These counts or totals determine the height along the Y-axis of a bar or line point for each unique category field value in the line. Rather than a total or a count, some other function that is defined in the Data Function property can determine how to use the data in the Data Point Field property. |
| Series Field | Contains the name of a text field in the business component, or is not defined. When Siebel CRM scans the business component records, Siebel CRM maps the different values in this field to different lines. Siebel CRM displays these values on the legend labels of the chart.<br>**NOTE:** If the number of series exceeds 50 when the user runs the chart, then Siebel CRM displays an error message. The user might be required to run another query that results in a display that does not exceed 50 series. |
| Function | Determines how Siebel CRM converts data point field values into the cell values of the new table. The following values are available:<br>■ **Sum.** Simple addition.<br>■ **Count.** The number of occurrences of a cell value.<br>■ **Average.** The average value for each record.<br>■ **Plot.** Similar to Count except that if a cell is empty, then the value is NULL instead of 0. |

## Using the Chart Applet Wizard to Create a Chart

You can use the Chart Applet Wizard to create a new chart applet. For more information, see "Example of a chart That Includes Three Axes" on page 380.

### *To use the Chart Applet Wizard to create a chart*

1. In Siebel Tools, choose the File menu, and then the New Object menu item.
2. In the New Object Wizards dialog box, Click the Applets tab, click the Chart Applet icon, and then click OK.
3. In the General dialog box of the Chart Applet Wizard, define the following properties, and then click Next:
   - Project
   - Business Component
   - Name
   - Display Name
4. In the Y Axis dialog box, define the properties for the Y-axis, and then click Next.

   Follow the instructions in the dialog box. Note that when you define the Data point field, Siebel Tools automatically enters values in the Titles section of the dialog box. For more information, see "Data Point Field" on page 397 and "Function" on page 397.
5. In the X-axis dialog box, define the properties for the X-axis, and then click Next.

   For more information, see "Category Field" on page 397.
6. (Optional) In the Z Axis dialog box, define the properties for the Z-axis, and then click Next.

   For more information, see "Series Field" on page 397.
7. In the Chart Title dialog box, enter a title, and then click Next.
8. In the Web Layout - General dialog box, choose the Siebel Web Template to use for the base read-only mode, and then click Next.
9. In the Finish dialog box, review the information, and then click Finish.

   The Chart Applet Wizard creates the required object definitions and sets the property values according to the information you entered in the wizard. The Web Applet Layout Editor opens and allows you to map controls to placeholders in the web template.

   For more information, see "Editing the Layout of a Web Page" on page 519.
10. Add list controls to the web template for the applet.

    Siebel CRM displays these controls in the chart applet in the Siebel client. For more information, see "Customizing Lists in Chart Applets" on page 399.
11. Add the applet to a view.

    For more information, see "Editing the Layout of a View" on page 270.
12. Compile and test your changes.

    For more information, see *Using Siebel Tools*.

# Customizing Lists in Chart Applets

A chart applet typically provides one or more lists that allow the user to determine how Siebel CRM displays or uses data.

Figure 61 illustrates these lists.

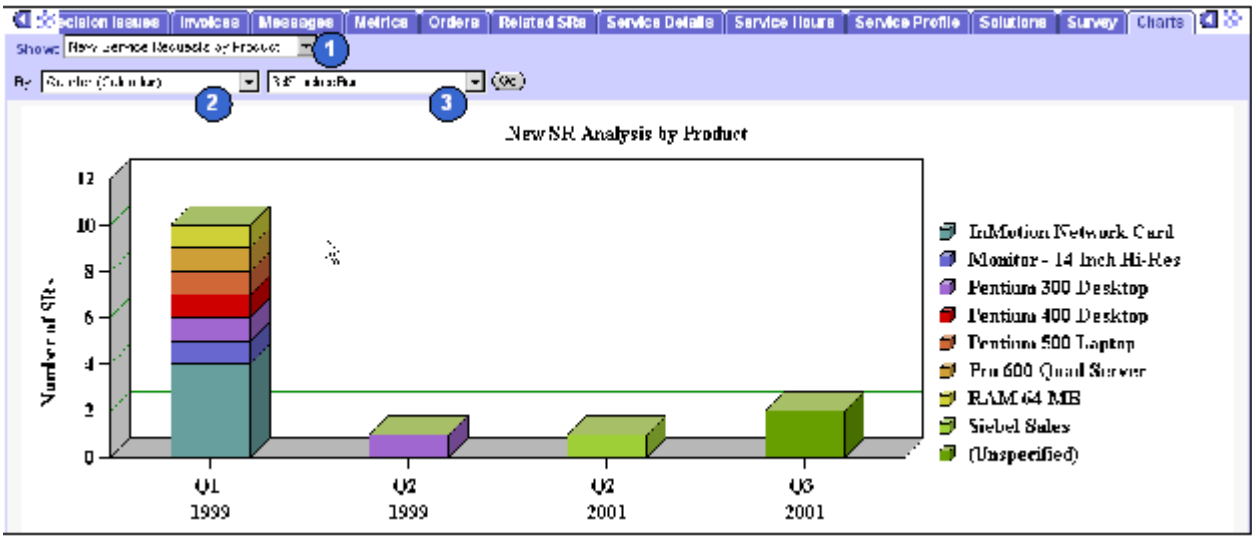



Figure 61. Lists in a Chart Applet

The following types of lists are available:

1 **Show list.** Allows the user to change data that Siebel CRM displays on the Y-axis. For more information, see "Customizing the Show List of a Chart Applet" on page 400.

2 **By list.** Allows the user to change data that Siebel CRM displays on the X-axis. For information, see "Customizing the By List of a Chart Applet" on page 403.

**Second By list.** Allows the user to choose which source field provides data for the Z-axis. For more information, see "Customizing the Second By List of a Chart Applet" on page 404.

3 **Type list.** The most common of the four lists. Siebel CRM displays it in most chart applets and provides the user with a way to choose a different type of chart for the same data, such as a pie chart instead of a bar chart, or a two-dimensional line chart instead of a three-dimensional chart. For more information, see "Types of Charts" on page 382.

You can use a comma separated list of chart type names in the Picklist Types property of the chart object definition to define options for the type list. For example:

```
3dBar,3dStackedBar,3dPie,3dHorizBar,2dBar,2dStackedBar,2dPie,2dHorizBar
```

Siebel CRM does not allow spaces between the elements in the comma separated list.

The default type is the chart type that Siebel CRM displays the first time it displays the chart. This default is defined in the Type property. A chart that does not include a type list uses the Type property to define the chart type. The user cannot change a chart that does not include a type list.

## Required Properties of the Lists

Each list in a chart applet requires a corresponding ComboBox control that is a child object of the chart applet. Table 43 describes the required properties for each type of list.

Table 43. Types of Lists and Their Required Property Values

| Type of List | Control Name Property | MethodInvoked Property |
|---|---|---|
| Type | ChartPicktype | PickChartType |
| Show | ChartPickfunction | PickYAxis |
| By | ChartPickby | PickXAxis |
| Second By | ChartPickby2 | PickZAxis |

## Customizing the Show List of a Chart Applet

The *show* list allows the user to change data that Siebel CRM displays on the Y-axis. It displays a list of field and function combinations that determine which values Siebel CRM plots along the Y-axis. The title of the Y-axis mirrors the label of the show list.

### *To customize the show list of a chart applet*

1. In Siebel Tools, display the chart object type and all child objects of the chart object type. A chart is a child of an applet.

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2. In the Object Explorer, click Applet.
3. In the Applets list, locate the applet you must modify.
4. In the Object Explorer, expand the Applet tree, and then click Chart.
5. In the Charts list, locate the chart you must modify.

6 Define chart properties using values from the following table.

| Property | Description |
|---|---|
| Data Point Field | Enter a comma separated list of source fields:<br>■ Enter one field for each entry that Siebel CRM displays in the show list.<br>■ The default value is the first entry in the list.<br>■ If you only enter one field name, then this entry applies to all functions in the list. |
| Data Function | Enter a comma separated list that includes the following values: SUM, COUNT, AVERAGE, or PLOT.<br>PLOT instructs Siebel CRM to derive Y values from the values in the source field.<br>The order of items in this list determines the association with a data point field and title, which is the list function. If the Data Function property contains fewer elements than the list of names that are defined in the Picklist Functions property, then Siebel CRM substitutes the values in the Data Function property with the following values:<br>`Sum,Count,Average,Plot` |
| Picklist Functions | Enter a comma separated list of Y-axis titles, which is also the text that Siebel CRM displays in the list. The order of values in the Picklist Functions property determines the association with a data point field and data function. |

### Example of a Show List That Is Defined Explicitly

This topic describes one example of defining a show list. You might use this feature differently, depending on your business model.

You can define a show list with an explicit format that displays the following choices:

- Number of Opportunities
- Opportunity Revenue
- Opportunity Expected Revenue

Table 44 describes the properties and their values that are required to implement this example.

Table 44. Properties of the Show List for the Sales Method Bar Chart

| Property | Value |
|---|---|
| Picklist Functions | Number of Opportunities, Opportunity Revenue, Opportunity Expected Revenue |

Table 44. Properties of the Show List for the Sales Method Bar Chart

| Property | Value |
|---|---|
| Data Function | Count,Sum,Sum |
| Data Point Field | Name,Revenue,Expected Revenue |

In this example, the values in each comma separated list creates the following relationships between the properties:

- Number of Opportunities performs a Count function on the Name field.
- Opportunity Revenue performs a Sum function on the Revenue field.
- Opportunity Expected Revenue performs a Sum function on the Expected Revenue field.

### Example of a Show List That Is Defined Implicitly

It is recommended that you explicitly define the show list. Siebel CRM retains the ability to implicitly define the Show list for backwards compatibility with earlier versions of Siebel CRM. It is more restrictive.

The Lead Source Analysis chart in the Opportunity New Business Analysis view in Siebel Sales (Oppty Chart Applet - New Business) is an example of a Show list that is defined with an implicit format and function list. This list displays the following choices:

- Number of Opportunities
- Opportunity Revenue
- Average Opportunity Revenue.

Table 45 describes the properties and their values that are required to implement this example.

Table 45. Properties of the Show List for the Lead Source Analysis Chart

| Property | Value |
|---|---|
| Picklist Functions | Number of Opportunities,Opportunity Revenue, Avg Opportunity Revenue |
| Data Function | Count |
| Data Point Field | Revenue |

The value of Revenue in the Data Point Field property applies to all entries in the list.

In this example, the values in each comma separated list creates the following relationships between the properties:

- Number of Opportunities performs a Count function on the Revenue field.
- Opportunity Revenue performs a Sum function on the Revenue field.
- Avg Opportunity Revenue performs an Average function.

Because the value of the Count in the Data Function property is not necessary, it can be empty.

If the number of entries in the Data Function property is not the same as the number of entries in the Picklist Functions property, then Siebel CRM supplies the following predefined list in the Data Function property:

- Count,Sum,Average,Plot

## Customizing the By List of a Chart Applet

The *by* list allows the user to change data on the X-axis:

- In a period chart, Siebel CRM enters data into the *by* list with different date periods. The user can choose from a list of possible X-axis date periods for calendar data. This calendar data includes day, week, month, quarter, and year. You can define these options in the Picklist Periods property of the chart object.
- If you define a list of source fields rather than a single source field, then the list allows the user to choose which source field provides data for the X-axis.
- Because the user can invert the X-axis and the Z-axis, the user can view the data from a source field in a business component that displays along the X-axis or Z-axis according to the selection the user makes in the list.

### *To customize the by list of a chart applet*

- Define the Category Field property of the chart object.

#### Calendar Increments in the List and the X-Axis

If the Category Field property contains the name of a single field that is a DTYPE_DATE data type, then the X-axis displays calendar increments and the chart is a *period chart*. In this situation, Siebel CRM enters data into the list with calendar increment options, including user defined periods, such as Day, Week, Month, Quarter, and Year. You can administer these increments in the Periods view of the Administration - Data screen.

For example, in the New Business Analysis chart the category field is Created, which is the date that Siebel CRM created the opportunity record. The increment that the user chooses in the *by* list determines the date increments that the category axis contains.

#### Text labels in the X-Axis and Category and Series Field Names in the List

If the Category Field property contains the name of a single text field from the business component, and if a series field is defined in the Series Field property, then the *by* list includes the names of the category field and the series field. The user can choose either field to update the X-axis with labels from the contents of that field. The unchosen field provides labels for the legend box. The legend box is the Z-axis. The default value is the category field and Siebel CRM initially displays it on the X-axis.

For example, the chart in the Service Request Product Analysis view in the Siebel Service application includes a Product category field and a Severity series field. When Siebel CRM initially displays the chart, the X-axis labels are product names and the legend labels are severity levels. However, Siebel CRM displays the Product and Severity field names in the *by* list. The severity allows the user to display severity levels in the X-axis and product names in the legend.

#### Text Labels in the X-Axis and Multiple Field Names in the List

If the Category Field property contains a comma separated list of field names, then Siebel CRM displays this list in the *by* list. The user chooses the field that provides data for the X-axis. The default value is the first value in the list. You must not include an empty space before or after a field name in the list.

#### Numeric Values in the X-Axis and No List

If the Category Field property contains the name of a single numeric field, then the X-axis includes numeric increments, similar to the process of generating increments for the Y-axis. In this situation, Siebel CRM does not display the *by* list.

For example, the Probability Cluster Analysis chart in the Opportunity Probability Cluster Analysis view includes the Rep% category field, which is the probability of a sale. In this chart, Siebel CRM plots probability against the X-axis, the X-axis increments are percentages from 0% to 100%, and Siebel CRM displays no *by* list.

## Customizing the Second By List of a Chart Applet

You can customize the *second by* list.

### *To customize the second by list of a chart applet*

- Define the Series Field property of the chart object.

The following values in the Series Field property in the chart object determines the behavior of the *second by* list:

- If the Series Field property is empty, then Siebel CRM maps all records into a single series.
- If the Series Field property contains the name of a field from a business component, then Siebel CRM includes labels on the Z-axis that it derives from the contents of that field.
- If the Series Field property contains a comma separated list of field names, then Siebel CRM displays this list of fields in the *second by* list. The user chooses the field that provides data for the Z-axis. The default value is the first value in the comma separated list.

# Customizing a Chart That Includes Multiple Lines Against One Y-Axis

This topic describes one example of defining different combinations of the source field and function to determine how Siebel CRM plots a chart with multiple lines against the same Y-axis. You might use this feature differently, depending on your business model. Siebel CRM displays the name for each line in the legend. For example, Siebel CRM can display revenue, expected revenue, and net profit as superimposed lines on the same line graph.

### *To customize a chart that includes multiple lines against one Y-axis*

1 Complete Step 1 on page 400 through Step 5 on page 400.

2 Define properties of the chart object, using values from the following table.

| Property | Description |
|---|---|
| Data Point Field | Create a comma separated list of source fields, one for each line that Siebel CRM displays in the graph. |
| Data Function | Create a comma separated list that includes some of the following function names: SUM, COUNT, AVERAGE, or PLOT.<br><br>PLOT indicates that Siebel CRM derives the Y values directly from the values in the source field.<br><br>The list of function names must include the same number of entries as the Data Point Field list. The order in the list in the Data Function property determines the association with the data point field and title. |
| Picklist Functions | Create a comma separated list of Y-axis titles. Items in this list define the individual lines in the Legend. The list of titles must include the same number of entries that Siebel Tools displays in the list in the Data Point Field property. The order in the list determines the association with the data point field and data function. |
| Series Field | This property must be empty. Remove any existing values from the Series Field property. If the Series Field property contains a value, then Siebel CRM converts the multiple lines to a Z-axis. |
| Multi Data Point | Set to TRUE, which indicates that multiple lines are plotted. |

3 In the Applet Web Editor, remove the Show combo box and the label for the Show combo box.

# Customizing a Chart That Includes Two Y Axes

You can define a chart that includes two lines that are plotted against different Y axes. Siebel CRM displays one line to the left of the graph and the other line to the right of the graph. You can use any field or function combination for the left Y-axis or for the right Y-axis.

### *To customize a chart that includes two Y axes*

1 Complete Step 1 on page 400 through Step 5 on page 400.

2 Define properties of the chart object, using values from the following table.

| Property | Description |
|---|---|
| Data Point Field | Define two fields that are separated by a comma:<br>■ The first field defines the left Y-axis.<br>■ The second field defines the right Y-axis. |
| Data Function | Define two functions that are separated by a comma:<br>■ The first field defines the left Y-axis.<br>■ The second field defines the right Y-axis. |
| Type | Set to Combo. |

## Limiting and Sorting Axis Points

You can limit the number of X-axis or Z-axis labels to a predefined number. The X-axis defines the category and the Z-axis defines the series. You can use this feature to display only the *N* highest or *N* lowest values for a field or calculated Y value. For example, to display the 10 highest revenue accounts, you can chart the Revenue field in descending order and limit the X-axis to 10 data points.

### *To limit and sort axis points*

1 Complete Step 1 on page 400 through Step 5 on page 400.

2 In the Object Explorer, expand the Chart tree, and then click Chart Element.

3 In the Chart Elements list, define properties of the axis label chart element, using values from the following table.

| Property | Description |
|---|---|
| Divisions | Defines the X-axis or the Z-axis. Enter an integer to limit the number of X-axis or Z-axis labels. Siebel CRM limits the number of labels it displays to the number you enter. Note the following:<br>■ Make sure the AxisId property is equal to XAxis or ZAxis.<br>■ Make sure the Type property is equal to AxisLabel. |
| Sort Specification | Defines the Y-axis. Enter `Ascending` or `Descending`. Note the following:<br>■ Make sure the AxisId property is equal to YAxis.<br>■ Make sure the Type property is equal to AxisLabel. |

## Sorting the Y-Axis

You can sort the Y-axis.

### *To sort the Y-axis*

- Create a sort specification on the Y-axis.

  This sort specification is independent of limiting the number of X-axis or Z-axis divisions. A sort specification on Y orders the data points regardless of if you limit or do not limit the display to the first *N* points. However, you cannot set a number of X-axis or Z-axis divisions without also setting a sort specification on Y.

## Sorting on the X-Axis or Z-Axis

You can sort the X-axis or Z-axis labels.

### *To sort on the X-axis or Z-axis*

1. Complete Step 1 on page 400 through Step 5 on page 400.
2. In the Object Explorer, expand the Chart tree, and then click Chart Element.
3. Set the Sort Specification of the chart element in the X-axis or Z-axis label.

   For example, if the X-axis displays country names, then sort the names so that they are in alphabetical order, from left to right. This is different from sorting on Y-axis values from a field in a business component or function according to the field where these values are numeric.

# Defining the Physical Appearance of a Chart

You can define the physical appearance of a chart.

### *To define the physical appearance of a chart*

1. Complete Step 1 on page 400 through Step 5 on page 400.
2. In the Object Explorer, expand the Chart tree, and then click Chart Element.

3 Define the Type property using values from the following table.

| Type Property | Description |
|---|---|
| AxisLabel | Displays an axis label along each axis with one label for each division of the axis.<br><br>You cannot define more than 49 labels on the X-axis. If you define more than 49 labels, then Siebel CRM does not display any of these additional labels. |
| AxisLineGrid | Displays a grid that simplifies reading a chart. You can set properties for the entire grid, such as color, width, and visibility. You can also set properties for each axis. |
| AxisTitle | Displays a title along each axis with one title for each axis. |
| Graphic | Displays a line, rectangle, or ellipse to emphasize a region of the chart. |
| Legend | Displays a list of colored rectangles with accompanying labels on the left side of the chart. |
| Plot | Displays an area that contains the graphs. Siebel CRM typically displays this area in the center of the chart. |
| Title | Displays a large text string. Siebel CRM typically this text at the top of the chart. |
| Font, Font Color, or Font Size | Sets the font, font color, or font size for most Chart Elements that contain text. |
| Fill color | Sets the fill color of the chart and the Plot Chart Element types. |

## Using Properties of the Chart Element That Apply To the X-Axis Label

If you define a list of X-axis source fields, then do not use the properties of the Chart Element that apply to the X-axis label. These properties are relevant only for one X-axis field. These properties include:

- Coordinates
- Display Format
- Divisions
- List Of Values
- Sort Specification
- Text

### Defining the Text of the X-Axis or Z-Axis Title

If the *by* combo box provides a list of source fields, then Siebel CRM determines the text of the X-axis or Z-axis title dynamically from the combo box selection. Siebel CRM overrides the value in the Text property in the AxisTitle chart element for the X-axis or Z-axis when it renders the chart in the Siebel client.

## Making an X-Axis Label Vertical

You can make an X-axis label vertical so that one label does not overlap another label.

#### *To make an X-axis label vertical*

1. Complete Step 1 on page 400 through Step 5 on page 400.
2. In the Object Explorer, expand the Chart tree, and then click Chart Element.
3. In the Chart Elements list, locate the chart element that contains properties described in the following table.

| Property | Value |
|---|---|
| Axis Id | XAxis |
| Type | AxisLabel<br><br>More than one XAxis element might exist. The Vertical property only applies to an element whose Type property is equal to AxisLabel. |

4. Set the Vertical property to TRUE.

## Defining the Size of a Chart Control

You can define the size of a chart control.

#### *To define the size of a chart control*

- Define properties for the chart control using values described in the following table.

| Property | Value |
|---|---|
| HTML Width | Set the value in pixels. The default value is 1012. |
| HTML Height | Set the value in pixels. The default value is 560. |

# Customizing a Tree Applet

This topic describes how to customize a tree applet. It includes the following topics:

For more information, see "About Tree Applet Templates" on page 165, and "Customizing Icons in a Tree Applet" on page 516.

# Overview of Customizing a Tree Applet

A *tree applet* is a type of applet that you can use to create an explorer view that allows the user to navigate hierarchically through a structured list of records of related business components. The tree applet presents hierarchically structured information in an expandable tree control. Siebel CRM displays the tree control in a frame on the left side of the applet. Siebel CRM displays detailed information for a chosen tree node in the details applet in a frame to the right. Separate vertical frames allow the user to scroll through the contents of the tree applet independently from the detail applet. This is important because the tree structure can grow very large in length and width.

A *tree item* includes any of the following objects. Siebel CRM displays these objects in a tree:

- Root
- Branch
- Leaf

A *tree node* is a repository tree node. The swe:node tag specifies the placeholder for a tree item. For more information, see About Siebel Tags on page 172.

A tree control can include repository tree nodes and field values as elements in the tree. Siebel CRM displays the following:

- Name for a tree node
- Field values for tree items

## Example of a Tree Applet

To view an example of a tree applet, do the following:

1. Open the client for a Siebel application, such as Siebel Call Center.
2. Click the Service screen tab, and then the Explorer link.

   Siebel CRM displays the SR Tree Applet in a frame on the left side of the interface and the Service Request List Applet in a frame on the right side of the interface.

A tree applet in an explorer view operates in a way that is similar to how the Object Explorer and Object List Editor operates in Siebel Tools. The user can expand and collapse folders in the tree applet and view the records in the folder in the list applet. The hierarchy in the tree applet represents a parent-child relationship between records of different business components.

For example, if the user expands a document tree in the Service Requests tree, such as the 1-49119-Claim-New Claim document, then Siebel CRM displays a set of folders that it positions hierarchically beneath the service request. Note the following:

- These folders include Activities, Attachments, Change Requests, Solutions, and so forth.
- If the user expands one of these child folders, then Siebel CRM displays a list of records that represent the corresponding business component.
- If the user expands the folder for a service request, and then expands the Activities folder beneath it, then Siebel CRM displays a list of records that constitute the set of activities for that service request. In the parent-child relationship between service requests and activities, these activity records are child records of the parent service request record that is expanded.
- The user can add or associate child records of various kinds to a parent record. For example, to associate a solution record from an association applet, the user can navigate down through the hierarchy to the Solutions folder, click the list applet, and then choose New Record from the applet menu. The product solution record becomes a detail record of the service request.

## Relationships Between Business Components, Business Objects and Tree Applets

A tree applet in an explorer view uses the set of parent-child relationships defined in the business object that are assigned to the view. A business object defines a business model or entity-relationship diagram and specifies the set of parent-child relationships with the business components that the business object references. This structure makes it possible to arrange the records of these business components hierarchically. For more information, see “About Business Objects” on page 107.

Figure 62 illustrates the relationships and objects in the Service Request business object.

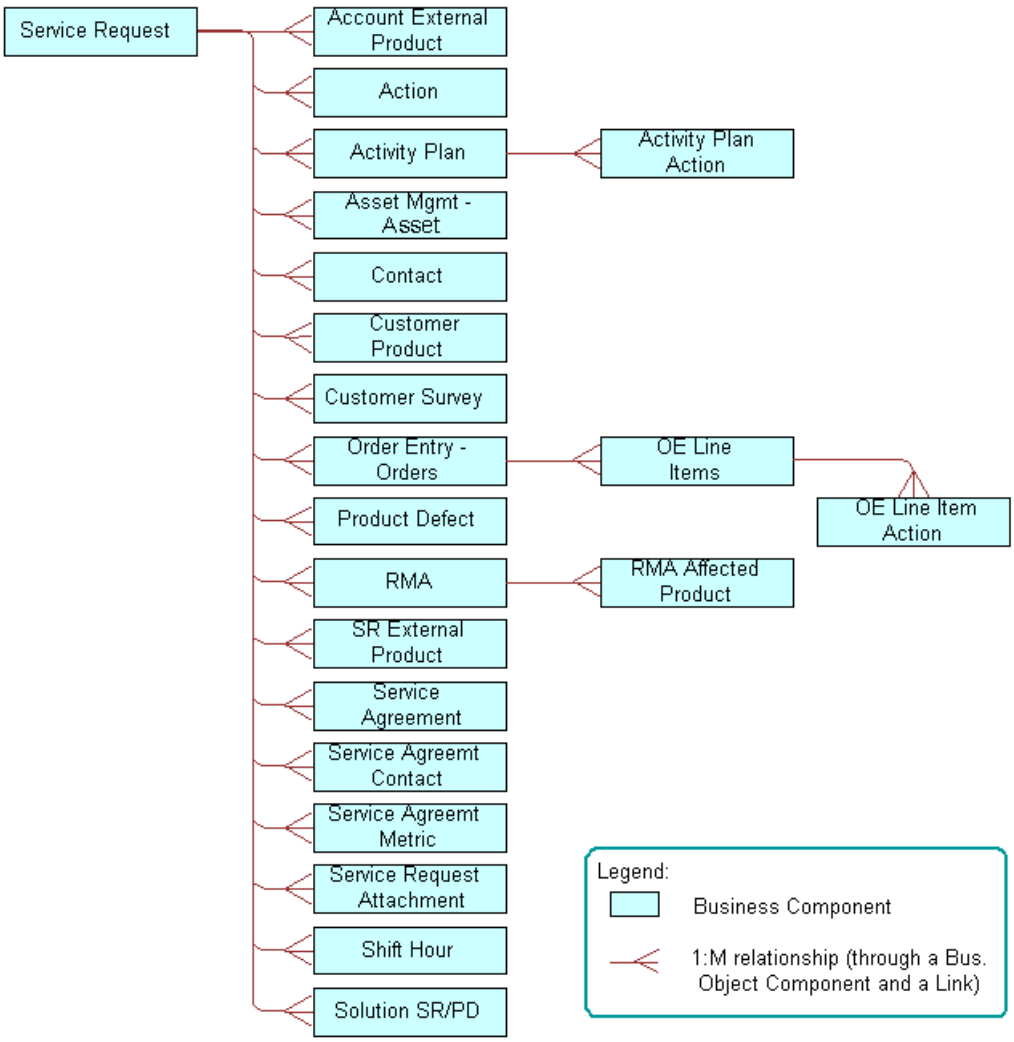



Figure 62. Relationships and Objects in the Service Request Business Object

Figure 63 illustrates relationships and objects in the Service Request business object that Siebel CRM uses in the Service Request Explorer View.

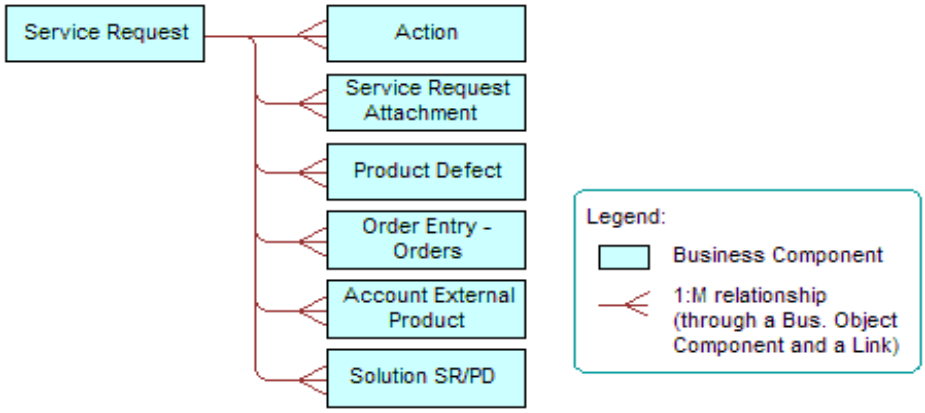



Figure 63. Relationships and Objects in the Service Request Business Object That Siebel CRM Uses in the Service Request Explorer View

Table 46 describes the relationship between business components in the Service Request business object and folder names in the tree applet.

Table 46. Relationship Between Business Component and Folder Name

| Business Component | Folder Name in Tree Applet |
|---|---|
| Account External Product | Service Profile |
| Action | Activities |
| Order Entry - Orders | Service Orders |
| Product Defect | Change Request |
| Service Request | Service Requests |
| Service Request Attachment | Attachments |
| Solution SR/PD | Solutions |

You can configure the tree applet and explorer view for service requests to include more business components. For example, you can add the Contacts, Customer Surveys, and Service Agreements folders as child folders of Service Requests. You can add a Line Items folder as a child of RMAs and Service Orders. However, you can only add business components from the business object in an explorer view that references the business object. In this example, that business object is Service Request. Also, you can only add a business component as the immediate child folder of the business component that is the parent of this business component in the business object. For example, you can add Order Entry Line Items as a child of RMAs and Service Orders. You cannot add Order Entry Line Items as a child of Activities.

## Objects of a Tree Applet

A *tree* is a child object type of an applet. The tree includes the child tree node object type. Each tree node defines one folder symbol. The tree object includes the following:

- Only provides a named reference point. A tree is similar to the list object type that Siebel CRM uses in a list applet because the tree serves only as a reference for child objects.
- A tree always includes the text *Tree* in the name property.

Table 47 describes properties of an applet that implement a tree applet.

Table 47. Properties of an Applet That Implement a Tree Applet

| Property | Description |
|---|---|
| Class | Must be set to CSSFrameTree to support a tree applet. |
| Business Component | Must reference the same business component as the top level tree node. |

Siebel CRM does not support a search specification on a tree applet. For more information, see "Options to Filter Data Displayed in an Applet" on page 120.

A tree applet references an explorer view as a view web template item. A list applet does not reference an explorer view. If the user chooses a folder, then Siebel CRM determines the list applet dynamically. The folder in a tree applet represents a tree node. The Business Object property of the view determines which business component data Siebel CRM displays.

# Using the Tree Applet Wizard to Create a Tree Applet

It is recommended that you use the Tree Applet Wizard to create a new tree applet.

### *To use the Tree Applet Wizard to create a tree applet*

1. Choose the File menu, and then choose the New Object menu item.
2. In the New Object Wizards dialog box, choose the Applets tab, and then choose the Tree Applet icon.
3. In the General dialog box, define the following properties, and then click Next:
   - Project
   - Business Component
   - Name
   - Display Name
4. In the Web Layout - General dialog box, choose the web template to use for the tree applet, and then click Next.

   The following are some templates that you can use for a tree applet:

- Applet Tree
- Applet Tree 2
- Applet Tree Marketing

5 In the Finish dialog box, review the information, and then click Finish.

The Tree Applet Wizard creates the tree object and sets the required properties according to the information you entered.

6 Add a tree node for each applet that Siebel CRM must display in the Explorer section of the view, including the top level node.

The Tree Applet Wizard does not create child objects for the tree node. You must add a tree node for each applet that Siebel CRM must display in the Explorer section of the view, including the top level node, such as Service Requests. For more information, see "Customizing a Tree Node" on page 415.

## Customizing a Tree Node

One tree node defines one folder icon. This includes the top level node, such as Service Requests. Each tree node is a child of the tree. Because there is no hierarchy of child and grandchild tree nodes under the tree, the hierarchy of these object definitions does not reflect the hierarchy in the tree applet. Instead, the Position property of the tree node defines the hierarchical position of each tree node in the tree applet.

### *To customize a tree node*

1 In the Object Explorer, click Applet.

2 In the Applets list, locate the applet you must modify.

3 In the Object Explorer, expand the Applet tree, and then click Tree.

4 In the Trees list, locate the tree you must modify.

5 In the Object Explorer, expand the Tree tree, and then click Tree Node.

6 In the Tree Nodes list, add a new tree node using values from the following table.

| Property | Description |
|---|---|
| Display Name | Define the name of the tree node.Siebel CRM displays this name in the tree applet to the right of the folder icon. |
| Applet | Specify the applet that Siebel CRM displays in the right portion of the view if the user opens the corresponding folder. Typically, you specify a list applet. Make sure the applet references a business component that is in the appropriate hierarchical position in the business object. |

| Property | Description |
|---|---|
| Position | Do the following:<br>■ Define the hierarchical position of the tree node relative to other tree nodes.<br>■ Define the sequence of the tree node for the level on which the tree node resides.<br>For more information, see "Defining the Position Property of a Tree Node" on page 416. |
| Business Component | Specify the same business component that is defined for the applet that Siebel CRM displays in the right portion of the view.<br>Make sure each tree node in the hierarchy references a unique business component. You cannot use one business component for multiple tree nodes because Siebel CRM will not properly refresh the business component. |
| Label Field | Specify the name of the field that provides the names in the list that Siebel CRM displays if the user expands the node. For example:<br>■ The Order Number field provides values for the RMAs and Service Orders node.<br>■ The Description field provides values for the Activities node. |
| Selected Bitmap Index | Specify the number 5. This number identifies the folder symbol. |

## Defining the Position Property of a Tree Node

The value in the Position property of a tree node includes an integer or a set of integers that are separated by periods, such as 1.1.2. Use the following format:

- Define the top level node with a position of 1. For example, *x*.1.2, where *x* specifies the top level node.
- Define immediate child nodes of the top level node with a value of 1.*x*, where *x* specifies the order of the node relative to other nodes on the same level.

For example, to display the Activities folder after the Attachments folder rather than before the Attachments folder:

- Set the Position value for the Activities folder to 1.2.
- Set the Position value for the Attachments folder to 1.1.

To attach a child node at the third level, define the Position property for the new node so that the first two integers match the position of the parent node. For example, assume you define the RMAs and Service Orders node at 1.4. To attach a node to the RMAs and Service Orders node, you define the new node with a position of 1.4.1. In general, the rightmost digit in a position specifies the order relative to other nodes that exist on the same level.

# Using the Applet Layout Editor to Add a Tree Control

You can use the Web Layout Editor to add a tree control to a tree applet.

### *To use the Applet Layout Editor to add a tree control*

1. In the Object Explorer, choose Applet.
2. In the Applets list, locate the applet you must modify.
3. In the Object Explorer, expand the Applet tree, and then choose Applet Web Template.
4. In the Applet Web Templates list, right-click the template you must modify, and then choose Edit Web Layout.
5. Drag a TreeControl control from the palette and drop it on the applet layout.

   Siebel Tools creates the required controls and the object definition for the tree.
6. To modify your configuration, right-click the tree control, and then choose a menu item from the pop-up menu using values from the following table.

| Menu Item | Description |
|---|---|
| Select Tree | Allows you to copy and paste the tree control to another applet. |
| Create New Tree Node | Adds a new tree node to the tree. Siebel Tools creates the tree node at the top level. You can then use the Move Selected Tree Node menu item to move the new node. |
| Move Selected Tree Node | Allows you to change the position of the tree node in the tree. Press and hold down the SHIFT key, and then use the following keys on your keyboard:<br>■ Use the up and down arrow keys to move the tree node up or down a level.<br>■ Use the left and right arrow keys to change the position of the node in the current level. |

Siebel Tools automatically updates the Position property of each node according to each operation you perform in the Web Layout Editor.

If you press the DELETE key when Siebel Tools displays the tree in the Applet Web Template Layout window, then Siebel Tools deletes the currently chosen tree node. You can use the Undo and Redo menu items in the Edit menu of the Applet Web Editor to modify your changes.

# Customizing a Recursive Tree Applet

A *recursive tree applet* is a type of tree applet where all levels in the hierarchy are of the same object type. For example, the Account Explorer Applet includes a tree applet in which the only node is for the Account business component. Siebel CRM displays subaccounts beneath accounts. A recursive tree can contain almost any number of levels of subrecords. Predefined recursive trees exist in Siebel CRM for the following objects:

- Accounts
- Activities
- Campaigns
- Opportunities
- Positions
- Various other business components in which records contain subrecords

A recursive tree applet is defined with a tree object to which only one tree node is attached. The business component in a recursive tree must reference the record of the same type at the next level up in the hierarchy. In the accounts tree example, the Account business component includes a Parent Account Id field that references the parent account. A link object must exist that references this field in the Destination Field property of the link. In the accounts example, this link is Account/Account.

### *To customize a recursive tree applet*

- Set properties for the tree node using values from the following table.

| Property | Description |
|---|---|
| Recursive | Set to TRUE to indicate that this is a recursive tree. |
| Recursive Link | Specify the link that references the one-to-many relationship between the parent business component and the child business component. For example, Account/Account. The Account business component is the parent business component and the child business component that defines the recursion. |
| Root Search Spec | Create a search specification that instructs Siebel CRM how to derive the list of top level records. Because the top level records typically contain nothing in the parent Id field, use the following format:<br>`[Parent xxx Id] is NULL`<br>where:<br>*xxx* completes the name of the field<br>For example, [Parent Account Id] is NULL. For more information, see "Options to Filter Data Displayed in an Applet" on page 120. |

# Customizing the Graphic Elements of a Tree Applet

A tree control includes reusable graphic elements and text that Siebel CRM obtains from a business component record, as defined in the tree and tree node object types.

Siebel CRM defines the graphic elements in a tree applet, such as elbows, folder symbols, and so forth, as parameters of the application object manager. You can define these parameters to customize the appearance of the folder and document symbols, expand icons, collapse icons, elbows, spacers, and so forth. For more information about application object manager, see *Siebel System Administration Guide*.

You can also use an HTML hierarchy bitmap to customize some graphic elements. For more information, see "Customizing Icons in a Tree Applet" on page 516.

### *To customize the graphic elements of a tree applet*

1. In the Siebel client, navigate to Administration-Server Configuration screen, and then the Servers view.
2. In the Siebel Servers list, locate the Siebel Server of interest.
3. Click the Components tab.
4. In the Components list, locate the Application Object Manager of interest.

   For example, Call Center Object Manager (ENU).
5. Click the Parameters subview tab, and then click Hidden.
6. In the Component Parameters list, query the Parameter field for the parameter you must modify, and then set the values.

   For more information, see "Parameters You Can Modify to Customize How Siebel CRM Displays Graphic Elements in a Tree Apple" on page 420.

## Parameters You Can Modify to Customize How Siebel CRM Displays Graphic Elements in a Tree Apple

Table 48 lists parameters you can modify to customize how Siebel CRM displays graphic elements in a tree applet.

Table 48. Parameters You Can Modify to Customize How Siebel CRM Displays Graphic Elements in a Tree Applet

| Type of Tree Element | Application Object Manager Parameters |
|---|---|
| Elbows and Trees | Siebel CRM supports the following parameters:<br>■ TreeNodeCollapseElbowCaption<br>■ TreeNodeCollapseTeeCaption<br>■ TreeNodeElbowCaption<br>■ TreeNodeExpandElbowCaption<br>■ TreeNodeExpandTeeCaption<br>■ TreeNodeTeeCaption |
| Root, Leaf, Open Folder, and Closed Folder Icons | Siebel CRM supports the following parameters:<br>■ TreeNodeCloseFolderCaption.<br>■ TreeNodeLeafCaption.<br>■ TreeNodeOpenFolderCaption. Open folder with a dangling line.<br>■ TreeNodeOpenFolder2Caption. Open folder without a dangling line.<br>■ TreeNodeRootCaption.<br>■ TreeNodeArrowDownCaption. This icon indicates that there are more records that are not described below the caption. If the user clicks this icon, then Siebel CRM displays the next group.<br>■ TreeNodeArrowUpCaption. This icon indicates that there are more records not described above. |
| Indentation Graphics | Siebel CRM supports the following parameters:<br>■ TreeNodeBarCaption<br>■ TreeNodeSpaceCaption |
| Text Style Parameters | Siebel CRM supports the following parameters:<br>■ TreeNodeFontStyle. The default value is MS Sans Serif, Arial, and Helvetica.<br>■ TreeNodeFontSize. The default value is 1.<br>■ TreeNodeSelectBgColor. The default value is #000080.<br>■ TreeNodeSelectFgColor. The default value is #ffffff.m. |

## Using the Configuration File to Specify Parameters

You can use the configuration file to specify parameters that determine how Siebel CRM displays graphic elements in a tree applet.

### *To use the configuration file to specify parameters*

1. Open the relevant configuration file in a text editor.
2. Add a separate line for each parameter you must specify.

   Use the following format:

   ```
   parameter_name = "<param1 param2>"
   ```

   where:

   *param1* and *param2* are the names of the parameters

   For example:

   ```
   TreeNodeCollapseCaption = "<img src='images/tree_collapse.gif' alt='-' border=0
   align=left vspace=0 hspace=0>"
   ```

You can use the *alt* parameter in the *img* tag to replace an image with text. This technique is useful to support a browser that only displays text.

## Customizing How Siebel CRM Displays Text Derived from Field Values

You can customize how Siebel CRM displays text derived from field values.

### *To customize how Siebel CRM displays text derived from field values*

1. Open the relevant configuration file in a text editor.
2. Add a separate line for each parameter you must specify, using the following format:

   *parameter_name = value*

   where:

   *parameter_name* is one of the following parameters:

   - TreeNodeFontStyle
   - TreeNodeFontSize
   - TreeNodeSelectBgColor
   - TreeNodeSelectFgColor

The term *caption* that Siebel CRM displays in the parameter refers to an icon or graphic. Siebel CRM displays the caption as an image and positions it in one of the following ways:

- Precedes the text that Siebel CRM generates from a field value
- Precedes another caption

# Customizing a Hierarchical List Applet

This topic describes how to customize a hierarchical list applet. It includes the following topics:



A *hierarchical list applet* is a type of applet that displays records that include a hierarchical relationship. Although it is similar to a list applet, you can display a hierarchical list applet in a way that is similar in appearance to a tree control. For example, the Categories list that the user accesses to create and manage a catalog category in Siebel eSales.

The Hierarchy Parent Field property of the business component establishes the hierarchy.

The HTML Hierarchy Bitmap object that is defined in the HTML Hierarchy Bitmap property of the list defines the icons that Siebel CRM uses to render the list applet. You must define the following bitmaps for the HTML Hierarchy Bitmap:

- Expand Bitmap
- Collapse Bitmap
- Space

Siebel CRM can display a hierarchical list applet in Base or Edit List mode.

It is recommended that the number of columns displayed in a hierarchical list applet be small because the width of the column expands as the user navigates down the hierarchy. It is recommended that Siebel CRM only display fields that contain small values in a column that includes an expand control and a collapse control.

## Running a Query on a Hierarchical List Applet

If you run a query on a hierarchical list applet, then Siebel CRM only returns the root layer of records. It returns no child records. In the Siebel client this situation does not cause a problem because the user can expand the root level record to view child records. However, if you run a query in a script, then Siebel CRM only returns the top level records.

# Viewing an Example of a Hierarchical List Applet

You can view an example of a hierarchical list applet in the Siebel client.

### *To view an example of a hierarchical list applet*

1. In the Siebel client, click the Quotes screen tab, and then click the List link.
2. Click a link in the Quote # column.

3 Click the Line Items tab.

Siebel CRM displays the Quote Item List Applet. This applet is an example of a hierarchical list applet.

4 Expand the hierarchy in the Line # column.

Siebel CRM displays an expanded hierarchy that includes indented document icons and sequence numbers.

## Configuring Indentation and Order of a Hierarchical List Applet

If you call an Indent or Outdent applet method menu item on a record, then Siebel CRM demotes or promotes the child records. It does not change the relationship to the child records of the called record.

Changes that the MoveUp and MoveDown applet method menu items make are temporary. Siebel CRM does not save these changes to the Siebel database.

To create an applet that resembles the tree applet, you can define other bitmaps. The tree applet is not defined for a hierarchical list applet in the Siebel client. Siebel CRM uses the Arrow Down and Arrow Up bitmap only in a tree control. For more information, see "Customizing a Tree Applet" on page 409.

### *To configure indentation and order of a hierarchical list applet*

1 In the Object Explorer, click Applet.

2 In the Applets list, locate the applet you must modify.

3 In the Object Explorer, expand the Applet tree, and then click Applet Method Menu Item.

4 In the Applet Method Menu Items list, create a new record and set properties using values described in Table 49 on page 423.

Table 49 describes the applet method menu items you can call from a control. These methods provide a way to edit the indentation and order in which Siebel CRM displays objects in the hierarchical list applet.

Table 49. Applet Method Menu Items That Control the Hierarchy of a Hierarchical List Applet

| Item | Description |
|---|---|
| Indent | Moves the current record to a position that is indented from the peer record. |
| Outdent | Moves the current record to a position that is at the same level as a peer record of the parent. |
| MoveUp | Moves the current record to a position that is above the position of the peer record. |
| MoveDown | Moves the current record to a position that is under the position of the peer record. |

# Limiting the Number of Records That Siebel CRM Returns in a Hierarchical List Applet

If you define a hierarchical list applet, then the business component returns all the records that make up the hierarchy. It does this to construct the hierarchy of records. In general, Siebel CRM cannot return more than ten thousand records. If a query returns more than ten thousand records, then Siebel CRM does not display the applet and the user might encounter an error that is similar to the following:

```
There were more rows than could be returned. Please refine your query to bring back fewer rows.
```

### *To limit the number of records that Siebel CRM returns in a hierarchical list applet*

- Use one of the following techniques to make sure that the applet does not return more than ten thousand rows:
  - Create a search specification on the business component or on the applet. For more information, see "Options to Filter Data Displayed in an Applet" on page 120.
  - Use a predefined query for the view. For more information, see "Guidelines for Modifying a Predefined Query" on page 184.

# Example of Configuring a Hierarchical List Applet to Use External Data

This topic describes one example of configuring a hierarchical list applet to use external data. You might use this feature differently, depending on your business model.

To develop this example, perform the following tasks:

1. Creating the Virtual Business Component on page 424
2. Creating the Business Service for the Hierarchical List Applet on page 425
3. Implementing the Customization on page 429

You can configure a hierarchical list applet to draw external data from a virtual business component. A hierarchical list applet does not require special configuration on a business component other than a properly set Hierarchy Parent Field property. However, more configuration is required for a virtual business component.

## Creating the Virtual Business Component

You start by creating the virtual business component.

### *To create the virtual business component*

1. In the Object Explorer, click Business Component.

2 In the Business Components list, create a new business component using values from the following table.

| Property | Value |
|---|---|
| Hierarchy Parent Field | Id |

3 In Business Components list, right-click the record you created in Step 2, and then choose Edit Server Scripts.

4 In the Scripting Language dialog box, choose eScript, and then click OK.

5 In the BusComp Script window, expand the BusComp tree, and then click BusComp_PreInvokeMethod.

6 In the script editing window, remove the existing script, and then enter the following script:

```
function BusComp_PreInvokeMethod (MethodName)

{

TheApplication().Trace(this.Name() + ".PreInvoke." + MethodName + "()");

 return (ContinueOperation);

}
```

7 In the BusComp tree, Click BusComp_InvokeMethod, remove the existing script, and then enter the following script:

```
function BusComp_InvokeMethod (MethodName)

{

TheApplication().Trace(this.Name() + ".Invoke." + MethodName + "()");

}
```

8 In the Object Explorer, expand the Business Components tree, and then click Field.

9 In the Fields list, add fields to your virtual business component using values from the following table.

| Name | Type |
|---|---|
| Has Children | DTYPE_BOOL |
| Is Expanded | DTYPE_BOOL |
| Last Child Info | DTYPE_TEXT |
| Outline Number | DTYPE_TEXT |

## Creating the Business Service for the Hierarchical List Applet

In this topic, you create the business service for the hierarchical list applet.

### *To create the business service for the hierarchical list applet*

1 Display the business service server script object type.

The business service server script is a child of the business service. For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2 In the Object Explorer, click Business Service.

3 In the Business Services list, add a new business service using values from the following table.

| Property | Value |
|---|---|
| Name | Hierarchical List Service |
| Server Enabled | Check mark |

4 In the Object Explorer, expand the Business Service tree, and then click Business Service Server Script.

5 In the Business Service Server Scripts list, add a new record using values from the following table.

| Property | Value |
|---|---|
| Name | Init |
| Program Language | JS |
| Sequence | 1 |
| Script | Enter the following script:<br>`function Init (Outputs)`<br>`{`<br>`  with( Outputs )`<br>`  {`<br>`  SetProperty ("Parent Row Id", "");`<br>`  SetProperty ("Amount", "");`<br>`  SetProperty ("Description", "");`<br>`//  SetProperty ("Has Children", "N");`<br>`//  SetProperty ("Is Expanded", "N");`<br>`//  SetProperty ("Outline Number", "0");`<br>`//  SetProperty ("Last Child Info", "");`<br>`  }`<br>`  return( CancelOperation );`<br>`}` |

**TIP:** To enter the script, you can copy the text from this book, and then paste it into the Script property. To view the correctly formatted script, right-click Hierarchical List Service in the Business Services list, choose Edit Service Scripts, expand the general tree, and then click Init.

6 In the Business Service Server Scripts list, add a new record using values from the following table.

| Property | Value |
|---|---|
| Name | Query |
| Program Language | JS |

| Property | Value |
|---|---|
| Sequence | 2 |
| Script | For more information, see "Script for the Query Method when Configuring a Hierarchical List Applet" on page 698. |

7 In the Business Service Server Scripts list, add a new record using values from the following table.

| Property | Value |
|---|---|
| Name | Service_PreInvokeMethod |
| Program Language | JS |
| Sequence | 3 |
| Script | Enter the following script:<br>`function Service_PreInvokeMethod (MethodName, Inputs, Outputs)`<br>`{`<br>`TheApplication().Trace( this.Name() +".PreInvokeMethod( " + MethodName + " )");`<br>`switch( MethodName )`<br>`{`<br>`case "Init":`<br>`return( Init (Outputs) );`<br>`case "Query":`<br>`return( Query (Inputs, Outputs) );`<br>`}`<br>`return (ContinueOperation);`<br>`}` |

8 Add code to the Query method of the business service so that the method provides output that is meaningful for those fields:

- **Has Children.** Y or N, depending on if the record references children or does not reference children.
- **Is Expanded.** Y or N, depending on if Siebel CRM displays the record as expanded or not expanded in the applet.

- **Outline Number.** A string that describes the position of the record in the hierarchy. For example. 1.2 or 2.1.1.
- **Last Child Info.** A string that represents a binary sequence that indicates if the record and the parent of the record is the last record in the list of children. For more information, see "About Last Child Info" on page 429.

The code can be similar to the code that you added in Step 7.

9 To maintain the values appropriately, add code to the Update method.

The Update method is specific to your custom implementation and requires a mechanism to update the records of the virtual business component. The exception is if all records are read-only, then no Update method is required.

### About Last Child Info

The output for Last Child Info in this example is a string of three bits that displays for each level in the hierarchy if there are more records to come. Consider the test values in the Query method for this example. Given a tree with three levels, the following situations apply:

- If there is an item in the tree that is at position 1.3.2, and if item 1.3.3 does not exist, then the third bit is 1, which can be thought of as xx1. Otherwise the third bit is 0, which can be thought of as xx0.
- If the parent record at position 1.3 is the *last child*, then the second bit is 1, which can be thought of as x1x. If item 1.4 does not exist in the tree, then Siebel CRM considers the record as the last child.
- If the grandparent record at position 1 is the last child, and if item 2 does not exist in the tree, then the first bit is 1, which can be thought of as 1xx.

## Implementing the Customization

In this topic, you implement the customization.

### *To implement the customization*

1 Apply any changes you made in the base table to the SRF file.

2 If you defined a new screen, then add the screen to the application screen object.

3 Compile your changes.

4 In the Siebel client, add the view to the list of views, and then add an appropriate responsibility so that the user can access this view.

5 Test your changes.

# Customizing a File Attachment Applet

A *file attachment applet* is a type of applet that provides access to an external document, such as a spreadsheet, word processing document, or slide presentation in Siebel CRM. A file attachment applet provides the following capabilities:

- Allows the user click the name of a file from a list to open a document.
- Allows the user to add a document file to a list, edit it, or remove it.
- Provides synchronization and shared access support for attached documents.

You can use any file type that Windows supports.

To view an example of a file attachment applet, in the Siebel client navigate to the Account screen, drill down on an account, and then click the Attachments tab. Siebel CRM displays the Account Attachment view. The form applet is the predefined Account Form Applet. The list applet is the Account Attachment Applet. This attachment applet displays attachments for the account. A parent-child relationship exists between the account and the list of account attachments. A row in the attachments list represents each document. Siebel CRM also displays the following information in this applet:

- File name for the document. Siebel CRM displays each file name as underlined and with colored font. This indicates that the user can click the name to open the file in a Windows application.
- Local and server status.
- File size.
- File name extension that identifies the file type.
- Date of last update.

To add a document to the attachment list, the user clicks New File, and then clicks the select button in the Attachment Name field. Siebel CRM searches for files to be attached in the directory that it last used to attach a file. If the user chooses a different folder while attaching a file, then Siebel CRM searches for the file in the different folder the next time the user attaches a file.

A file attachment applet uses specialized objects and methods in the Siebel File System.

### *To customize a file attachment applet*

1. If necessary, customize an attachment business component.

   For more information, see “Customizing an Attachment Business Component” on page 432.

2 Create a file attachment applet using values from the following table.

| Property | Description |
|---|---|
| Business Component | Specify the required business component. For more information, see "Customizing an Attachment Business Component" on page 432. |
| Class | Set to one of the following values:<br>■ CSSFrameListFile for an attachment list applet<br>■ CSSFrameFile for an attachment form applet |

3 Add a new child list column or control to the applet for each row in the following table.

| Display Name | Field | Type |
|---|---|---|
| Name | *prefix* FileName | TextBox |
| Local | Dock Status | CheckBox |
| Request | *prefix* FileDockReqFlg | CheckBox |
| Size | *prefix* FileSize | TextBox |
| Type | *prefix* FileExt | TextBox |
| Modified | *prefix* FileDate | TextBox |
| Auto Update | *prefix* FileAutoUpdFlg | CheckBox |

For the prefix, enter the required prefix for the business component. For more information, see "Prefix for the Field Name" on page 431.

These list columns or controls reference fields in the attachment business component. For more information, see "Customizing an Attachment Business Component" on page 432.

4 Make sure the value in the Detail Applet property of each list column or text box control you added in Step 3 is File Popup Applet.

This value references the dialog box that Siebel CRM displays if the user clicks the ellipsis in the list column or text box.

## Prefix for the Field Name

Siebel CRM displays a consistent prefix in the field name for each field in the attachment business component. These fields reference the base table for the business component. Fields that reference a joined table use a different prefix. For example, the prefix for account attachments is Accnt. The field names are AccntFileName, AccntFileDockReqFlg, and so forth.

# Customizing an Attachment Business Component

The Business Component property of the attachment list applet identifies the business component that the Siebel File System uses to store the attachment list data. For example, for the Account Attachment Applet, this business component is named Account Attachment.

### *To customize an attachment business component*

1. In Siebel Tools, in the Object Explorer, click Business Component.
2. In the Business Components list, locate the attachment business component you must modify.
3. Make sure the value in the Class property is CSSBCFile or a subclass of CSSBCFile, such as CSSBCSalesTool or CSSBCEventFile.
4. Make sure the Table property references an attachment table.

   For example, the attachment table is S_ACCNT_ATT in the Account Attachment Applet. For more information, see "Customizing an Attachment Table" on page 434.
5. In Siebel Tools, in the Object Explorer, expand the Business Component tree, and then click Business Component User Prop.
6. In the Business Component User Props list, create a new business component user prop using values from the following table.

| Name | Value |
|---|---|
| DefaultPrefix | Specify the prefix. For more information, see "Prefix for the Field Name" on page 431. |

7. In the Business Component User Props list, create a new business component user prop using values from the following table.

| Name | Value |
|---|---|
| FileMustExist | Use one of the following values:<br>■ **TRUE.** If the file does not exist, then the user cannot enter the name of the file. TRUE is the typical value.<br>■ **FALSE.** If the file does not exist, then the user can enter the name of the file. |

8. Make sure the Predefault property of the FileDockReqFlg business component field is N.

   The FileDockReqFlg references the required FILE_DOCK_REQ_FLG column in the attachment table.
9. Add the required business component fields.

   For more information, see "Fields in an Attachment Business Component" on page 433.

## Fields in an Attachment Business Component

Table 50 describes each field name that the file engine supplies. These names must use a special format and reference a specific column name in the attachment table. The name includes the prefix followed by a required suffix. The DefaultPrefix user property defines the prefix.

Table 50. Fields in an Attachment Business Component

| Name | Column | Type | Text Length |
|---|---|---|---|
| *prefix* FileAutoUpdFlg | FILE_AUTO_UPD_FLG | DTYPE_BOOL | 1 |
| *prefix* FileDate | FILE_DATE | DTYPE_DATETIME | 7 |
| *prefix* FileDeferFlg | FILE_DEFER_FLG | DTYPE_TEXT | 1 |
| *prefix* FileDockReqFlg | FILE_DOCK_REQ_FLG | DTYPE_TEXT | 1 |
| *prefix* FileDockStatFlg | FILE_DOCK_STAT_FLG | DTYPE_TEXT | 1 |
| *prefix* FileExt | FILE_EXT | DTYPE_TEXT | 10 |
| *prefix* FileName | FILE_NAME | DTYPE_TEXT | 200 |
| *prefix* FileRev | FILE_REV_NUM | DTYPE_ID | 15 |
| *prefix* FileSize | FILE_SIZE | DTYPE_NUMBER | 22 |
| *prefix* FileSrcPath | FILE_SRC_PATH | DTYPE_TEXT | 220 |
| *prefix* FileSrcType | FILE_SRC_TYPE | DTYPE_TEXT | 30 |

Table 51 describes a field that the file engine does not supply. This field is usually present but is not required.

Table 51. Field in an Attachment Business Component That the File Engine Does Not Supply

| Name | Column | Type | Calculation |
|---|---|---|---|
| Dock Status | (calculated) | DTYPE_BOOL | IIf ([AccntFileDockStatFlg] = "N" OR [AccntFileDockStatFlg] IS NULL,"N","Y") |

You can include more fields. For a specialized use of an attachment, such as an image control, the file engine fields can be present in addition to the fields from a predefined business component. Siebel CRM typically obtains the fields from the predefined business component through a join. For example, a Product or Literature business component can contain file engine fields to support the display of a product picture or a brochure picture from a bitmap image.

You can incorporate multiple sets of file engine fields from different tables in the same business component. For example, a literature attachment can include subattachments where Siebel CRM derives the subattachments from an intersection table or an extension table. Make sure the prefix for the field name is different for each table.

# Customizing an Attachment Table

An *attachment table* is a type of table that provides the underlying data storage for the attachment business component. Unlike the attachment business component, which can support purposes in addition to file engine functionality, the attachment table stores only file engine data.

The user does not directly update the attachment table. Siebel CRM provides the user an empty attachment table. The user then uses drag and drop functionality or the browser dialog box in the corresponding file attachment applet to bring data into the empty table one file at a time.

Table 52 describes required file columns in an attachment table.

Table 52. File Columns in an Attachment Table

| Name | Default | User Name | Type | Physical Type | Length |
|---|---|---|---|---|---|
| FILE_AUTO_UPD_FLG | N | File Auto Upd Flg | Data (Public) | Character | 1 |
| FILE_DATE | None | File Date | Data (Public) | Date Time | 7 |
| FILE_DEFER_FLG | R | File Defer Flg | Data (Public) | Character | 1 |
| FILE_DOCK_REQ_FLG | N | File Dock Req Flg | Data (Public) | Character | 1 |
| FILE_DOCK_STAT_FLG | N | File Dock Stat Flg | Data (Public) | Character | 1 |
| FILE_EXT | None | File Ext | Data (Public) | Varchar | 10 |
| FILE_NAME | None | File Name | Data (Public) | Varchar | 200 |
| FILE_REV_NUM | 0 | File Rev Num | Data (Public) | Varchar | 15 |
| FILE_SIZE | None | File Size | Data (Public) | Number | 22 |
| FILE_SRC_PATH | None | File Src Path | Data (Public) | Varchar | 255 |
| FILE_SRC_TYPE | None | File Src Type | Data (Public) | Varchar | 30 |

For the Name property, you must use the value described in Table 52. For the User Name property, you are not required to use the value described in Table 52.

Various system columns that are not related to the file engine are also present, such as CREATED, LAST_UPD_BY, and ROW_ID.

If the table includes a file engine column, then you must make sure the File property in the corresponding table is TRUE.

# Example of Customizing an Organization Analysis Applet

The contacts that are associated with each opportunity determines how Siebel Sales generates organization charts. The changes are reflected in the organization chart when Siebel CRM updates contact information. To view an organization chart, in the Siebel client, navigate to the Accounts screen, and then the Organization Analysis view. Siebel CRM displays the organization chart in the Account Organization Analysis Applet.

Siebel CRM uses the CSSFrameContactOrgChart class for predefined applets in an organization chart. It displays the following fields:

- Full Name
- Job Title
- Work Phone#

To require one or more fields to display in a given box of an organization chart, you can add a new list column for each field. For more information, see *Siebel Applications Administration Guide*.

### *To customize the organization analysis applet*

1. In Siebel Tools, in the Object Explorer, click Applet.
2. In the Applets list, locate the Account Organization Analysis Applet.
3. In the Object Explorer, expand the Applets tree, expand the List tree, and then click List Column.
4. In the List Columns list, add a new record using values from the following table.

| Property | Description |
|---|---|
| Name | Enter any text that describes the content of the field. |
| Field | Choose the field that contains the information for the contact that you must display in the organization chart. |
| Display Name - String Reference | Choose an appropriate value. |
| HTML Sequence | Enter a value to define the sequence in which Siebel CRM displays the field. A lower sequence causes the field to display higher in the box in the organization chart.<br><br>If you set the sequence, then make sure the ClientConfigurationMode parameter is not All. For more information, see "Setting Up the Configuration File for Siebel Tools" on page 195. |

5. Repeat Step 4 for each additional field that Siebel CRM must display in the applet.
6. Compile and test your changes.

   For more information, see *Using Siebel Tools*.

# 18 Configuring Lists and Pick Applets

This chapter describes how to configure lists and pick applets. It includes the following topics:



## About Lists and Pick Applets

This topic describes lists and pick applets. It includes the following topics:



A *list* is a type of user interface element that allows the user to choose values from a list to update a field instead of typing values into a field. You can define the following types of lists:

- **Static list.** Acquires data from the Siebel list of values table, which an administrator maintains. The data in the list of values table is static. For more information, see "Creating a List of Values" on page 463.
- **Dynamic list.** Acquires data from tables that the user maintains, such as S_CONTACT or S_ORG_EXT. The data in these tables are dynamic.

### About Static Lists

A *static list* is a type of list that displays a list of predefined values. If the user clicks the arrow that Siebel CRM displays to the right of a field in an applet, then Siebel CRM displays a list that contains a single column. The user chooses a value from the list, and then clicks Save to enter the value for the field. You can define the values in the list to store them in the list of values table.

A list can be bounded or unbounded:

- A *bounded list* is a type of list that allows the user to choose a value from the list only.
- An *unbounded list* is a type of list that allows the user to choose a value from the list or to type a value directly into the field.

You cannot delete the lookup value. You can set the field that the user chooses back to empty, unless it is required. Lead Quality is an example of a chosen field.

For more information, see "Using the Pick List Wizard to Create a Static List" on page 455 and "Creating a List of Values" on page 463.

## Viewing an Example of a Static List

You can view an example of a static list.

### *To view an example of a static list*

1. In the Siebel client, choose the Contacts screen.
2. Choose the Contacts List link.
3. Choose an existing record in the Contacts list.
4. Choose the Mr/Ms field.
5. Click the down arrow.

   The list that Siebel CRM displays is an example of a static list. It includes static values, such as Miss, Mr., Ms., Mrs. and Dr.

## How Siebel CRM Constructs a Static List

Figure 64 illustrates the relationships and objects that Siebel CRM uses to construct a static list.

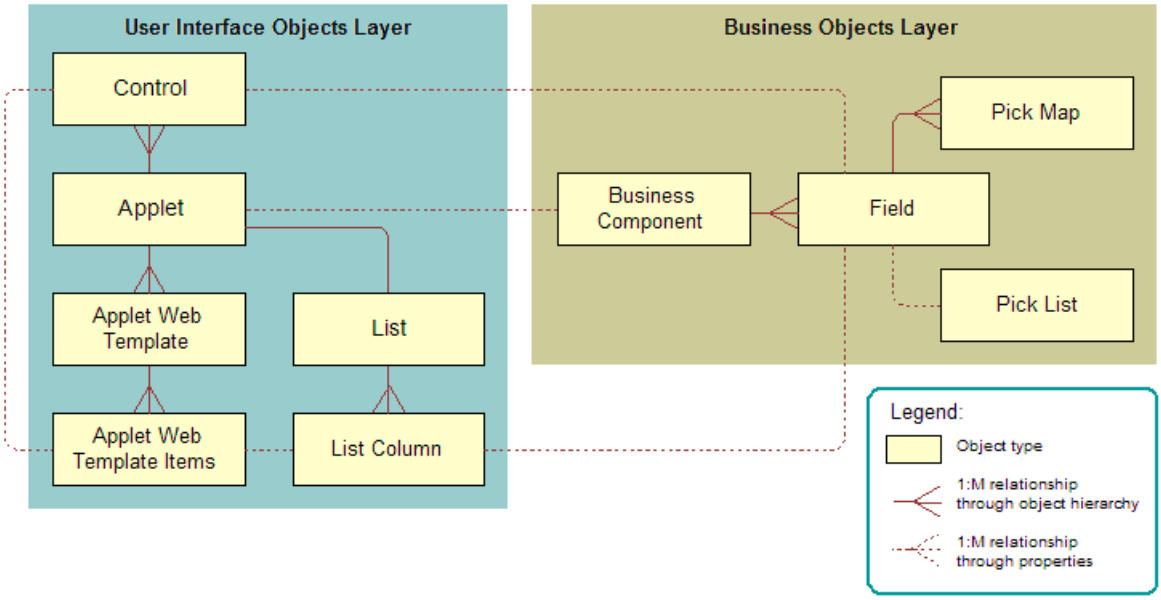



Figure 64. Relationships and Objects That Siebel CRM Uses to Construct a Static List

Figure 65 illustrates an example of how Siebel CRM constructs a static list. This example implements the Quality list that is illustrated in Figure 64 on page 438.

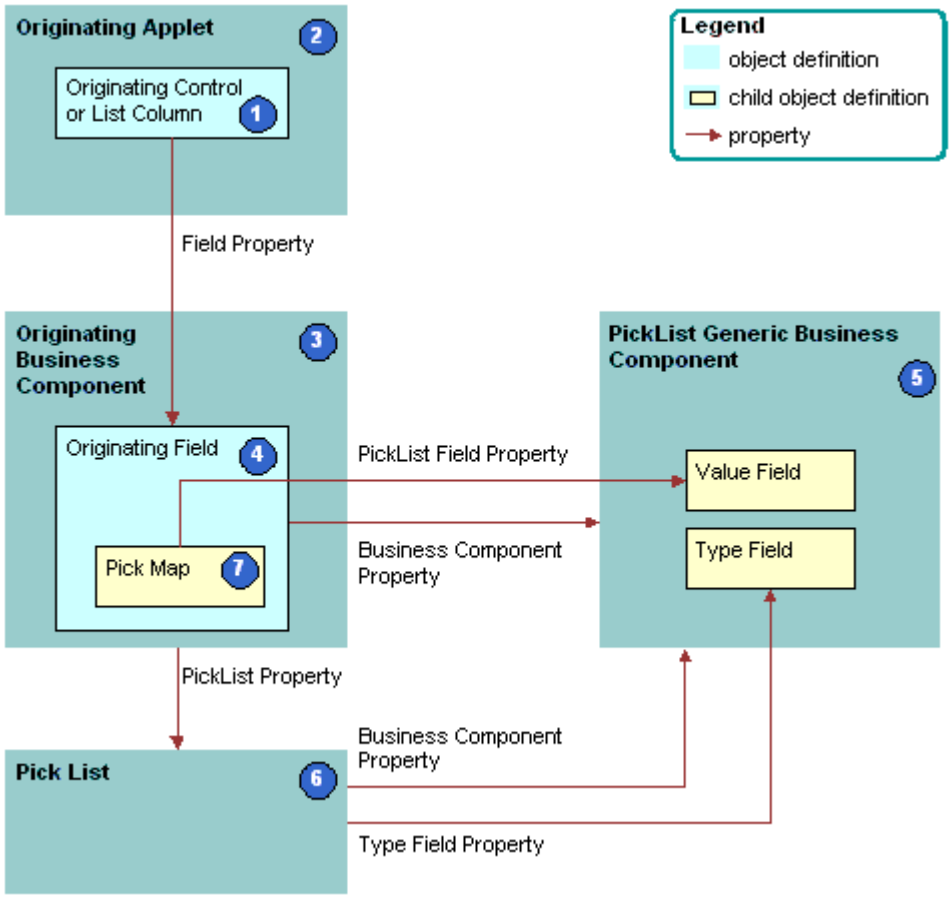



Figure 65. How Siebel CRM Constructs a Static List

Siebel CRM uses the following objects to construct a static list:

1 **Originating control or list column.** The control or list column that the user clicks to call the list. In this example, Quality is the originating control.

2 **Originating applet.** The applet that contains the originating control or list column. After the user chooses a value from the list, the originating control displays a revised value. In this example, the Opportunity form applet is the originating. The Business Component property of the originating applet identifies the originating business component.

3 **Originating business component.** Business component that the originating applet references. This business component supplies the data that Siebel CRM displays in the originating applet. Siebel CRM updates one field in the current record in this business component after the user chooses a value in the list. In this example, the Opportunity business component is the originating business component.

4 **Originating field.** Field in the originating business component that the originating control represents. This field typically contains one pick map child that defines how the field from the PickList Generic business component maps to the originating business component. In this example, Quality is the originating field.

5 **PickList Generic business component.** Business component that provides the lists in a static list. You use the List of Values view in the Administration - Data screen in the Siebel client to administer the PickList Generic business component. For more information, see "About the Picklist Generic Business Component" on page 440.

6 **Pick list.** Identifies the business component that the pick applet references and the field that provides data for the pick applet. This business component is always PickList Generic. In this example, the Pick List is named Picklist Quality. The field of the originating control references the list.

7 **Pick map.** Defines a relationship between the Value field in the PickList Generic business component and the originating field. If the user chooses a value from the list, then this relationship provides the information Siebel CRM requires to update the record in the current originating business component with information from the PickList Generic business component. The pick map is a child of the originating field.

8 **Sequence property.** Defines the sequence to update fields in the current record of the originating business component. Siebel CRM updates these fields with information from the pick business component. If you do not define sequence numbers on the pick map, then Siebel CRM updates fields in the order in which Siebel CRM created the fields.

## About the Picklist Generic Business Component

The PickList Generic business component is a specialized business component that Siebel CRM reserves for lists of values for static lists. The following fields in the Picklist Generic business component define and group the lists of values:

- **Type.** Groups together all records that are in one list of values. For example, the LEAD_QUALITY type identifies a record as a member of the Lead Quality list of values. Each list of values includes a type. For more information, see "Creating a List of Values" on page 463.
- **Value.** The value that Siebel CRM displays in the static list. For example, values for Lead Quality include Excellent, Very Good, High, Fair, and Poor.

Table 53 lists example data in the Picklist Generic business component.

Table 53. Example of Data in the Picklist Generic Business Component

| Type Field | Value Field |
|---|---|
| LEAD_QUALITY | Excellent |
| LEAD_QUALITY | Very Good |
| LEAD_QUALITY | High |
| LEAD_QUALITY | Fair |
| LEAD_QUALITY | Poor |

Table 53. Example of Data in the Picklist Generic Business Component

| Type Field | Value Field |
|---|---|
| PERSON_TITLE | Mr. |
| PERSON_TITLE | Ms. |
| PERSON_TITLE | Dr. |
| ACCOUNT_TYPE | Commercial |
| ACCOUNT_TYPE | Competitor |
| ACCOUNT_TYPE | Customer |

### Comparison of a Static List to a Dynamic List

A static list differs from a dynamic list in the following ways:

- Because a static list is a static list of values, it does not draw values dynamically from a pick business component. An administrator defines these values in the List of Values view in the Administration - Data screen.
- A static list typically does not call a dialog box with multiple list columns and buttons. Instead, it uses a simple pop-up list that contains one column and no buttons. Although it is possible to use a pick applet rather than a simple list to display a static list of values, Siebel CRM does not frequently use this technique.
- A static list does not provide data for multiple controls in the originating applet. It provides data for a single control in the applet and the corresponding field in the business component that the applet references.

For more information, see "About Dynamic Lists" on page 443, and "Creating a List of Values" on page 463.

## About Pick Applets

A *pick applet* is a type of applet that Siebel CRM calls if the user clicks the Select button that Siebel CRM displays next to certain fields. A pick applet contains a scrolling table that lists choices in one list column and more information in adjacent columns. Each row corresponds to a business component record in the pick business component. If the user chooses a row in the scrolling table and then clicks OK, then Siebel CRM hides the pick applet, and then enters data into the column cell and other controls and cells in the originating applet. This data includes information according to the choice the user makes in the pick applet. For more information, see "Using the Pick Applet Wizard to Create a Pick Applet" on page 458.

## Example of a Pick Applet

Assume the user navigates to the Opportunities screen, and then clicks Select in the Account field in the Opportunity Form applet. Siebel CRM displays the Pick Account dialog box. This dialog box is a pick applet. The user then chooses an account and clicks OK. Siebel CRM hides the Pick Account dialog box and then enters data into the Account field in the Opportunity Form applet. This data includes the account that the user chose in the Pick Account dialog box. Siebel CRM might also update other fields and controls, such as the Site field. Siebel CRM enters data into the Account and Site fields only if a pick map is defined.

## How Siebel CRM Constructs a Pick Applet

Figure 66 illustrates how Siebel CRM constructs a pick applet.

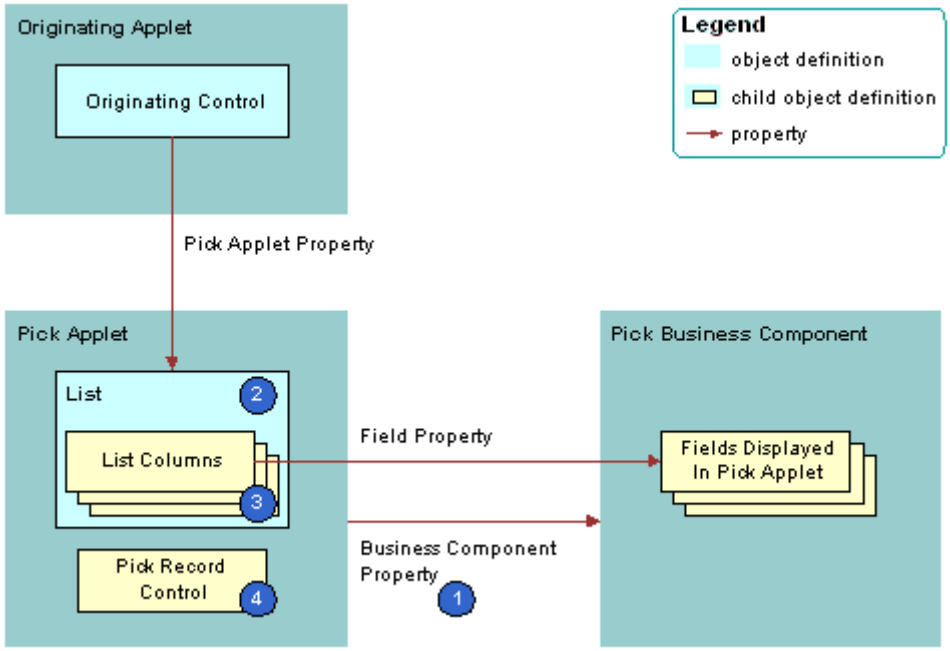



Figure 66. How Siebel CRM Constructs a Pick Applet

The pick applet is a child of the applet object type. It includes the following important properties:

1 **Business component.** Identifies the business component.

- **Class.** Set to CSSFrameList, which indicates that this is a list applet.
- **Type.** Set to Pick List, which indicates that this is a pick applet. This property determines the behavior of the dialog box and button controls.
- **Title.** Set to the name of the pick applet that Siebel CRM displays in the title bar.

The pick applet includes the following important child objects:

2 **List.** List columns that Siebel CRM attaches to the list.

3 **List columns.** Each list column displays the contents of one field in the business component.

4 **Pick Record control.** Calls the PickRecord method if clicked. The PickRecord method locates the pick map child objects of the originating field. The PickRecord method uses these child objects to determine which fields to update in the originating business component. The record that the user chooses from the pick business component determines how Siebel CRM updates these fields.

- **Web templates.** Defines the layout for each of the defined modes. Example layout includes the position of the list columns and controls.
- **Web template items.** Maps list columns and controls to placeholders in the web template. Web template items exist for each list column and control that is defined for the applet.

### Pick Applet Usage in Query Mode

If a pick map operates in query mode, then the fields that Siebel CRM copies includes the source field that the following items use:

- The list
- Any other list field that is part of the primary key

The source field is the business component field that the Business Component property of the list defines. Because Siebel CRM uses multiple fields for the query, it is not possible to only copy back a single field.

For example, assume the user performs a query through the list that Siebel CRM displays for the Parent Account Name field of the account list in the Account screen. Siebel CRM uses the name and location for the query because these fields are part of the U1 index of the underlying S_ORG_EXT table. The Location field is a primary key field for the Account business component and Siebel CRM includes it in the query.

You can define a pick applet so that Siebel CRM correctly enters data into the Subarea field according to the choice that the user makes, such as the Area field of the Service Request Detail Applet. You can use this technique in edit mode but not in query mode. For more information, see “Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data” on page 118 and “Creating a Hierarchical List” on page 462.

## About Dynamic Lists

This topic describes the dynamic list. It includes the following topics:

Similar to a static list, a *dynamic* list is a type of list that allows the user to choose a value from a list, and then Siebel CRM uses the value to update a field. Rather than drawing the values from the list of values table, a dynamic list draws values from another business component that the user maintains. A field that uses a dynamic list is typically a joined field that displays data from a table other than the base table of the business component. The dynamic list allows the user to update the joined field.

You use a pick applet to display a dynamic list in the Siebel client. The pick applet allows the user to choose a value from a list and then enter the value into a control or the cell of a list column. In end-user documentation, a pick applet is referred to as a dialog box. For more information, see "Using the Pick List Wizard to Create a Dynamic List" on page 459.

## Example of How Data Flows in a Pick Applet

Figure 67. illustrates how data in the pick applet typically originates from a different business component than the business component that supplies data to the originating applet.

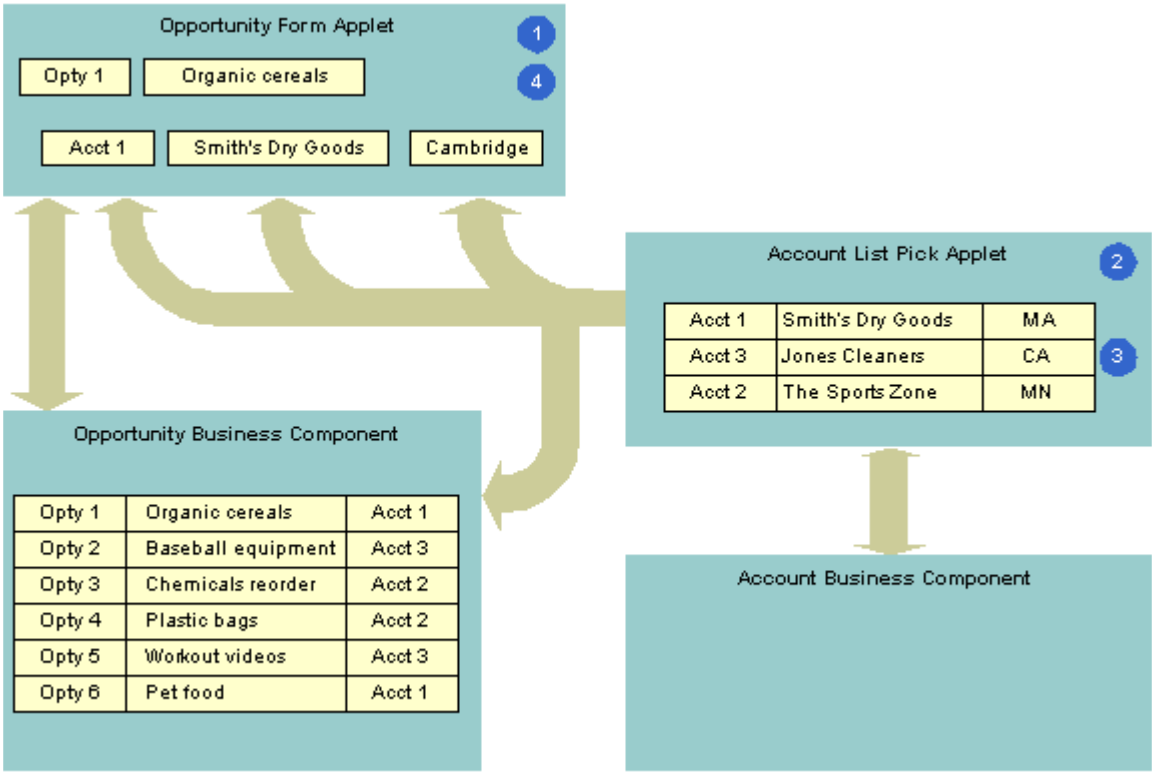



Figure 67. Example of How Data Flows in a Pick Applet

The following steps occur in this example:

1 In the Opportunity Form applet, the user enters information for the Organic Cereals opportunity, and then clicks Select.

2 Siebel CRM displays the Account List pick applet and displays rows from the Account business component.

3 The user chooses Account 1, Smith's Dry Goods, and then clicks OK.

4 Siebel CRM enters Account data for Smith's Dry Goods into the Opportunity Form applet.

A dynamic list maintains the foreign keys that facilitate a join relationship. In the opportunity and account example, a foreign key in the Opportunity business component identifies the account for each opportunity. If the user chooses an account in the pick applet, then Siebel CRM enters data into this foreign key field. This choice associates the account with this opportunity for future use by the join that uses the foreign key. For example, if the user chooses a record in the pick applet, then Siebel CRM copies values in certain list columns in the chosen record to corresponding list columns in the originating applet. In this example, the user chooses a parent account for an account record.

## How Siebel CRM Constructs a Dynamic List

Figure 68 illustrates the relationships between object types that Siebel CRM uses to construct a dynamic list.

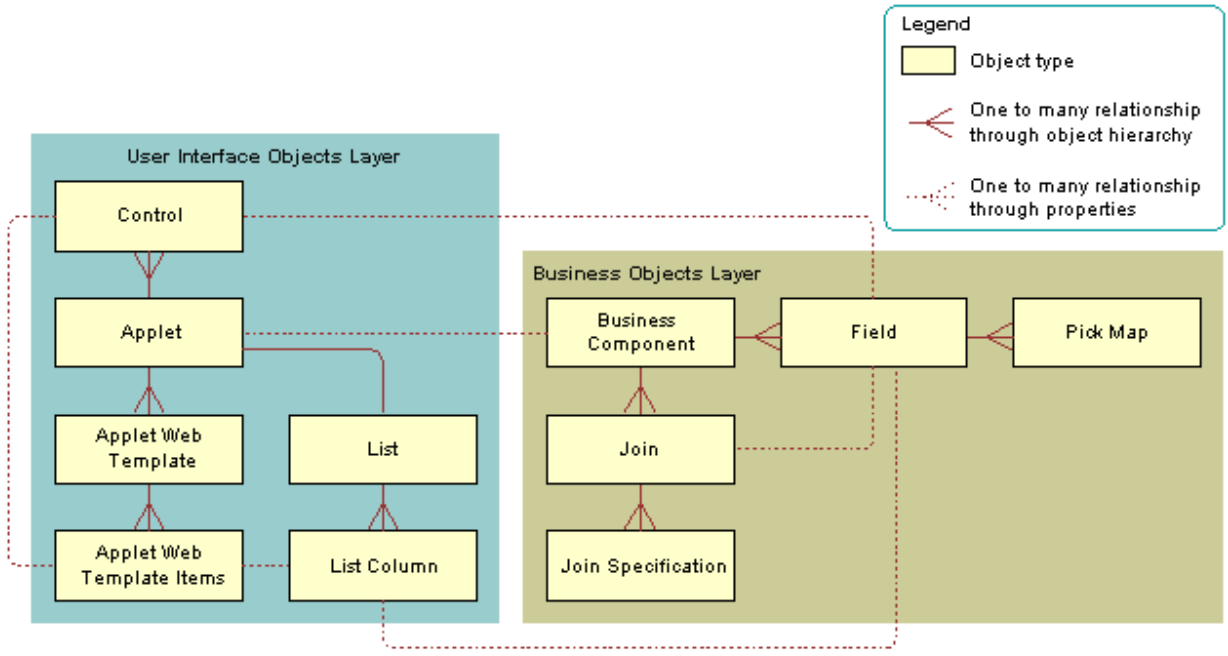



Figure 68. Relationships Between Object Types That Siebel CRM Uses to Construct a Dynamic List

Figure 69 illustrates the objects that Siebel CRM uses to construct a dynamic list.

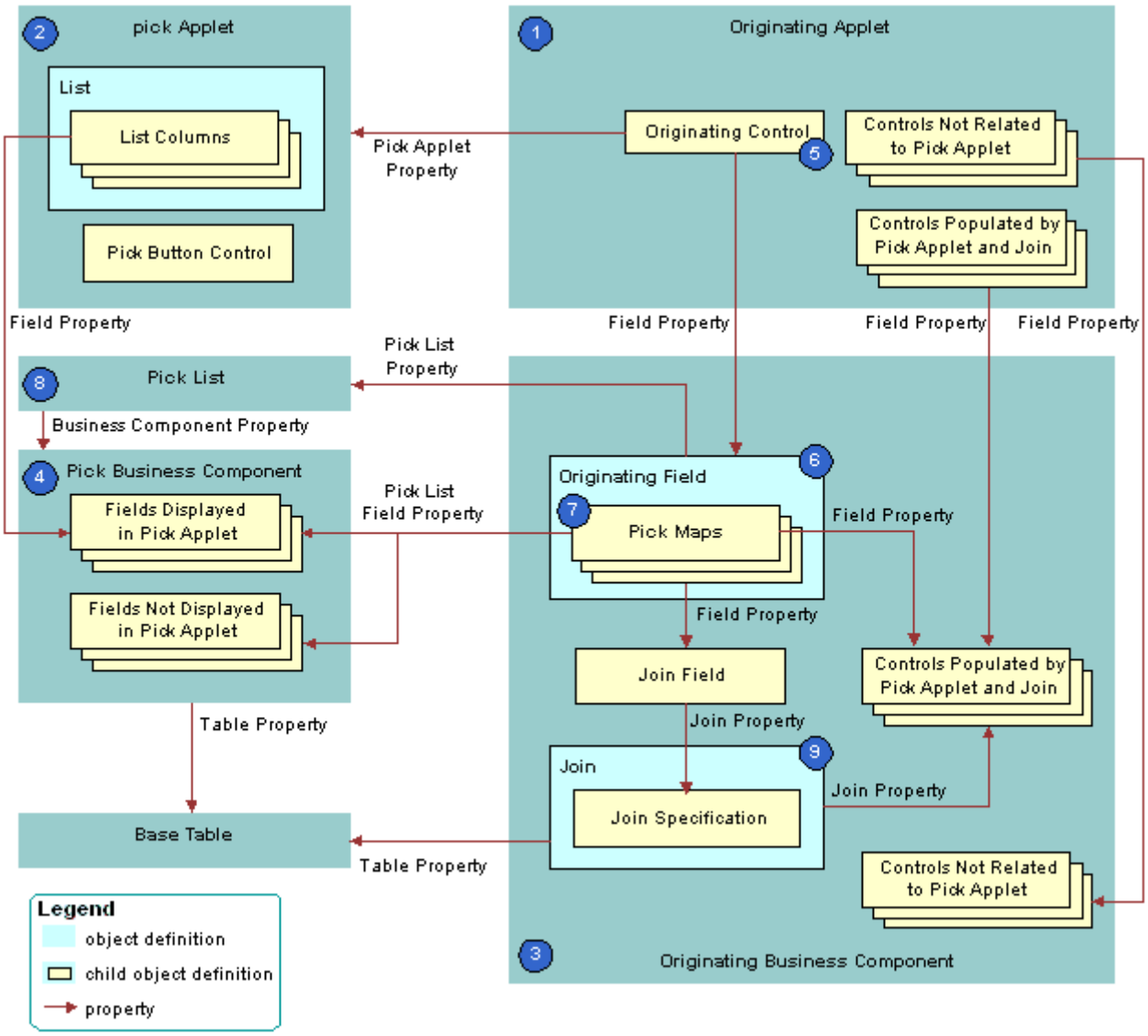



Figure 69. Objects That Siebel CRM Uses to Construct a Dynamic List

Siebel CRM uses the following objects to construct a dynamic list:

1 **Originating applet.** Contains the control or list column that calls the pick applet. After Siebel CRM calls the pick applet and chooses a value, it displays revised values in specific controls in the originating applet. In the example, the Opportunity Form Applet is the originating applet. For more information, see "Originating Applet of a Dynamic List" on page 448.

2 **Pick applet.** Dialog box that Siebel CRM calls to choose a value. The dialog box is a list applet that contains a scrolling list table of rows. Each row corresponds to a business component record. In the example, the Account applet is the pick applet.

3 **Originating business component.** Business component of the originating applet. This business component supplies the data Siebel CRM presents in the originating applet. The selection process in the pick applet causes Siebel CRM to update the current record in this business component. In the example, the Opportunity business component is the business component of the originating applet, and the Opportunity Form Applet is the originating applet.

4 **Pick business component.** Business component of the pick applet. Data from fields in this business component display in the list columns of the pick applet. In the example, the Account business component is the pick business component.

5 **Originating control or originating list column.** If the user clicks the originating control or list column, then the originating control or list column calls the pick applet. In the example, the Account control is the originating control.

6 **Originating field.** Field in the originating business component that the originating control references. It includes child pick maps that define how Siebel CRM maps fields from the pick business component to the originating business component. In the example, the Account field is the originating field.

7 **Pick maps.** Each pick map defines a relationship between a field in the pick business component and a field in the originating business component. If the user chooses a record, then these relationships provide the information that Siebel CRM requires to update the current, originating business component record with information from the pick business component record.

   If the user chooses a value from an unbounded list, then Siebel CRM uses the corresponding pick map that references the same field to copy the value to the field with which the list is associated. If the list is bounded, then Siebel CRM only enters data into fields that are associated with other child pick maps.

   **NOTE:** Typing a new value into an unbounded list does not automatically result in Siebel CRM displaying the value in the list of values that the user can choose. Siebel CRM does not update fields in a pick map if the user chooses a value from an unbounded list. An applet that references the CSSBuscomp or the CSSBCBase class with an unbounded list does not map all the values in the pick map. To map all the values in a pick map, the list must be bounded.

8 **Pick list.** References the business component of the pick applet. In the example, the PickList Opportunity Account pick list is the list.

9 **Join and join specification.** The join is a child of the originating business component. The join specification is a child of the join. The join field references this child object. One of the pick maps updates the join field. If a value in the join field changes, then Siebel CRM updates all fields whose values it derives from the join. This update is not as immediate as the update that Siebel CRM performs through the pick map. If the other pick maps are absent, then Siebel CRM does not update the data until the user navigates away from the view and then returns to the view. In the example, S_ORG_EXT is the join and Account Id is the join specification.

## Originating Applet of a Dynamic List

The originating applet contains the control or list column that calls the pick applet. It can also contain other controls or list columns into which Siebel CRM enters data if the user chooses a value from the list applet. The originating applet does not require special configuration.

Figure 70 illustrates the details of the originating applet that is included in Figure 68 on page 445.

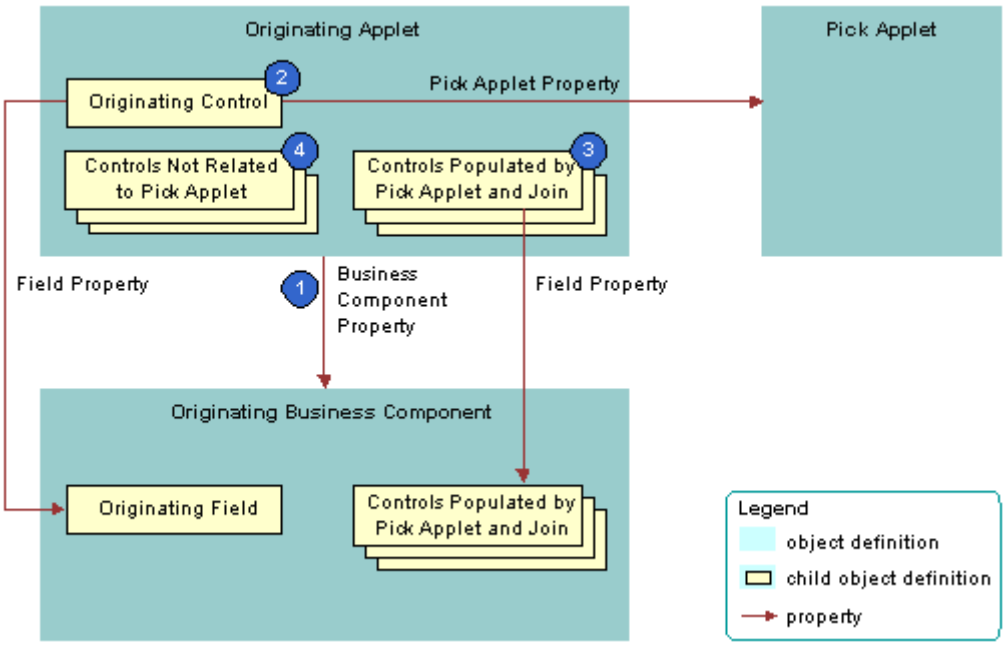



Figure 70. Originating Applet of a Dynamic List

Siebel CRM uses the following objects in the originating applet of a dynamic list:

1. **Business component property.** Creates the association between the originating applet and the originating business component.
2. **Originating control.** Calls the pick applet if the user clicks the arrow. The name of the pick applet is defined in the Pick Applet property of the originating control. The originating field is defined in the Field property of the originating control. It includes definitions for the pick map child object. For more information, see "Originating Business Component of a Dynamic List" on page 449.

   The Runtime property of the control or list column must be TRUE.
3. **Controls that contain data from a pick applet and join.** If the user chooses a value from the pick applet, then Siebel CRM updates each control that contains data from a pick applet and join.
4. **Controls not related to pick applet.** Other controls in the applet.

## Originating Business Component of a Dynamic List

The originating business component of a dynamic list is the business component that the Business Component property of the originating applet references. This business component supplies the data that Siebel CRM displays in the originating applet.

Figure 71 illustrates how the originating business component of a dynamic list is defined. This list is described in "Originating Applet of a Dynamic List" on page 448.

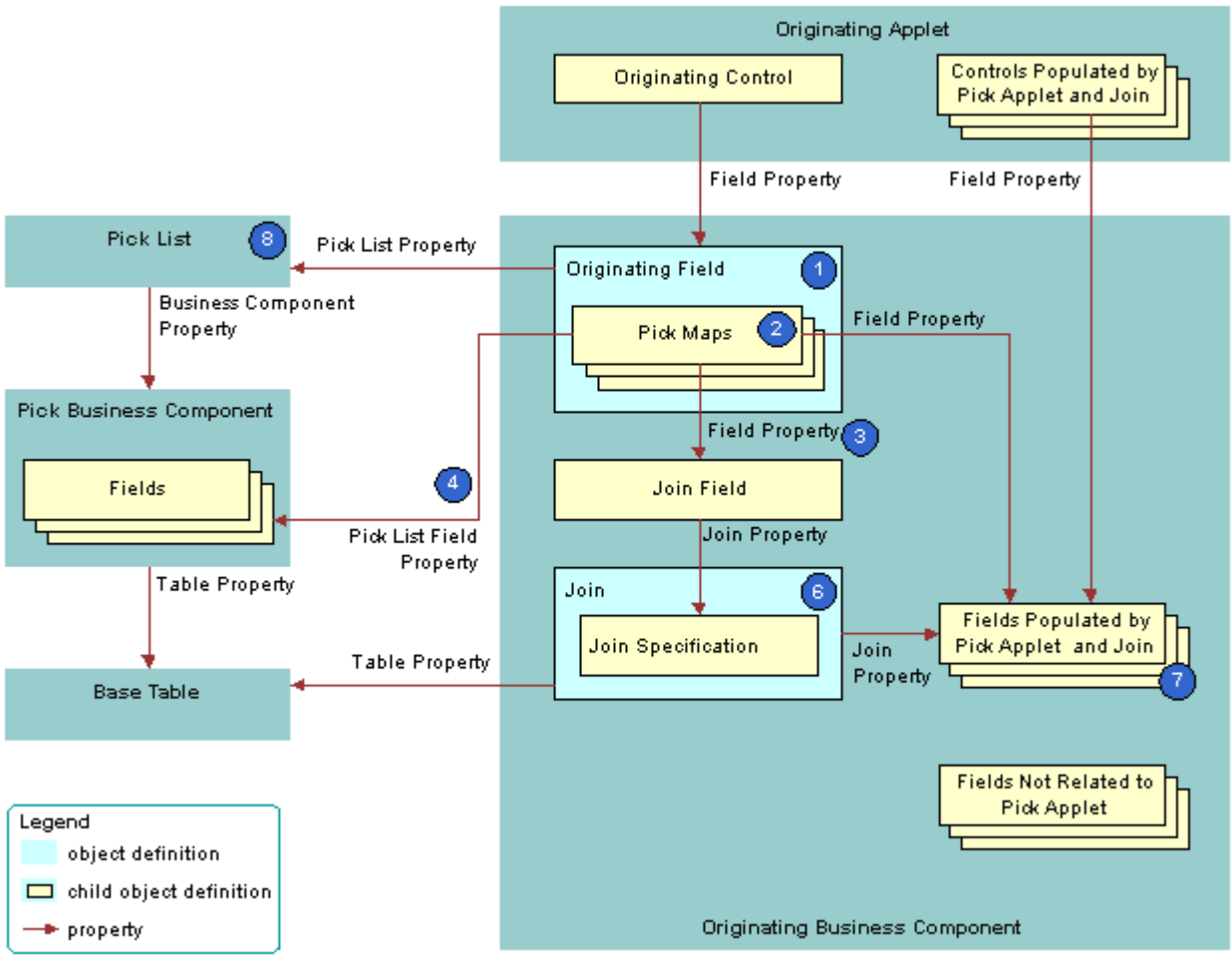



Figure 71. Originating Business Component of a Dynamic List

Siebel CRM uses the following objects in the originating business component of a dynamic list:

1 **Originating field.** Provides data to the originating control. The originating field is the parent of the pick map. The Pick List property of the field specifies the pick list. Because a pick map is a child of an originating field, it supports pick applets on more than one field in the business component.

   The originating field must reference a database column. You cannot associate a pick applet or list with a read-only field, including a calculated field.

2 **Pick maps.** Creates a relationship between a field in the pick business component and a field in the originating business component. This relationship provides the information that Siebel CRM requires to update the active record of the originating business component with information from the pick business component. Because one of the pick maps updates the join field, the join updates the business component fields that depend on the join.

   It is recommended that you test your pick map after you create it. If the value in the originating field remains the same after you choose a value from the pick applet, then you must check the pick map definition for that field.

3 **Field property.** Identifies a field in the originating business component that contains data from a field in the pick business component when Siebel CRM calls the PickRecord method.

4 **Pick List Field property.** Identifies a field in the pick business component that provides data for the field in the Field property of the pick map. Note the following behavior:

   - If the user picks a value from an unbounded list, then Siebel CRM updates the fields in the pick map.
   - If the user types in a new value, then Siebel CRM does not update fields in the pick map.
   - If the user types a new value into a field that references an unbounded list, then Siebel CRM does *not* automatically add the value to the list of values that the user can choose.

   Do not define more than one multi-value field in an originating business component that references the same destination field that the pick applet references in the Pick List Field Property. If you use this technique, then Siebel CRM does not display the arrow for the list and the user cannot use the list. For more information, see "About the Multi-Value Field" on page 100.

5 **Join field.** Serves as a foreign key in the join that the pick applet references. Typically, the Id is included in the name of the join field, such as Account Id or Key Contact Id. It is defined in the Source Field property of the join specification. The join field is one of the fields defined in a pick map. If the user chooses a record from the pick applet, then Siebel CRM updates the join field and all fields that reference the join.

   **NOTE:** The pick maps initially update fields in the originating business component and the controls or list columns that reference these fields. The join and join specification do not update the contents of the applet until the user navigates away from the view and then returns to the view.

6 **Join and join specification.** Sets up the join between the base table of the originating business component and the base table of the pick business component. Siebel CRM uses this join to update fields in the originating business component that include the name of the join in the Join property of the field.

7 **Fields that derive data from the pick applet and join.** If Siebel CRM changes the value in the join field, then Siebel CRM updates fields that include the name of the join in the Join property. If the user chooses a value from the pick applet, then Siebel CRM updates fields that are defined in the Field property of the pick maps.

   Although a pick map and a join update the same fields, an update that involves a pick map is immediate. An update that involves a join is somewhat delayed. if the user picks a record, then a pick map can update the display value of a joined field. For example, with the Account Name joined field. A pick map does not physically copy a value to the joined fields. It only writes to the foreign key field. For example, Account Id.

8 **Pick list.** The field of the originating control references the pick list. The Business Component property of the pick list references the pick business component.

**NOTE:** If you define a pick applet that a multi-value group applet calls, then define the list and the pick maps on the originating field in the originating business component. Do not define the list and the pick maps on fields in the child business component that the multi-value group applet references. For more information, see "How Siebel CRM Constructs a Multi-Value Group" on page 474.

## How Siebel CRM Constrains a Dynamic List

You can dynamically filter a pick applet to display only records that include a field value that matches a corresponding field in a record of the originating business component. This technique is known as *constraining a list*. For example, you can define the pick applet for a contact that an applet that displays quotes calls so that the pick applet only displays contacts that are associated with the account for the current quote. For more information, see "Example of Constraining a Dynamic List" on page 461.

Figure 72 illustrates how Siebel CRM constrains a dynamic list. It illustrates the details of the pick business component that is included in Figure 68 on page 445.

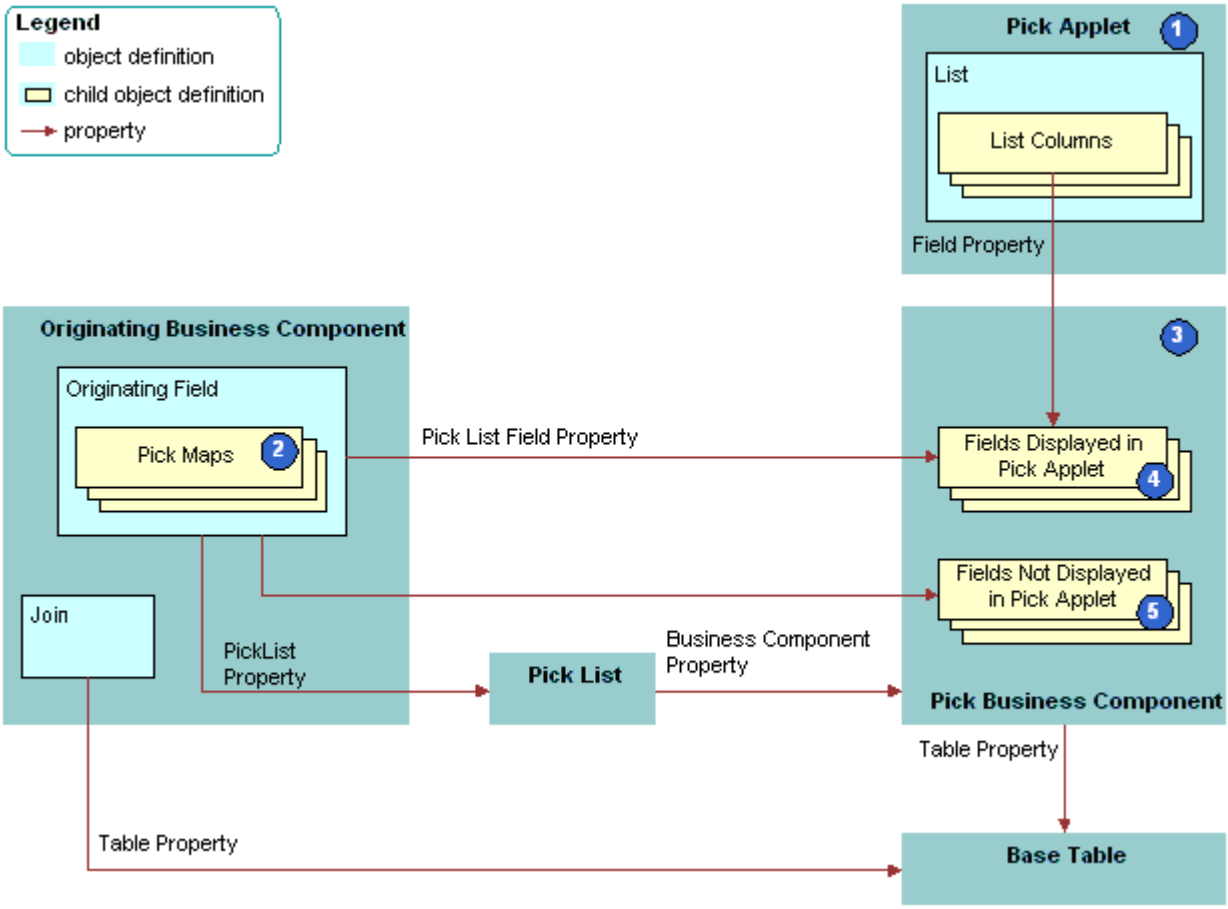



Figure 72. How Siebel CRM Constrains a Dynamic List

Siebel CRM uses the following objects to constrain a dynamic list:

1. **Pick applet.** Displays only contacts that contain the same account, account Id, and account location as the quote. To accomplish this, you define a constraint pick map as a child of the Contact Last Name field. This is in addition to the predefined copy pick map object definitions that define pick behavior.
2. **Pick map.** The following types of pick maps are available:
   - **Copy pick map**. Updates the current record in the originating business component with information from the pick business component. For more information, see "Originating Business Component of a Dynamic List" on page 449.

- **Constraint pick map**. Displays only those records that contain a matching value in a corresponding field in the originating and the pick business component. A constraint pick map causes Siebel CRM to filter the records that it displays in the pick applet. For more information, see "Constraint Pick Map Acts as a Predefault Value" on page 453.

If the Constrain property of the pick map is:

- TRUE, then the pick map is a constraint pick map.
- FALSE, then the pick map is a copy pick map.

3. **Pick business component.** The business component that the pick applet references. Siebel CRM displays data from fields in this business component in the list columns of the pick applet.
4. **Fields displayed in the pick applet.** Enters data into the list columns in the pick applet. The Field property of the corresponding list columns in the pick applet reference these list columns. Because Siebel CRM includes some of the same fields in the Pick List Field property of Pick Map object definitions, these fields have a role in updating corresponding fields in the originating business component.
5. **Fields not displayed in the pick applet.** Although not displayed in list columns in the pick applet, Siebel CRM includes some of these fields in the Pick List Field property of the object definitions for a Pick Map. Therefore, such fields have a role in updating corresponding fields in the originating business component.

### Constraint Pick Map Acts as a Predefault Value

A constraint pick map uses the new record that Siebel CRM adds from a pick applet as a predefault value. For example, assume the user chooses a record in the Quotes list to which an account is already associated, and then clicks the Opportunities control in the form for the quote. The user then adds a new opportunity in the Pick Opportunity dialog box with no account included. Siebel CRM automatically assigns the new opportunity to the constrained account. This situation occurs if the Constrain property of the Account Id pick map of the Opportunity field in the Quote business component is TRUE.

### Foreign Key Field Must Be Constrained

If the constrained field references a joined table in the pick business component, then the foreign key field must also be constrained. If the foreign key field is not constrained in this situation, and if the user creates a new record in the pick applet, then Siebel CRM displays an error that is similar to the following: `This operation is not available for read-only field`.

## About Hierarchical Lists

A hierarchical list displays values that are constrained by the value that the user chooses in another list. For example, in the Service Request Detail Applet, the Area and Subarea fields are lists that derive their values from the S_LST_OF_VAL list of values table. The value that the user chooses in the Area list determines the values that Siebel CRM displays in the Subarea list. For more information, see "Creating a Hierarchical List" on page 462.

The list of values table establishes the hierarchical relationship between these values. Siebel CRM uses the same LOV Type to determine the values for the lists in the hierarchy. For example, for Area and Subarea, the LOV Type named SR_AREA determines the values. For more information, see "Creating a List of Values" on page 463.

## How Siebel CRM Establishes a Hierarchy

Siebel CRM uses the Parent LIC (language-independent code) field to define a parent value. For example, consider the example list of values described in Table 54.

Table 54. Example List of Values for a Hierarchical List

| Type | Display Value | Language Independent Code | Parent LIC |
|---|---|---|---|
| SAMPLE_LOV | 1 | 1 | None |
| SAMPLE_LOV | A | A | 1 |
| SAMPLE_LOV | B | B | 1 |
| SAMPLE_LOV | 2 | 2 | None |
| SAMPLE_LOV | C | C | 2 |
| SAMPLE_LOV | D | D | 2 |

Assume Siebel CRM displays the values listed in Table 54 in the following lists in a hierarchical relationship:

- **Parent list.** Displays the values 1 and 2.
- **Child list.** Displays values depending on which value the user chooses in the parent list:
  - If the user chooses 1 in the parent list, then Siebel CRM displays the values A and B in the child list.
  - If the user chooses 2 in the parent list, then Siebel CRM displays the values C and D in the child list.

For more information, see "Creating a List of Values" on page 463.

## Creating a Hierarchical List of Values

You can create a hierarchical list of values.

### *To create a hierarchical list of values*

- Configure the following lists:
  - Configure the parent list to reference the PickList Hierarchical business component.
  - Configure the child list to reference the PickList Hierarchical Sub-Area business component.

# Customizing Lists and Pick Applets

This topic describes how to customize lists and pick applets. It includes the following topics:



## Using the Pick List Wizard to Create a Static List

You can use the Pick List Wizard to create a static list.

### *To use the Pick List Wizard to create a static list*

1. In Siebel Tools, choose the File menu, and then the New Object menu item.
2. Choose the Pick List icon, and then click OK.
3. In the Pick List dialog box, enter the following information, and then click Next:
   - Project.
   - Business Component. Choose the originating business component. This is the parent business component of the field whose values display in the list.
   - Field.
4. In the Pick List Type dialog box, choose Static, and then click Next.
5. In the Pick List Definition dialog box, do one of the following:
   - If you must create a new list, then choose Create New Pick List, and then click Next.
   - If you must use a predefined list, then choose the list and the associated list of values you must use, click Next, and then proceed to Step 8.
6. If you must create a new list of values (LOV), then do the following:
   a. Enter a unique name for the list.
   b. Choose Create New List of Values, and then click Next.
   c. In the List of Values dialog box, enter a name for the list of values, and then enter the values.

      For more information, see "Creating a List of Values" on page 463 and *Siebel Applications Administration Guide*.

   d. Click Next.
7. If you must use a predefined list of values, then do the following:

a Enter a unique name for the list.

b Choose the Use Predetermined List of Values option.

c Choose the List of Values Type, and then click Next.

d In the third Pick List Definition dialog box, enter a search specification and a comment, and then choose to bind or not bind the list. For more information, see "Options to Filter Data Displayed in an Applet" on page 120.

e Click Next.

8 In the Finish dialog box, review the specifications for the list, and then click Finish.

## Creating a Static List Manually

It is highly recommended that you use the Pick List Wizard to create a static list. However, you can create a static list manually. For more information, see "Using the Pick List Wizard to Create a Static List" on page 455 and "How Siebel CRM Constructs a Static List" on page 438.

### *To create a static list manually*

1 In Siebel Tools, click Applet in the Object Explorer.

2 In the Applets list, locate the originating applet.

3 In the Object Explorer, expand the Applet tree, and then choose Control.

4 In the Controls list, add an originating control using values from the following table.

| Property | Description |
|---|---|
| Field | Specify the originating field that resides in the originating business component. |
| Pick Applet | Leave empty. |
| Runtime | Set to TRUE. This setting indicates that Siebel CRM attaches and activates a static list if the user clicks the control or list column. |

5 Click Business Component in the Object Explorer, and then locate the originating business component in the Business Components list.

6 In the Object Explorer, expand the Business Component tree, click Field, locate the originating field in the Fields list, and then modify the field using values from the following table.

| Property | Description |
|---|---|
| PickList | Specify the pick list. |

**NOTE:** If the originating field is a custom field, then make sure that it can accommodate the LOV table values. If the originating field is shorter than the values that exist in the LOV table, then Siebel CRM truncates the values from the LOV table when it displays these values in the Siebel client or when it stores them in the Siebel database.

7 In the Object Explorer, expand the Field tree, click Pick Map, and then add a pick map in the Pick Maps list using values from the following table:

| Property | Description |
|---|---|
| Field | Choose the originating field. |
| Pick List Field | Enter Value.<br>This value references the Value field in the PickList Generic business component. |

8 If you use a multiple column selection list, then configure more pick maps, as required.

9 In the Object Explorer, click Pick List, and then create a new pick list in the Pick Lists list using values from the following table.

| Property | Description |
|---|---|
| Business Component | Choose PickList Generic.<br>This value indicates that Siebel CRM derives the list of values from a system table. For more information, see "About the Picklist Generic Business Component" on page 440. |
| Type Field | Choose Type.<br>This value instructs Siebel CRM to search the Type field in the PickList Generic business component for types. Each list of values includes a type that uniquely identifies the list and each value in the list. |
| Type Value | Enter the relevant type for the list of values.<br>For example, the values that display in the Lead Quality list in Table 53 on page 440 include a Type Value property whose value is LEAD_QUALITY. |
| Search Specification | In most situations, leave the Search Specification property empty. For more information, see "How Siebel CRM Handles a Hierarchy of Search Specifications" on page 122. |

| Property | Description |
|---|---|
| Sort Specification | Do one of the following:<br>■ To use the sort specification that is defined for the business component, leave the Sort Specification property empty.<br>■ To override the sort specification that is defined for the business component, define a value in the Sort Specification property.<br>For more information, see "Creating a Sort Specification for a Static List" on page 458. |
| No Insert | Make sure the No Insert property contains a check mark.<br>If the No Insert property does not contain a check mark, then Siebel CRM generates an error that is similar to `Unable to create list popup applet`. |

### Creating a Sort Specification for a Static List

You can define a Sort Specification on a list to override the sort specification that is defined on the business component. Because the default value for the Sort Specification property in a list is empty, Siebel CRM uses the sort that is defined on the business component. By default, Siebel CRM uses the Order By field in a Type to sort the list of values in ascending order. If the Order By values are empty, then Siebel CRM sorts the entries for the Type alphabetically in ascending order according to the Value field.

You can specify a sort specification on a static list to change this behavior. This change applies only to the static list. A sort specification on a list object sorts values in the static list that references the list of values in the PickList Generic business component. For more information, see "How a Business Component Sorts Records" on page 78.

## Using the Pick Applet Wizard to Create a Pick Applet

You can use a predefined pick applet to display a dynamic list in the Siebel client. You can also use the Pick Applet Wizard to create a custom list.

#### *To use the Pick Applet Wizard to define a pick applet*

1. Choose the File menu, and then choose the New Object menu item.
2. Click the Applets tab, click the Pick Applet icon, and then click OK.
3. In the General dialog box, define the following properties, and then click Next:
   - Project.
   - Pick business component.
   - Name for the Picklist Applet:
     - Use the following format to name a pick a applet: *business component name* Pick Applet.

- Use the following format to name an association applet: *business component name* Assoc Applet.

- Display Name.

4 In the Web Layout General dialog box, choose the templates to use for the Base and Edit List modes, and then click Next.

For more information, see "Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data" on page 118.

5 In the Web Layout - Fields dialog box, choose the fields that Siebel CRM must display in the pick applet, and then click Next.

6 In the Second Web Layout - Fields dialog box, choose the controls that Siebel CRM must display in the pick applet, and then click Next.

By default, Siebel Tools displays all controls in the Selected Controls. These controls reference the Model Pick Applet in the Siebel repository. To move a control to the Available Controls window, choose the control, and then click the left arrow.

7 In the Finish dialog box, review the information, and then click Finish.

The Pick Applet Wizard creates the pick applet object, and then opens the Web Layout editor that you can use to map list columns and controls to placeholders in the web template.

For more information, see "Configuring Applet Layouts" on page 311.

## Using the Pick List Wizard to Create a Dynamic List

You can use the Pick List Wizard to create a dynamic list and related objects. These objects include the following:

- **Pick List.** Defines the properties of the list, including the originating business component and the pick business component. For more information, see "How Siebel CRM Constructs a Dynamic List" on page 445.
- **Pick Map.** Child object of a business component field that maps the source field in the pick business component with the target field in the originating business component.
- **Pick Applet.** Pop-up applet that allows you to display the list of records from which the user can choose a value.

**NOTE:** The values of the Visibility Type and Visibility Auto All properties of the list object override the pop-up visibility properties on the business component. For more information, see *Siebel Security Guide*.

### *To use the Pick List Wizard to create a dynamic list*

1 In Siebel Tools, choose the File menu, and then choose the New Object menu item.

2 Choose the Pick List icon, and then click OK.

3 In the Pick List dialog box, enter the following information and then click Next.

- Project.
- Business Component. Define the originating business component. This is the parent business component of the field that displays the list.
- Field.

4 In the Pick List Type dialog box, choose Dynamic.

Note the following:

- A static list derives values from a predefined list of values.
- A dynamic lists derives values from a business component.

For more information, see "Using the Pick List Wizard to Create a Static List" on page 455.

5 In the Pick List Definition dialog box, choose to use a new list or a predefined list:

- If you must create a new list, then do the following:
  - Choose Create a New Pick List.
  - Click Next, and then proceed to Step 6.
- If you must use a predefined list, then do the following:
  - Choose Use Existing Pick List.
  - Choose the predefined list from the Existing Pick Lists window.
  - Click Next, and then proceed to Step 8.

6 In the Pick List Definition dialog box, enter information using values from the following table, and then click Next.

| Property | Description |
|---|---|
| Business component | Choose the pick business component. |
| Business component field | Choose the field that Siebel CRM must use to sort the list. |
| Name | Enter a name for the new PickList object. Use the following format:<br>ABC PickList *entity*<br>It is not necessary to repeat the entity name if the name already includes a prefix. For example, a PickList object that reference the MS Subsegment business component is ABC PickList Subsegment. It is not MS PickList MS Subsegment. |
| Search specification | As an option, you can specify a search specification. For more information, see "Options to Filter Data Displayed in an Applet" on page 120. |

7 In the Pick List Specifications dialog box, define the actions, such as No Delete, that the user can perform on Siebel data.

You can leave all options without a check mark.

8 In the Pick Map dialog box, do the following:

   a Choose the source field in the originating business component.

   b Choose the target field in the pick business component.

   c Click Add.

9 Click Next, verify the information in the Finish Dialog box, and then click Finish.

## Example of Constraining a Dynamic List

This topic describes one example of constraining a dynamic list. You might use this feature differently, depending on your business model.

The Constrain property of the pick map defines a constraint for a pick applet. For example, to configure a Country list to display only states that are part of that country, you must indicate the relationship between each state and the country in which the state resides.

After the user chooses a value from the Country list, Siebel CRM displays the State list. The value that the user chooses from the Country list constrains the values in the State list. To filter the values that it displays in the State list, Siebel CRM uses the value that the user chooses from the Country list. In the State list, Siebel CRM only displays values if the Description field contains the value that the user chooses from the Country list.

### *To constrain a dynamic list*

1 To define the constraint, do one of the following:

- Use the predefined Description field in the Picklist Generic business component.
- Extend the table and use a new column.

2 To update the Description field with valid country values, do one of the following:

- Do the following in the Siebel client:
  - Navigate to the Administration-Data screen, List Of Values view.
  - Enter valid country values in the Description field.
- Do the following in Siebel Tools:
  - In the Object Explorer, choose Business Component, and then locate the Account business component in the Accounts list.
  - In the Object Explorer, expand the Business Component tree, choose Field, and then locate the State field in the Fields list.
  - In the Object Explorer, expand the Field tree, and then choose Pick Map.

- In the Pick Maps list, add a new record using values from the following table.

| Property | Value |
|---|---|
| Field | Country |
| Constrain | True |
| Pick List Field | Description |

## Creating a Hierarchical List

This topic describes how to create a hierarchical list.

### *To create a hierarchical list*

1. In Siebel Tools, define a parent list using values from the following table.

| Property | Value |
|---|---|
| Business Component | Picklist Hierarchical |

2. Create a child list using values from the following table.

| Property | Value |
|---|---|
| Business Component | PickList Hierarchical Sub-Area |

3. In the Object Explorer, choose Business Component.
4. In the Business Components list, locate the business component that contains the fields that you must associate with the hierarchical list.
5. In the Object Explorer, expand the Business Component tree, and then choose Field.
6. In the Fields list, locate the parent field and then set properties using values from the following table.

| Property | Description |
|---|---|
| Picklist | Set to the parent list. |
| Immediate Post Changes | Make sure this property contains a check mark. |

7. In the Fields list, locate the child field and then set properties using values from the following table.

| Property | Description |
|---|---|
| Picklist | Set to the child list. |

8 In the Object Explorer, expand the Field tree, and then choose Pick Map.

9 In the Pick Maps list, create a new pick map using values from the following table.

| Property | Description |
|---|---|
| Field | Choose the name of the parent field. |
| PickList Field | Choose the name of the parent field. |
| Constrain | Make sure this property contains a check mark. |

10 In the Pick Maps list, create another new pick map using values from the following table.

| Property | Description |
|---|---|
| Field | Choose the name of the child field. |
| PickList Field | Choose the Value field. |
| Constrain | Leave empty. |

11 Compile your changes.

12 To designate the parent value, add LOV values to the Parent LIC column.

For more information, see Table 54 on page 454 and the topic about constrained lists of values in *Siebel Applications Administration Guide*.

13 Test the hierarchical list.

# Creating a List of Values

A *list of values* is a set of values that Siebel CRM uses to enter values in a static list. If the user chooses a static list, then Siebel CRM displays a list of values. The user can choose a value from the list to cause Siebel CRM to enter values into the field.

Siebel CRM stores the values in a list of values as records in the S_LST_OF_VAL table. A given list of values includes the following parts:

- **Header Row.** Defines the name of the type grouping. For example, the first row in Table 55. This type grouping name is the value of the Display Value property, such as ACCOUNT_STATUS. Although the row includes a Display Value property, Siebel CRM does not display the header row in the list of values. The Display Value property for a header row defines only the name for the list of values. It does not display any strings in the Siebel client.
- **Display Value Rows.** Includes the values that Siebel CRM displays in a list that references the list of values. The rows in Table 55 where Type is ACCOUNT_STATUS are examples of display value rows. These rows contain the display values that Siebel CRM displays in the Siebel client. The Type property for each display value row is ACCOUNT_STATUS, which is the same as the Display Value of the Header Row.

The Type field groups List of Value records. For example, the Type value is ACCOUNT_STATUS for values that are included in the Status field of the Account Entry Applet.

A picklist object includes a Type property that identifies the LOV Type that is associated with the list. In the Siebel client, Siebel CRM reads this information to determine which list of values to display for a given list. For more information, see "About Static Lists" on page 437.

Table 55 lists the values that belong to the LOV Type defined as ACCOUNT_STATUS.

Table 55. Example Values from the ACCOUNT_STATUS LOV Table

| Type | Display Value |
|---|---|
| LOV_TYPE | ACCOUNT_STATUS |
| ACCOUNT_STATUS | Candidate |
| ACCOUNT_STATUS | Qualified |
| ACCOUNT_STATUS | Active |
| ACCOUNT_STATUS | Inactive |

## Creating a New List of Values

Siebel CRM comes with many predefined lists of values that support the static lists that Siebel CRM displays in the Siebel client. You can modify a predefined list of values, or you can create a new one:

- You can use the List of Values view in the Administration - Data screen in the Siebel client to modify a list of values. You can add, modify, or deactivate LOV values for LOV types for predefined list of values. For example, you can add another value to the ACCOUNT_STATUS LOV type. For more information, see *Siebel Applications Administration Guide*.
- You can create a new list of values in Siebel Tools. If you must add a new set of values that you define as a new LOV Type, then you must use Siebel Tools.

### *To create a new list of values*

1. In Siebel Tools, choose the Screens application menu, choose System Administration, and then the List of Values menu item.

2 In the List of Values list, create a header record for the new LOV Type using values from the following table.

| Field | Description |
|---|---|
| Type | Enter LOV_TYPE. |
| Display Value | Enter the name of the LOV Type. For example, ACCOUNT_STATUS.<br><br>Do not use single quotes in the Display Value property. These quotes cause search specifications that reference the Display Value field to fail. For more information, see "Options to Filter Data Displayed in an Applet" on page 120. |
| Translate | Do not modify this property. For more information, see "Modifying the Translate Property for a Predefined List of Values" on page 603. |
| Language Independent Code | In most cases, enter the same value that you enter for the display value. For more information, see "About Language-Independent Code" on page 597. |

3 Enter a new record for the LOV value using values from the following table.

| Property | Description |
|---|---|
| Type | Choose the name of the LOV type that you created in Step 2. For example ACCOUNT_STATUS.<br><br>The value you define for this property must match the value you define in the Type property of the list that you configure to display these values. |
| Display Value | Enter the value that Siebel CRM must display in the list. |
| Language Independent Code | In most cases, enter the same value that you enter for the display value. |
| Translate | Do not modify this property. For more information, see "Modifying the Translate Property for a Predefined List of Values" on page 603. |
| Language Name | Choose the name of the language for the Display Value. |

You use some properties only for a multilingual list of values, such as Translate, Multilingual, and Language-Independent Code. For more information, see "Defining Properties of an MLOV" on page 602. For a complete description of LOV fields, see *Siebel Applications Administration Guide*.

4 Repeat Step 3 for each LOV value.

5 Create a list to display the LOV Type.

For more information, see "Configuring Lists and Pick Applets" on page 437.

6 Compile and test your changes.

Make sure you clear the cache. For more information, see Step 7 on page 467.

# Associating an Organization with a List of Values

You can define a list of values to display for some organizations but not for other organizations. For example, assume your company includes several subsidiary companies and each subsidiary is defined as an organization in your Siebel deployment. For a given list, you can display a different list of values for each member of each organization. To do this, you associate each list of values to a specific organization.

For example, the organization associated with the active position of a user might be *Org ABC*, but the primary organization that is associated with the record that the user is viewing might be *Org XYZ*. In this situation, Siebel CRM displays the list of values that are associated with *Org XYZ*.

For more information, see "Guidelines for Associating an Organization with a List of Values" on page 467. For more information about organizations and access control, see *Siebel Security Guide*.

### *To associate an organization with a list of values*

1 In the Siebel client, choose the site map, click Administration - Data, and then click LOV Explorer.

Siebel CRM displays the LOV types in a tree. You can expand each LOV type to view the LOV values that are associated with each LOV type.

2 In the List of Values - Type list, query the Type field for the LOV type that requires LOV values that are specific to the organization.

3 Click the Organization field, and then click Select.

4 In the Organizations dialog box, choose the organizations you must add, click Add, and then click OK.

5 In the LOV explorer, expand the Types folder, and then expand the Values folder.

6 In the List of Values list, create a set of LOV values for each organization:

a In the List of Values list, click New.

b Enter a value in the Display Name field and Code field.

The code is typically the same as the display name.

c Choose an organization to associate with the LOV value.

d Repeat Step a through Step c for each LOV value that you must associate with an organization.

You can associate each LOV value with only one organization. If you must associate a given value with more than one organization, then you must create a duplicate value for each organization.

If a LOV Value is not associated to an organization, then it is available to all organizations, except those organizations that are associated with the LOV Type in Step 4.

7 Click Clear Cache.

The list of values changes take effect after you clear the cache.

## Guidelines for Associating an Organization with a List of Values

If you associate an organization with a list of values, then use the following guidelines:

- Identify all LOV types that require lists of values that are associated with an organization. For each of these LOV types, do the following:
  - Identify and use predefined lists of values. These are the values that all organizations use. They do not require custom lists of values.
  - Identify the organizations that require custom lists of values. For each organization, define the custom lists of values for the organization.
- For a large deployment, use Enterprise Integration Manager to load list of values data that is specific to an organization. Make sure to associate the appropriate organizations with the LOV types and a single organization with each LOV value. For more information, see *Siebel Enterprise Integration Manager Administration Guide*.
- Explicitly associate each list of values with each organization. A list of values that is associated with an organization is associated with only one organization. Organization hierarchy does not determine inheritance between lists of values. For example, a list of values that is associated with a parent organization does not mean that all child organizations inherit access to the list of values.
- After an upgrade, review your custom lists of values to make sure that any predefined lists of values that come with the upgrade do not interfere with your custom lists of values.
- If you associate an MLOV with an organization, then make sure one of the following situations is true:
  - The values for the Language Independent Code property and the Display Value property are distinct from all other records.
  - The values for the Language Independent Code property and the Display Value property are the same as another record that belongs to another organization.

## Guidelines for Using Script to Associate a List of Values with an Organization

If you use script to associate a list of values with an organization, then use the following guidelines.

- If you use LookupValue or LookupName as an expression in a script, and:
  - **Data does not exist.** To determine visibility of the list of values, Siebel CRM uses the organization that is associated with the current position of the user. Creating a new record is an example where data does not exist.

- **Data does exist.** To determine visibility of the list of values, Siebel CRM uses the primary organization that is associated with the record.

If you use LookupValue or LookupName as a function in a repository configuration or a script, then Siebel CRM uses the organization that is associated with the primary position of the user to determine visibility of the list of values.

## Creating a Value to Display for More Than One Organization

If you require the same value to display for more than one organization that is associated with the LOV type, then you must create duplicate values for each organization. Siebel CRM displays a list of values that is associated with an organization to members of that organization only. Siebel CRM displays lists of values that are not associated with this organization to all organizations except the organizations that are associated with the LOV type.

For example, assume the following:

- Value 1 is associated with Org ABC.
- Value 2 is associated with Org XYZ.
- Value 3 is not associated with any organization.

In this example, Siebel CRM displays value 3 for all organizations except for Org ABC and Org XYZ. For Value 3 to display for Org ABC and Org XYZ, you must create duplicate values and then add them to the lists of values that are specific to the organization, one assigned to Org ABC and one assigned to Org XYZ.

### *To create a value to display for more than one organization*

1. Create duplicate values.
2. Add these values to the lists of values that are specific to each organization.

## Using the Organization Specifier Property to Display Custom Lists of Values

If the user chooses an existing record, then to determine the organization context, Siebel CRM uses the primary organization that is associated with the record. It does not use the organization that is associated with the position of the user. The Owner Organization Specifier property of the base table that the business component references specifies the column that contains the organization Id. For business components that reference the S_PARTY table, this property is defined on the primary extension table.

The Organization Specifier property in most tables reference the column that contains the primary organization Id. For example, the S_ORG_EXT table references BU_ID. You can define this property in several levels, which allows you to define a child business component so that it inherits the organization context from the row in the parent business component. For example, if the user creates a child record, then the value of the column defined as the Owner Organization Specifier determines the lists of values that Siebel CRM displays.

The following is an example of the Organization Specifier property defined with several levels:

[S_TAB_X][S_TAB_COL1][S_TAB1_COL2]

In this example, each element is one of the following:

- A column in the current table
- The name of an extension table
- The name of an FK column
- The name of the column that contains the BU_ID

### *To use the organization specifier property to display custom lists of values*

1. Identify the objects involved in the configuration.

   For example, the columns, extension tables, and FK columns.

2. Define the Organization Specifier property.

# 19 Configuring Multi-Value Group, Association, and Shuttle Applets

This chapter describes how to configure multi-value group applets, association applets, and shuttle applets. It includes the following topics:



For more information, see "Creating an Applet" on page 331.

## Creating Multi-Value Groups and Multi-Value Group Applets

This topic describes the multi-value group applet. It includes the following topics:



### Related Topics

For more information, see the following topics:



### About the Multi-Value Group Applet

A multi-value group applet lists records from the detail business component that the multi-value group references. These records are child records in the parent-child relationship with the record of the master business component. The multi-value group applet includes the following capabilities:

- Contains list columns that present data from corresponding fields in the detail business component

- Provides the user with a way to add and delete detail records

For more information, see "Multi-Value Group, Multi-Value Link, and Multi-Value Group Applet" on page 29.

## Viewing an Example of a Multi-Value Group Applet

You can view an example of a multi-value group applet.

### *To view an example of a multi-value group applet*

1. In the Siebel client, choose the Account screen, and then the Accounts List.
2. In the Account Entry Applet, click the Select button that is located on the right side of the Address field.

Siebel CRM displays the Account Addresses multi-value group applet. This applet lists the detail Address records that are associated with the master account record. This dialog box lists the address information that is associated with each account, including the street address, city, state, and ZIP Code.

A check mark in the Primary column indicates that Siebel CRM displays data from this record in the Address field of the Account Entry Applet. While the Account Addresses multi-value group applet is open, you can view the list of addresses that are associated with the account. You can also add, query, or delete an address.

## Relationships and Objects of a Multi-Value Group Applet

The list column is a child of the list, which is a child of the applet. It includes the Field property, which identifies the field in the detail business component that the multi-value group references. Siebel CRM displays this data in the list column. For more information, see "How a Business Component Field Identifies the Type of Data" on page 84.

Figure 73 illustrates the relationships and objects that Siebel CRM uses in a multi-value group applet.

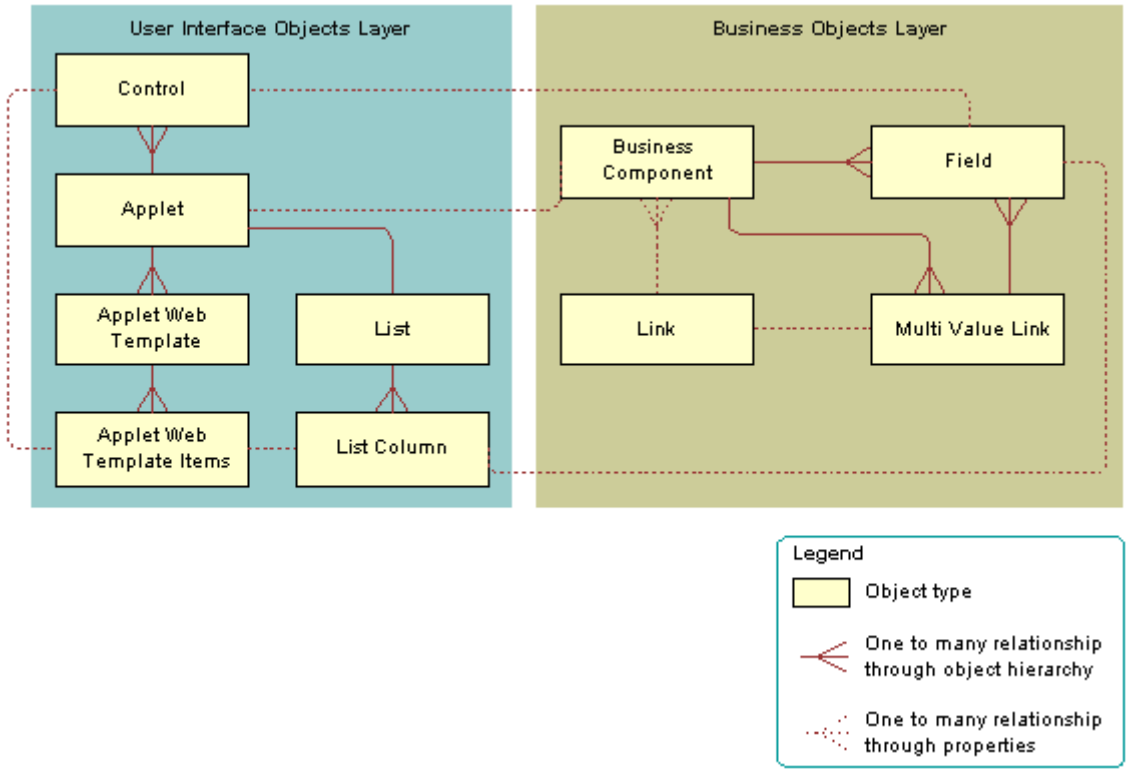



Figure 73. Relationships and Objects That Siebel CRM Uses in a View Multi-Value Group Applet

## Properties of a Multi-Value Group Applet

Table 56 describes important properties of the multi-value group applet.

Table 56. Important Properties of the Multi-Value Group Applet

| Property | Description |
|---|---|
| Business Component | Identifies the detail business component that the multi-value group references. |
| Class | CSSFrameList, which indicates that this is a predefined list applet. |
| Type | MVG, which indicates that this is a multi-value group applet. This property defines the behavior of the dialog box and button controls. |
| Title | Identifies the name of the multi-value group applet that Siebel CRM displays in the title bar. |

## How Siebel CRM Constructs a Multi-Value Group

Figure 74 illustrates the objects and properties that Siebel CRM uses to construct a multi-value group applet.

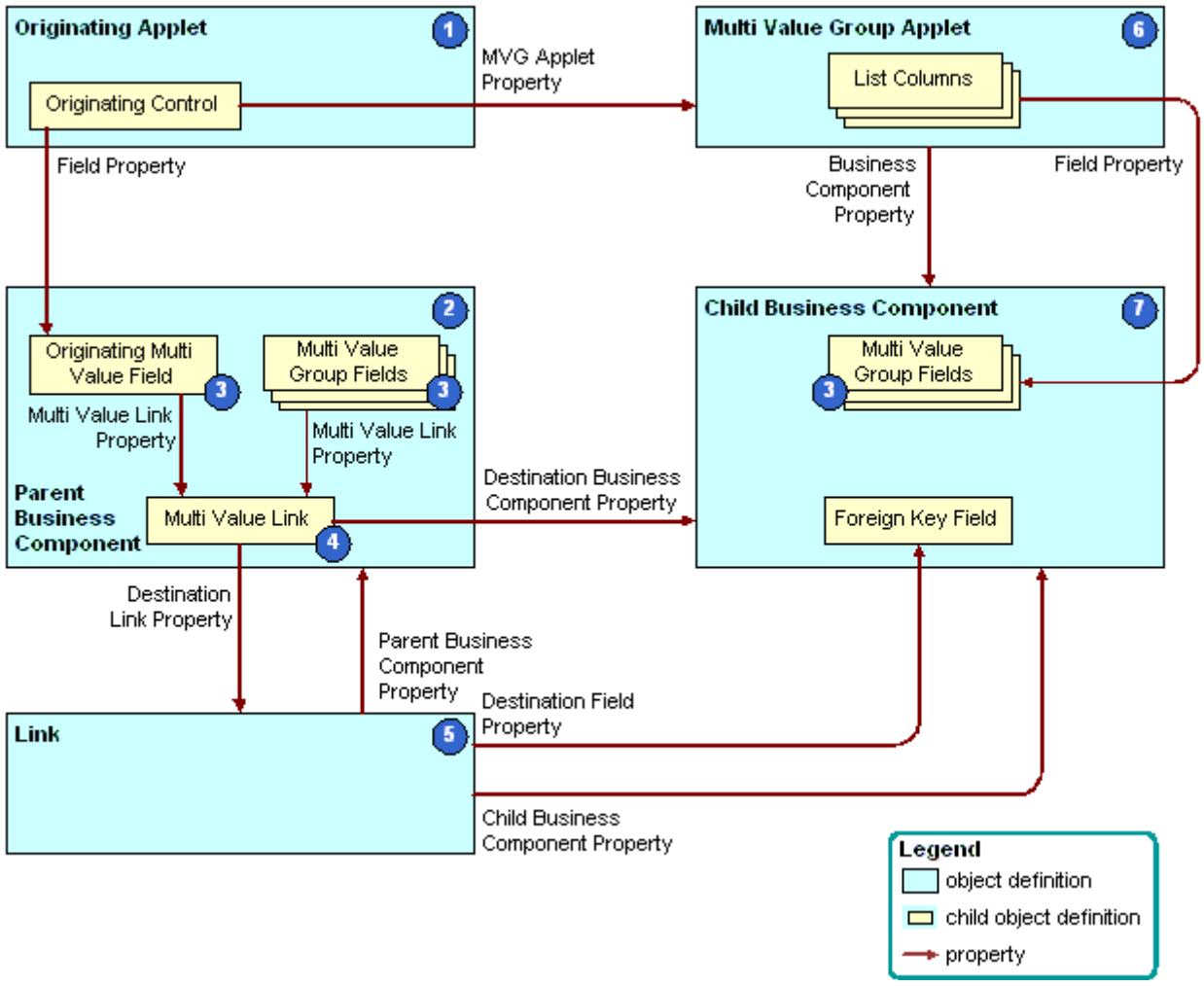



Figure 74. Objects and Properties Siebel CRM Uses to Construct a Multi-Value Group Applet

Siebel CRM uses the following objects to construct a multi-value group applet:

1 **Originating applet.** Contains the control or list column that calls the multi-value group applet. For more information, see "Originating Applet of a Multi-Value Group" on page 476.

2 **Parent business component.** Supplies data to the originating applet. For more information, see "Parent Business Component of a Multi-Value Group" on page 476.

3 **Multi-value fields.** Includes the fields that constitute a multi-value group. For more information, see "About the Multi-Value Field" on page 100.

**NOTE:** If the field is a multi-value field, then Siebel CRM ignores the Required. In this situation you can use a script in Siebel Visual Basic or Siebel eScript, or create a calculated field that references the multi-value field, and then make the calculated field required.

4 **Multi-value link.** Identifies the link that provides the field values from the child business component that the multi-value group references.

5 **Link.** Specifies the parent-child relationship between the parent business component and the child business component that the multi-value group applet references. To provide a way for the fields in the parent business component to obtain their values, the multi-value link references the link.

6 **Multi-value group applet.** A dialog box that Siebel CRM displays if the user clicks the ellipsis button in the originating applet. It lists the records of the child business component that the multi-value group references. It also provides the user a way add, edit, or delete a child record.

7 **Child business component.** Stores the child records. The records that Siebel CRM displays in the multi-value group applet are the records of the child business component that the multi-value group references. For more information, see "Child Business Component of a Multi-Value Group" on page 477.

## Example of Objects Siebel CRM Uses to Construct a Multi-Value Group Applet

Table 57 describes some of the objects that Siebel CRM uses to construct a multi-value group applet for the Account Address Mvg Applet.

Table 57. Example of Objects Siebel CRM Uses to Construct a Multi-Value Group Applet

| Object | Name of Object Definition |
|---|---|
| Originating applet | Account Entry Applet |
| Parent business component | Account |
| Multi-value fields | This example includes the following multi-value fields:<br>■ Street Address<br>■ Address Id<br>■ City<br>■ Country<br>■ Fax Number<br>■ Postal Code<br>■ State |
| Multi-value link | Business Address |
| Link | Account/Business Address |

Table 57. Example of Objects Siebel CRM Uses to Construct a Multi-Value Group Applet

| Object | Name of Object Definition |
|---|---|
| Multi-value group applet | Account Address Mvg Applet |
| Child business component | Business Address |

## Originating Applet of a Multi-Value Group

The originating applet contains the control or list column that calls the multi-value group applet. The Business Component property of the originating applet identifies the parent business component. The originating control or list column is a child of the originating applet.

Table 58 describes the important properties of the originating control or list column.

Table 58. Important Properties of the originating Control or List Column

| Property | Description |
|---|---|
| Field | Identifies the originating field in the originating business component. |
| MVG Applet | Name of the multi-value group applet to call. |
| Runtime | Must be set to TRUE. |

## Parent Business Component of a Multi-Value Group

The parent business component is the business component of the originating applet. Siebel CRM obtains the data values that are included in the originating field and other multi-value fields from corresponding fields in a record in the child business component that the multi-value group references. The primary is the record from which Siebel CRM obtains these values.

The parent business component does not include any properties that are required to define a multi-value group. However, the field and multi-value link child objects are significant.

The originating field is the field defined in the Field property of the originating control or list column. Other than the relationship with the originating control, the role of the originating field is identical to that of the other multi-value fields that share the multi-value link. For more information, see "About the Multi-Value Field" on page 100.

### About the MVF Pick Map

You can use a pick map for a multi-value field similarly to how you use it for a single-value field. The *MVF pick map* is an object type that is a child of a multi-value field. Each pick map defines a relationship between a field in the child business component that the multi-value group references and one in the originating business component. If the user chooses a record, then these relationships provide the information that Siebel CRM requires to update the record in the parent business component with information from the multi-value group business component.

Table 59 describes important properties of the MVF pick map.

Table 59. Important Properties of the MVF Pick Map

| Property | Description |
|---|---|
| Field | Identifies a field in the parent business component into which Siebel CRM enters data. Siebel CRM uses data from a field in the multi-value group business component when it calls the PickRecord method. |
| Pick List Field | Identifies a field in the multi-value group business component that is the source of data for the field in the Field property of the pick map. |

The State multi-value field of the Account business component is an example of how Siebel CRM uses the MVF pick map. The Account business component includes a multi-value link to the Business Address business component, where it obtains address information.

For more information, see "About Multi-Value Links" on page 97, and "About Links" on page 105.

### Child Business Component of a Multi-Value Group

The child business component of a multi-value group stores the child records of the parent-child relationship with the parent business component. Siebel CRM derives the records that it displays in the multi-value group applet from the child business component. The child business component includes no important properties with respect to defining a multi-value group. It includes child field objects that Siebel CRM uses in the following ways:

- **To store data for a field in the multi-value group.** A list column in the multi-value group applet represents each field that fulfills this role. To supply data to a corresponding field in the parent business component, it might also participate in the multi-value link.
- **To identify the primary record in the multi-value group.** The primary field that is defined in the Primary Field Id property of the multi-value link identifies the primary records.

  **NOTE:** The primary field is relevant to the parent business component, the multi-value link, and the multi-value group applet. The primary field has nothing to do with the child business component that the multi-value group references.
- **As the destination field of the link.** The field with this role is a foreign key to the parent business component.

For more information, see "Activating a Multi-Value Field" on page 254.

## Guidelines to Create Multi-value Group Applets and Pick Applets

If you configure an applet web template for a multi-value group applet or pick applet with a control or list column, then use the following guidelines:

- Use Base mode to display the primary value in the multi-value group applet, and to suppress the display of a link that the user can click to pop-up the multi-value group applet.
- To display the primary record from the multi-value group as read-only text, and to display a link after the text that the user can click to pop-up the multi-value group applet., use Edit, New, or Edit List mode. If the user clicks the link, then Siebel CRM renders the multi-value group applet in a separate pop-up window. You must also make sure the control or list column is editable.
- Use the EditFieldCaption and EditFieldType parameters in the configuration file to set the style of the link.
- You must make sure an Edit List or Base template is defined for the multi-value group applet:
  - If an Edit List template is defined, then Siebel CRM uses this template to render the applet.
  - If an Edit List template is not defined, then Siebel CRM uses the Base template.
  - If an Edit List template is not defined, and if a Base template is not defined, then Siebel CRM generates an error.
- You can call methods, such as EditRecord, AddRecord, or CreateRecord. The multi-value group applet behaves like any other list applet in the pop-up window. When Siebel CRM calls a method, it displays the appropriate template in the current pop-up window. After the user saves or chooses the record, Siebel CRM renders the multi-value group applet in this window in Base mode or Edit List mode.

For more information, see "About Applet Web Templates" on page 158.

## Creating a Multi-Value Group

You use the Multi-Value Group Wizard to define a multi-value group. This wizard helps you define the objects that Siebel CRM requires for a multi-value group. For more information see "Multi-Value Group, Multi-Value Link, and Multi-Value Group Applet" on page 29 and "How Siebel CRM Constructs a Multi-Value Group" on page 474.

### *To create a multi-value group*

1. In Siebel Tools, choose the File menu, and then the New Object menu item.
2. In the New Object Wizards dialog box, in the General Tab, click MVG, and then click OK.
3. In the Multi Value Group dialog box, choose the following:
   a. The project to which the multi-value group belongs. Only locked projects are available.
   b. The master business component. The master business component must belong to the project you chose.
   c. Click Next.
4. In the Multi Value Group dialog box, do the following:
   a. Choose the detail business component.
   b. Enter a name for the multi-value link.

c Click Next.

5 Do one of the following:

- In the Direct Links dialog box, choose the appropriate link, and then click Next.

  For more information, see "How Siebel CRM Constructs a Direct Multi-Value Link" on page 98.

- In the Indirect Links dialog box, choose the link and the source field in the master business component, and then click Next.

  For more information, see "How Siebel CRM Constructs an Indirect Multi-Value Link" on page 101.

The Multi-Value Group Wizard displays the Direct Links or Indirect Links dialog box depending on the choices you make in the Multi Value Group dialog box. The available links are those that already exist between the master business component and the detail business component.

6 In the Primary ID Field dialog box, do the following:

a Choose the Primary ID Field in the master business component.

  For more information, see "About the Auto Primary Property of a Multi-Value Link" on page 561.

b Set the value for the Auto Primary property.

  For more information, see "About the Auto Primary Property of a Multi-Value Link" on page 561.

c Set the Use Primary Join property.

  For more information, see "About the Use Primary Join Property of a Multi-Value Link" on page 561.

d Set the Check No Match property.

  For more information, see "About the Check No Match Property of a Multi-Value Link" on page 559.

e Click Next.

7 In the Multi Value Link dialog box, choose the appropriate properties, and then click Next.

8 In the multi-value fields dialog box, enter information to create multi-value fields on the parent business component.

a Choose a field on the destination business component.

b Enter a name for the multi-value field.

  For more information, see "About the Multi-Value Field" on page 100.

c Click Add.

d Repeat Step a through Step c for each field you must add.

e Click Next.

9 In the Finish dialog box, review the information you entered for the multi-value group, and then click Finish.

# Creating a Multi-Value Group Applet

You use the MVG Applet Wizard to create a multi-value group applet. This wizard helps you create the objects that Siebel CRM requires for a multi-value group applet. For more information see "Multi-Value Group, Multi-Value Link, and Multi-Value Group Applet" on page 29 and "How Siebel CRM Constructs a Multi-Value Group" on page 474.

### *To create a multi-value group applet*

1. In Siebel Tools, choose the File menu, and then the New Object menu item.
2. In the New Object Wizards dialog box, click the Applets tab, choose MVG Applet, and then click OK.
3. In the General dialog box, enter values using information from the following table, and then click Next.

| Property | Description |
|---|---|
| Project | Choose the project to associate with this applet. Siebel Tools only includes locked projects in the list. |
| Applet Name | Apply the format for naming a multi-value group applet. For more information, see "Guidelines for Naming an Applet" on page 126. |
| Business Component | Choose the business component that this applet references. |
| Display Title | Enter the name that Siebel CRM displays in the Siebel client. For more information, see "Guidelines for Creating an Applet Title" on page 127. |
| Upgrade Behavior | Choose Admin. |

4. In the Web Layout - General dialog box, enter the web templates to use for the applet, and then click Next.

   For more information, see "Including a New Button in a Multi-Value Group Applet" on page 481.

5. In the Web Layout - Fields dialog box, choose the fields that Siebel CRM must display in the applet, and then click Next.

   Siebel Tools displays the fields that are defined for the business component that you chose in Step 3. It displays these fields in the Available Fields window.

6. In the Web Layout - Fields dialog box, choose the controls in the Available Controls window that Siebel CRM must display in the applet, and then click Next.

   By default, the wizard adds the controls that are included in the Selected Controls window. If you must exclude a control, then move it to the Available Controls window. For more information, see "Configuring How Siebel Tools Enters Data Into the Selected Controls Window" on page 333.

7. Review the information displayed in the Finish dialog box, and then click Finish.

   The MVG Applet Wizard creates the applet and the supporting object definitions. For more information about shuttle applets, see *Siebel Release Notes* on *My Oracle Support*.

### Including a New Button in a Multi-Value Group Applet

You can include a New button in a multi-value group applet. For more information about how the applet mode affects a multi-value group applet, see "Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data" on page 118. For more information about templates, see *Siebel Developer's Reference*.

#### *To include a New button in a multi-value group applet*

- Do one of the following:
  - Manually define an Edit mode that uses the Popup Query template.
  - Set the Type property of the applet web template to New.

# About Association Applets

This topic describes association applets. It includes the following topics:



## Overview of Association Applets

An *association applet* is a type of applet that provides the user a way to associate a parent record with one or more children. It uses two business components that possess a many-to-many relationship with one another. The user cannot modify records in an association applet. You can call an association applet from a master-detail view or from a multi-value group applet.

Figure 75 illustrates an example of how Siebel CRM implements a many-to-many relationship between two business components in the Siebel schema.

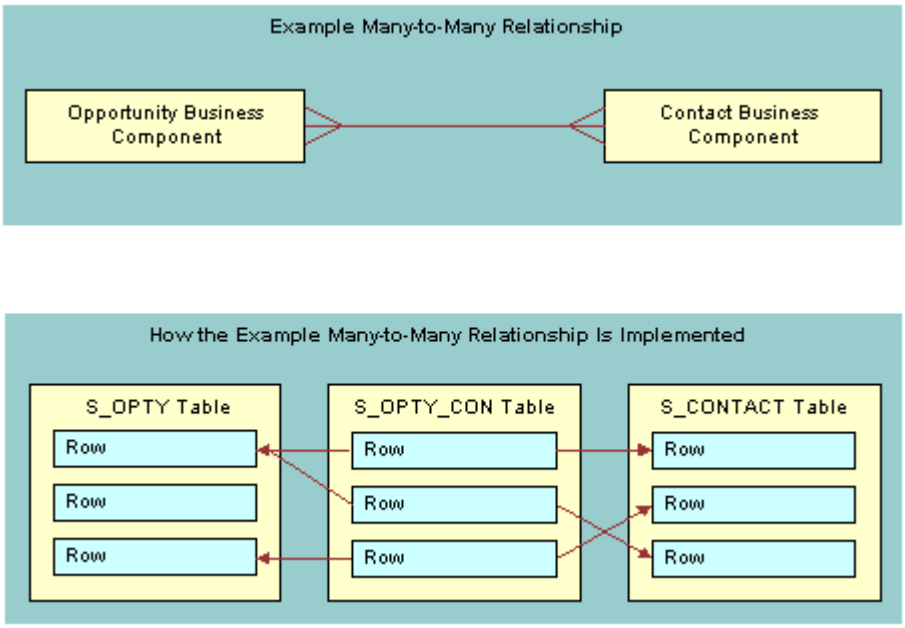



Figure 75. Example Many-to-many Relationship Between Two Business Components

If a user adds a record to the child business component in a many-to-many relationship, then Siebel CRM associates the predefined detail record with a parent record rather than creating a new detail record. This is because *parent* and *detail* are relative terms in a many-to-many relationship. For example, Siebel CRM can display one opportunity to many contacts or one contact to many opportunities, depending on which view is active.

In this situation, the association applet presents the user with a list of available child records where the user can choose a detail record. The user can also create a new detail record. In the context of this many-to-many relationship, Siebel CRM does the following:

- If the user creates a new association for a predefined detail record, then Siebel CRM creates an *association*.
- If the user creates a new detail for an association, then Siebel CRM creates an *addition*.

Siebel CRM creates a new row in the intersection table for an association or an addition. Siebel CRM also creates a new row in the detail table for an addition.

## How Siebel CRM Constructs an Association Applet

Figure 76 illustrates the relationships and objects that Siebel CRM uses to construct an association applet.

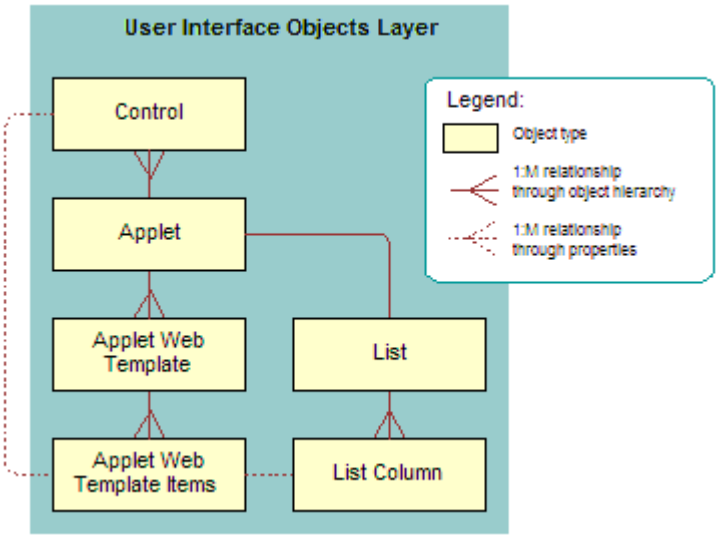



Figure 76. Relationships and Objects That Siebel CRM Uses to Construct an Association Applet

Figure 77 illustrates a generic picture of how Siebel CRM constructs an association applet.

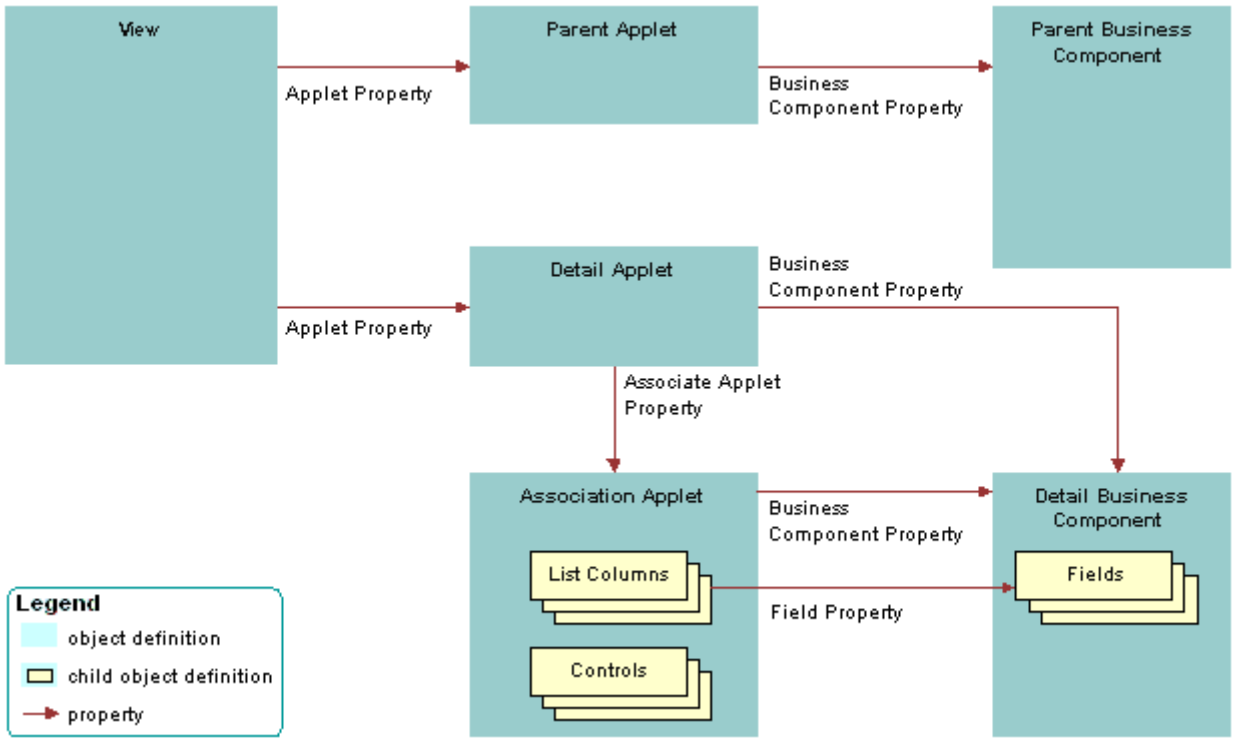



Figure 77. Generic Picture of How Siebel CRM Constructs an Association Applet

Figure 78 illustrates an example of how Siebel CRM constructs an association applet.

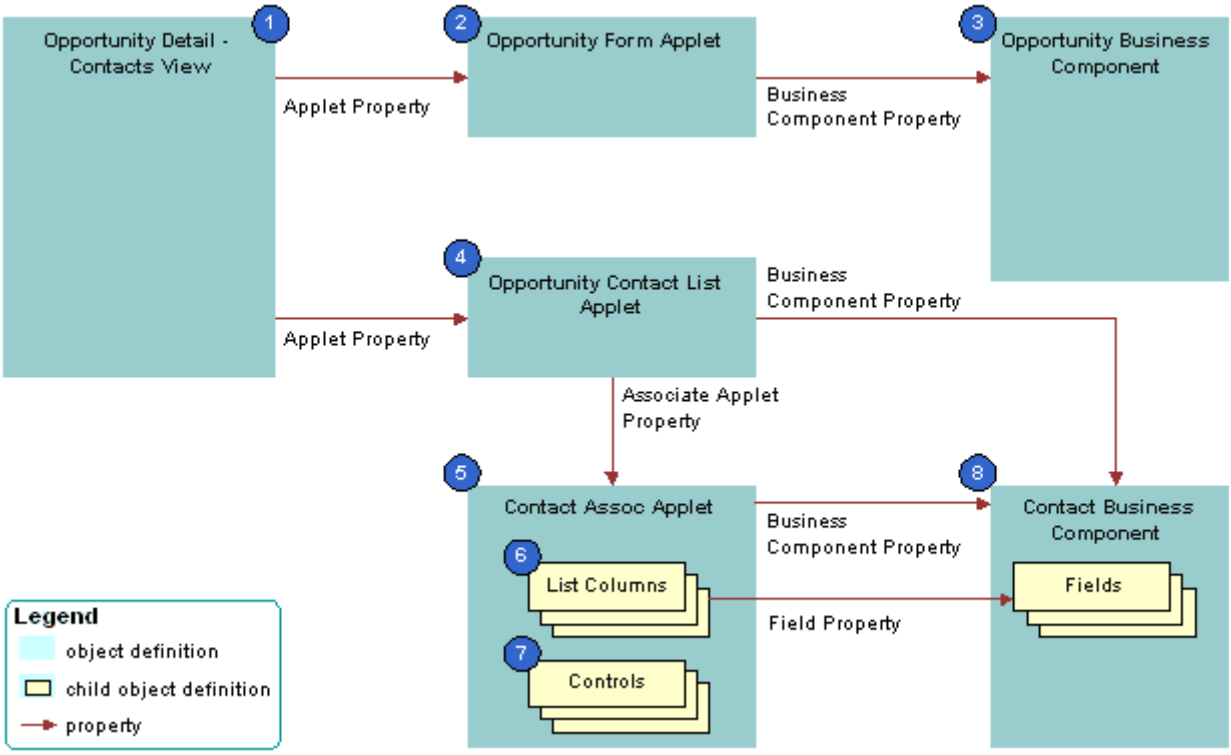



Figure 78. Example of How Siebel CRM Constructs an Association Applet

Siebel CRM uses the following objects to construct an association applet:

1. **Opportunity Detail - Contacts List View.** View that provides the context in which Siebel CRM calls the association applet, although no properties of the view directly identify the association applet. The Business Object property of the view establishes the parent-child relationship between the business components whose data Siebel CRM displays.
2. **Opportunity form applet.** Parent applet that displays one record from the parent business component.
3. **Opportunity business component.** Parent business component that provides data for the parent applet.
4. **Opportunity Contact List Applet.** Detail applet that lists records from the child business component that are child records for the current parent record in the parent business component. Siebel CRM defines the name of the association applet in the Associate Applet property.
5. **Contact Assoc Applet.** Association applet that defines the dialog box that Siebel CRM displays if the user attempts to add or insert a record in the detail applet. It includes the following properties:
   - **Type property set to Association List.** Indicates that it is an association applet.

- **Class property set to CSSFrameList.** Indicates that it is a list applet.

Siebel CRM configures the association applet as a predefined list applet. This list applet includes a child List object. This child object includes List Object objects.

6 **List columns.** Defines the fields that Siebel CRM displays in the association applet, and in what order. They duplicate some or all of the list columns in the detail applet in the view.

7 **Controls.** For more information, see "Specialized Controls That Siebel CRM Can Display in an Association Applet" on page 486.

8 **Contact business component.** Detail business component that provides data for the detail applet and the association applet.

Siebel CRM displays records from the child business component in the association applet. It only displays records in the detail applet that are already associated to the current parent record.

## Specialized Controls That Siebel CRM Can Display in an Association Applet

Table 60 describes specialized controls Siebel CRM can display in an association applet.

Table 60. Specialized Controls That Siebel CRM Can Display in an Association Applet

| Control | Description |
|---|---|
| Cancel | Button that dismisses the dialog box. |
| Check | Button that associates chosen records to the current parent. Siebel CRM creates an intersection table row between the row identified in the parent applet and the row identified in the association applet. The control is named PopupQueryAdd and includes an AddRecord method that Siebel CRM calls. |
| Find | Combo box that provides the user with search capabilities to locate the desired record in the association applet. |
| Go | Button that the user clicks to initiate the search specified in the Find combo box and Starting With text box. |
| New | Button that creates a new row in the detail applet. Siebel CRM creates a new row in the detail table and an intersection table row between the row identified in the parent applet and the row created in the association applet. The control is named ButtonNew and includes a NewRecord method that Siebel CRM calls. |
| Starting With | Text box where the user enters the search criteria. A wild card automatically completes the criteria entered in this control. |

# How Siebel CRM Calls an Association Applet from a Master-Detail View

Siebel CRM can call an association applet from a master-detail view where the underlying business components possess a many-to-many relationship. The association applet lists the records from the business component. The user can use the Find or Starting With control to choose one or more records, and then click OK to associate the chosen records with the parent record.

## Viewing an Example of an Association Applet Siebel CRM Calls from a Master-Detail View

You can view an example of an association applet that Siebel CRM calls in a master-detail view.

### *To view an example of an association applet Siebel CRM calls from a master-detail view*

1. In the Siebel client, click the Opportunities screen tab, and then click the Opportunities List link.
2. In the My Opportunities list, click a link in the Opportunity Name column.
3. In the Contacts list, click Menu, and then the New Record menu item.

   Siebel CRM displays the Add Contacts dialog box. This dialog box is defined as the Contact Assoc Applet association applet.
4. From the application menu, choose Help, and then About View.

   Note that the Opportunity Detail - Contacts View is the master-detail view.
5. Click OK.
6. Click the Contacts screen tab, and then click the Contacts List link.
7. In the My Contacts list, click a link in the Last Name column.
8. Click the More Views down arrow, and then choose Opportunities.
9. From the application menu, choose Help, and then About View.

   Note that the Contacts Detail - Opportunities View is a master-detail view that displays the inverse of the parent-child relationship you viewed in Step 4.
10. Click OK.
11. In the Opportunities list, click Menu, and then the New Record menu item.

    If you choose New Record, then Siebel CRM displays the Add Opportunities dialog box that allows you to choose an existing opportunity record and insert it, or to create a new opportunity record. If you choose New, then Siebel CRM creates a new opportunity and allows you to enter data for the new record in the Opportunities list.

# How Siebel CRM Calls an Association Applet from a Multi-Value Group Applet in Standard Interactivity

In Standard Interactivity, Siebel CRM displays a multi-value group in the following situation:

1. The user clicks the MVG button.
2. The business component of the underlying multi-value group applet includes a many-to-many relationship with the parent business component.

## Viewing an Example of Calling an Association Applet from a Multi-Value Group Applet in Standard Interactivity

You can view an example of calling an association applet from a multi-value group applet in standard interactivity.

### *To view an example of calling an association applet from a multi-value group applet in standard interactivity*

1. In the Siebel Client, click the Accounts screen tab, and then the Accounts List link.
2. In the My Accounts list, click a link in the Name column.
3. In the form, click the Industries MVG button.

   Siebel CRM displays the Industries multi-value group applet.
4. Click New in the Industries multi-value group applet.

   Siebel CRM displays the Add Industries association applet. This association applet allows the user to associate a new record with the multi-value group. Some association applets also allow the user to create new records to associate with the multi-value group.

For more information, see "About Standard Interactivity and High Interactivity" on page 36.

## How Siebel CRM Constructs an Association Applet It Calls from a Multi-Value Group Applet

Figure 79 describes how Siebel CRM constructs an association applet that it calls from a multi-value group applet.

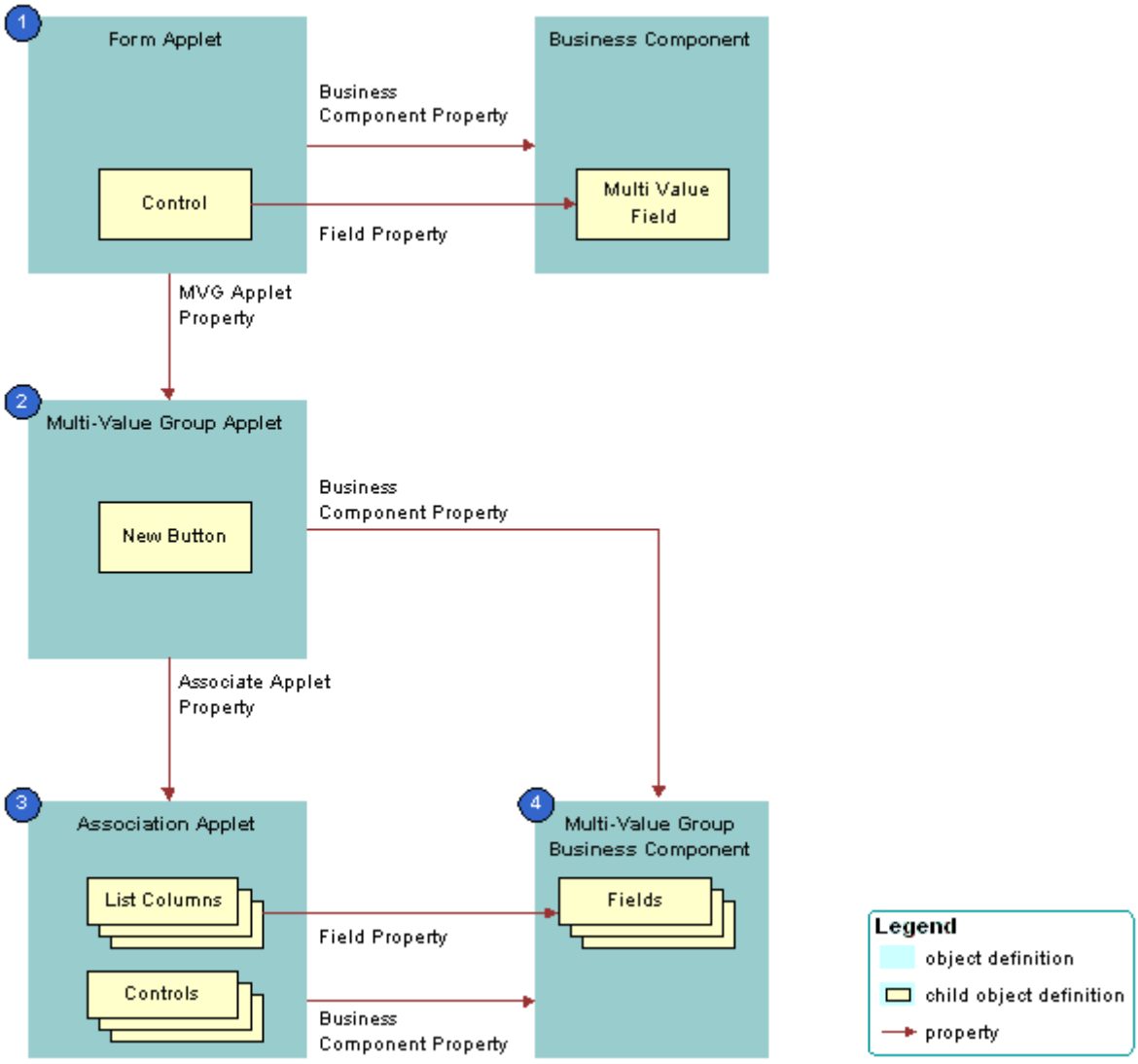



Figure 79. How Siebel CRM Constructs an Association Applet It Calls from a Multi-Value Group Applet

Siebel CRM uses the following objects to construct an association applet that it calls from a multi-value group applet:

1 **Form applet.** Contains one or more text box controls that display a multi-value field. If the user clicks the MVG button, then the MVG Applet property for each of these text box controls identifies a multi-value group applet that Siebel CRM calls.

2 **Multi-value group applet.** Includes the list of records that are assigned to the multi-value field in the form applet. The Associate Applet property in the multi-value group applet identifies the association applet that Siebel CRM calls.

3 **Association applet.** Includes the list of records that are available to associate to the parent record. The association applet includes the following properties:

- **Type property value of Association List.** Indicates the applet is an association applet.
- **Class property value of CSSFrameList.** Indicates the applet is a list applet. The association applet is configured as a predefined list applet, with a List child object that includes List Object child objects.

4 **Multi-value group business component.** Stores the detail multi-value group records for each parent business component record. The multi-value group business component supplies records to the multi-value group applet and the association applet.

## Constraining an Association Applet

Although you can use the Constrain property of a list to constrain a pick applet, you cannot use the Constrain property to constrain or filter an association applet.

### *To constrain an association applet*

- Use Siebel Visual Basic or Siebel eScript to issue a query with the Exists clause in the WebApplet_Load event on the association applet.

# About Shuttle Applets

A shuttle *applet* is a type of applet that allows the user to associate child records with a parent record and to create new records. In high interactivity, a shuttle applet displays in the following situation:

1 The user clicks the MVG button.

2 The business component of the underlying multi-value group applet includes a many-to-many relationship with the parent business component.

A shuttle applet uses the same underlying object architecture as an association applet. For more information, see "How Siebel CRM Constructs an Association Applet It Calls from a Multi-Value Group Applet" on page 489.

A shuttle applet derives the following items from the association applet:

- Applet header. For example, New, Query, Find, and Starting With.
- Available label.
- List body that Siebel CRM displays on the left side of the shuttle applet.

A shuttle applet derives the following items from the multi-value group applet:

- Selected label

- List body that Siebel CRM displays on the right side of the shuttle applet
- OK button
- Add, Add All, Remove, and Remove All buttons

**NOTE:** You cannot call a popup applet from a shuttle applet.

For more information, see "About Standard Interactivity and High Interactivity" on page 36 and *Siebel Release Notes* on *My Oracle Support*.

### How the Shuttle Applet Uses Web Templates

Siebel CRM uses the following specialized web templates to render a shuttle applet:

- CCPopupListAssoc.swt
- CCPopupListMVG.swt

The Mode property of the applet web template item determines the applets in which Siebel CRM displays the controls:

- If Mode is not defined, then Siebel CRM displays the control in shuttle and non-shuttle applets.
- If Mode is DefaultOnly, then Siebel CRM displays the control only in an applet that is not a shuttle applet. Examples include the OK and the Cancel button on the association applet.
- If Mode is More, then Siebel CRM displays the control only in the shuttle applet. Examples include certain buttons, such as Add, Add All, Remove, and Remove All.

### Viewing an Example of a Shuttle Applet

You can view an example of a shuttle applet.

#### *To view an example of a shuttle applet*

1. In the Siebel client, click the Contacts screen tab, and then the Contacts List link.
2. Click a link in the Last Name column.
3. In the form, click the MVG button for the Account field.

   Siebel CRM displays the Accounts shuttle applet.

## Example of Creating a Shuttle Applet

This topic describes one example of how to create a shuttle applet. You might create a shuttle applet differently, depending on your business model.

To create a shuttle applet, you use a multi-value group applet and an association applet in a view. This example adds employees to a sales team.

To create a shuttle applet, perform the following tasks:

1. "Creating an Association Applet" on page 492

2 "Creating the Multi-Value Group Applet" on page 493

3 "Creating the View" on page 495

## Creating an Association Applet

This task is a step in "Example of Creating a Shuttle Applet" on page 491.

In a shuttle applet, Siebel CRM displays the association applet on the left side of the view. It contains the list of records that are available.

### *To create an association applet*

1 In Siebel Tools, choose the File menu, and then the New Object menu item.

2 Click the Applets tab, click MVG Applet, and then click OK.

3 In the General dialog box, define properties using values from the following table.

| Property | Description |
|---|---|
| Project | Choose the locked project where you must create the association applet. |
| Applet Name | Enter `Create Contact Access List Assoc`.<br>For more information, see "Guidelines for Naming an Applet" on page 126. |
| Display Title | Enter `All Employees`.<br>For more information, see "Guidelines for Creating an Applet Title" on page 127. |
| Business Component | Choose Employee. |
| Upgrade Behavior | Choose Admin. |

4 Click Next.

5 For the Edit List mode, choose Popup List Assoc, and then click Next.

For more information, see "Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data" on page 118.

6 In the first Web Layout - Fields dialog box, choose the following fields, and then click Next:

- First Name
- Last Name

7 In the second Web Layout - Fields dialog box, remove Query Assistant from the list of controls that Siebel Tools displays in the Selected Controls window.

8 Click Next, and then click Finish to generate the applet.

9 In the Object Explorer, click Applet.

10 In the Applets list, locate the Create Contact Access List Assoc applet, and then modify properties using values in the following table.

| Property | Value |
|---|---|
| Class | CSSSWEFrameShuttleBaseAssoc |
| Type | Association List |

11 In the Object Explorer, expand the Applet tree and then click Applet User Prop.

12 In the Applet User Props list, add three new records using values from the following table.

| Name | Value |
|---|---|
| CanInvokeMethod: AddRecords | [Active] |
| EnableStandardMethods | Y |
| High Interactivity Enabled | Y |

13 Save your changes.

## Creating the Multi-Value Group Applet

This task is a step in "Example of Creating a Shuttle Applet" on page 491.

In a shuttle applet, Siebel CRM displays the multi-value group applet on the right side of the view. It contains the list of chosen records.

### *To create the multi-value group applet*

1 In Siebel Tools, choose the File menu, and then the New Object menu item.

2 Click the Applets tab, choose MVG Applet, and then click OK.

3 In the General dialog box, define properties using values from the following table, and then click Next.

| Property | Description |
|---|---|
| Project | Choose the locked project where you created the association applet |
| Applet Name | Enter `Create Contact Access List MVG`.<br><br>For more information, see "Guidelines for Naming an Applet" on page 126. |

| Property | Description |
|---|---|
| Display Title | Enter `Team Members`.<br>For more information, see "Guidelines for Creating an Applet Title" on page 127. |
| Business Component | Choose Contact. |
| Upgrade Behavior | Choose Admin. |

4 In the Web Layout - General dialog box, choose Popup List Mvg for the Edit List mode, and then click Next.

For more information, see "Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data" on page 118.

5 On the Web Layout - Fields page, choose the following fields, and then click Next:

- SSA Primary Field
- First Name
- Last Name

6 In the second Web Layout - Fields dialog box, remove Query Assistant from the list of chosen controls.

7 Click Next, and then click Finish to generate the applet.

8 In the Object Explorer, click Applet.

9 In the Applets list, locate the Create Contact Access List MVG applet, and then modify properties using values in the following table.

| Property | Value |
|---|---|
| Class | CSSSWEFrameShuttleBaseMvg |
| Associate Applet | Create Contact Access List Assoc |

10 In the Object Explorer, expand the Applet tree and then click Applet User Prop.

11 In the Applet User Props list, add five new records using values from the following table.

| Name | Value |
|---|---|
| CanInvokeMethod: AddRecords | [Active] |
| CanInvokeMethod: DeleteAllRecords | [Active] |
| CanInvokeMethod: DeleteRecords | [Active] |
| EnableStandardMethods | Y |
| High Interactivity Enabled | Y |

12 Drag and drop controls from the Controls/Columns window to the applet until your layout resembles the layout displayed in the following diagram:


a Drop the AddRecord, RemoveRecord, and RemoveAllRecords controls on the far left.

b Drop the PositionOnRow control to the left of SSA Primary Field.

13 Save your changes.

## Creating the View

This task is a step in "Example of Creating a Shuttle Applet" on page 491.

In this optional step, you define the view that contains the multi-value group applet and the association applet.

### *To create the view*

1 In Siebel Tools, choose the File menu, and then the New Object menu item.

2 Choose View in the General tab, and then click OK.

3 Define properties in the New View dialog box using values from the following table.

| Property | Description |
|---|---|
| Project | Choose the locked project where you created the association applet |
| View Name | Enter `ABC Contact Team View`. |
| View Title | Enter `ABC Contact Team View`. |
| Business Object | Choose Contact. |
| Upgrade Behavior | Choose Admin. |

4 Click Next.

5 In the View Web Layout-Select Template dialog box, choose View 1 Over 2 Over 1, and then click Next.

6 In the Web Layout-Applets dialog box, choose the following applets, and then click Next:

- Create Contact Access List Assoc
- Create Contact Access List MVG

7 Click Finish to generate the view.

Siebel Tools creates the new view and then displays it in the Web Layout Editor.

8 Close the Web Layout Editor.

9 In the Object Explorer, click View.

10 In the Views list, locate ABC Contact Team View.

11 In the Object Explorer, expand the View tree, and then click View User Prop.

12 In the View User Props list, add three new records using values from the following table.

| Name | Value |
|---|---|
| ShuttleViewMvgAppletName | Create Contact Access List MVG |
| ShuttleViewMvgField | Sales Rep |
| ShuttleViewParentBuscomp | Contact |

13 Open the view in the Web Layout Editor, and then modify the layout until it is similar to the layout displayed in the following diagram:


To position an applet in the view, click the applet, and then drag it to one of the empty side-by-side placeholders.

14 Compile and test your changes.

For more information, see *Using Siebel Tools*.

# 20 Configuring Menus, Toolbars, and Icons

This chapter describes how to configure menus, toolbars, and icons. It includes the following topics:



For more information, see "Localizing an Application Menu" on page 596.

## About Menus and Toolbars

*Menus* and *toolbars* are user interface elements that allow the user to initiate an action. For example:

- The *application menu* is a menu that provides the user a way to perform a task consistently across a Siebel application. Siebel CRM displays it in a frame near the top of the Siebel client in the browser window. This menu includes submenus, such as File, Edit, View, Navigate, Query, Tools, and Help.
- The *application toolbar* is a toolbar that provides the user a quick way to access some of the more commonly performed tasks. Siebel CRM displays it just beneath the primary tab bar, as illustrated in Figure 80. Some icons on the application toolbar are redundant with menu items in the application menu.

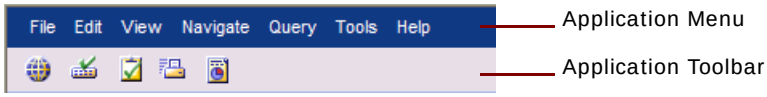



Figure 80. Menu and Toolbar in Siebel CRM

### Applet Menu

An applet can contain a menu. An *applet menu* is a contextual menu that includes a number of menu items. Each menu item in an applet menu provides the user a way to perform a task in the context of the applet. It is located in the upper left corner of an applet. To view an example applet menu, in the Siebel client, click the Accounts screen tab, and then the Accounts List link. In the Accounts List applet, click Menu. The menu that Siebel CRM displays is an example of an applet menu. If you click it, then Siebel CRM displays a pop-up contextual menu.

### How Siebel CRM Handles a Menu or Toolbar Action

If the user clicks a menu item or toolbar icon, then Siebel CRM calls a method. This method can exist in one of the following ways:

- In a service on the browser or server
- In a class in the browser application, such as an applet or business component class
- In a class in the server infrastructure, such as a Siebel Web Engine frame manager

The menu item or toolbar icon is defined to target the following items:

- A method name
- A method handler
- A service (optional)

A web template involves toolbar tags. For more information, see "Using Web Templates to Customize Toolbars" on page 530 and *Siebel Developer's Reference*.

# Objects Involved in a Menu or Toolbar

This topic describes the objects that are involved in a menu or toolbar.

## Command Object Type

A *command* object is an object type that specifies the method that Siebel CRM calls if the user chooses an application menu item or an applet menu item, or clicks a toolbar icon. It also specifies the bitmap that Siebel CRM displays for a toolbar icon. A menu item or toolbar item references a command. An applet menu does not reference a command.

For more information, see "Creating a Command Object" on page 502 and "Properties of a Command" on page 680.

## Toolbar Object Type

A *toolbar* object is an object type that provides a named toolbar that the user can activate or deactivate, and to which you can associate or remove a toolbar item object definition. A toolbar object must exist for each toolbar in Siebel CRM.

For more information, see "Properties of a Toolbar" on page 682.

### HTML and Java Usage

An *HTML toolbar* is a type of toolbar that typically defines toolbar functionality for Siebel CRM. Each button in an HTML toolbar is a static image that you can dim to indicate that the button is not available. Program logic on the browser does not manipulate an HTML toolbar.

A *communication toolbar* is a type of toolbar in Siebel CRM that you can alter in response to an event. For example, Siebel Call Center includes a blinking icon on a communication toolbar to indicate an incoming telephone call. A communication toolbar uses Java. You must enter a class name in the Class property for a toolbar that uses Java. For more information, see *Siebel Communications Server Administration Guide*.

### Menu and Menu Item Object Types

A *menu object* is an object type that defines a named menu that Siebel CRM displays in the Siebel client. You can add and remove menu items for each menu.

A *menu item object* is an object type that associates a command object definition with a menu item object definition. This association places a menu item in a given position. The method for this menu item is defined in the command object definition on the defined menu. For more information, see "Properties of a Toolbar Item" on page 683.

### Toolbar Item Object Type

A *toolbar item* is an object type that associates a command with a toolbar. This association places a toolbar icon on the toolbar in a specific location relative to the other toolbar icons on that toolbar. The toolbar object is the parent of the toolbar item. For more information, see "Properties of a Toolbar Item" on page 683.

### Applet Method Menu Item Object Type

An *applet method menu item* is an object type that is a child of an applet. It defines a menu item in the applet menu for the parent applet. For more information, see "Properties of an Applet Method Menu Item" on page 684.

### Class Method Menu Item Object Type

A *class method menu item* is an object type that is a child of a class. It adds or suppresses a menu item on an applet menu for Siebel Web Engine applets of the defined applet class and subclasses. For more information, see "Properties of an Applet Method Menu Item" on page 684.

## About the Method, Business Service, and Target Properties of the Command Object

You can use the Method, Business Service, and Target properties of the Command object for application menus, applet menus, and toolbars. The target property specifies the object or service that processes the method that the command calls.

### How Siebel CRM Automatically Redirects a Method

In some situations, if the defined target cannot handle a method, then Siebel CRM automatically redirects the method to an underlying object or service. This object or service can be one of the following:

- A mirror instance of the object. This instance exists on the Siebel Server.
- An inherited class.

In these situations, Siebel CRM redirects the method.

## Options for the Business Service Property

If a business service is defined in the Business Service property, then the business service handles the method. This targeting depends on the following:

- **Call received from application menu or application toolbar**. The method handler is the defined object manager service. It does not retarget.
- **Call received from applet menu.** The method handler performs a SetBC call to set to the business component of the applet, and then calls the defined object manager service. It does not retarget.

## Options for the Target Property

This topic describes the options that are available for the Target property. The Target property for the Command object displays six values in the list. If you use the Command Wizard to create a new Command object, then Browser and Server are the only values available of the six values.

### Target Property Set to Browser

If the Target Property is set to Browser, then the following situation applies:

- Siebel CRM will not execute the server PreInvokeMethod.
- The method handler for this target exists on the browser as the JavaScript application, a JavaScript applet, or a JavaScript service.
- You must define a method name in the Method property.
- If a business service is defined in the Business Service property, then Siebel CRM targets a business service.
- If a business service is not defined in the Business Service property, then Siebel CRM handles the method differently. This targeting depends on the following:
  - **Call received from application menu or application toolbar.** Targets to the method defined in the JavaScript application. Does not retarget. For example, if you use the ActiveBusObject and RaiseErrorText application methods in a server script, then these methods must include a Browser target.
  - **Call received from applet menu.** Targets to the method defined in the JavaScript applet. If not handled, then retargets to the method defined in the corresponding JavaScript business component. No inheritance and no more retargeting occurs.

### Target Property Set to Server

If the Target Property is set to Server, then Siebel CRM does not execute the browser PreInvokeMethod, and the Siebel application calls a method in a C++ class on the Siebel Server on a service or on the infrastructure. If the Service property is not defined, then Siebel CRM targets the method to the infrastructure. This targeting depends on the following:

- **Call received from application menu or toolbar.** Siebel CRM handles the method in the following order of priority:
  - Uses the Siebel Web Engine UDF loader on the Siebel Server

- Uses the model

- **Call received from applet menu.** Siebel CRM handles the method in the following order of priority:
  - Uses the applet class to which the applet belongs
  - Retargets, if necessary, successively up through the applet class hierarchy to CSSSWEFrame
  - If still not handled, retargets to the business component class of the business component that the applet references, and successively up through the business component class hierarchy to CSSBusComp

## Summary of the Target and Business Service Properties

Table 61 summarizes the Target and Business Service properties.

Table 61. Summary of Target and Business Service Properties

| Menu or Toolbar | Target Property | Business Service Property | Result |
|---|---|---|---|
| Application menu or toolbar | Server | Contains a value | The business service that is defined in the Business Service property determines the method handler that calls the service on the Siebel Server. It does not retarget. |
| | | Does not contain a value | The method handler is the base functionality associated with an application object. |
| | Browser | Contains a value | The business service that is defined in the Business Service property determines the targets of the method. It does not retarget. |
| | | Does not contain a value | Targets to the method defined in the JavaScript application. It does not retarget. |

Table 61. Summary of Target and Business Service Properties

| Menu or Toolbar | Target Property | Business Service Property | Result |
|---|---|---|---|
| Applet menu | Server | Contains a value | The business service that is defined in the Business Service property identifies the business service that the method handler calls on the Siebel Server. It does not retarget. |
| | | Does not contain a value | The method handler is initially the applet class to which the applet belongs. Siebel CRM retargets it successively up through the applet class hierarchy to CSSSWEFrame. If still not handled, then Siebel CRM retargets to the business component class of the business component that the applet references, and successively upwards through the business component class hierarchy to CSSBusComp. |
| | Browser | Contains a value | The business service that is defined in the Business Service Property determines the service that the method handler calls on the browser. It does not retarget. |
| | | Does not contain a value | Targets to the method that is defined in the JavaScript applet. If not handled, then retargets to the method defined in the corresponding JavaScript business component. There is no inheritance or more retargeting. |

# Customizing Menus and Toolbars

This topic describes how to customize menus and toolbars. It includes the following topics:



## Creating a Command Object

This topic describes how to create a command object. For more information, see “About the Method, Business Service, and Target Properties of the Command Object” on page 499.

### *To create a command object*

1. In Siebel Tools, choose the File menu, and then choose the New Object menu item.
2. Click the Command icon, and then click OK.
3. In the Command dialog box, do the following:
   - Enter the project.
   - Enter a unique name for the command object.
   - Choose the browser or the Siebel Server to handle the method that the command calls.
   - Click Next.
4. In the next dialog box, do the following:
   - Choose the object that handles the command. If a business service handles the command, then choose the business service from the list. You must know if the business service is available for your choice of browser or for the Siebel Server.
   - Enter the method that the command calls. You must choose a method that is available to the business service or Siebel application.
   - (Optional) Provide the argument that Siebel CRM passes to the method. The argument must be correct for the chosen method.
   - Click Next.
5. In the Window dimensions dialog box, do the following:
   - Specify to execute or not execute the command in a new browser window. If Siebel CRM executes the command in a new browser window, then define the height and width for the window.
   - (Optional) Define the HTML bitmap and the tooltip text that Siebel CRM displays on the toolbar button that is associated with the command.
   - Click Next.
6. In the Command dialog box, review your entries.

   If you must make any changes, then click Back.
7. Click Finish.

## Creating a New Toolbar

You can create a new toolbar for Siebel CRM.

### *To create a new toolbar*

1. In Siebel Tools, display the toolbar object type.

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.
2. In the Object Explorer, choose Toolbar.

3 In the Toolbars list, add a new record.

4 Define the name of the new toolbar in the Name property.

5 To display the toolbar in the Siebel client, you must add a specific tag to the Container Page or one of the child templates that you are using.

For more information, see "About the Container Page" on page 151 and *Siebel Developer's Reference*.

## Adding a New Toolbar Icon to a Predefined Toolbar

You can add a new toolbar icon to a predefined toolbar.

### *To add a new toolbar icon to a predefined toolbar*

1 In Siebel Tools, display the toolbar object type and all chill object types of the toolbar object.

For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2 Verify that the bitmap image you must use for the toolbar icon currently exists as a child bitmap of the Command Icons bitmap category.

If it does not exist, then create a bitmap in this bitmap category. For more information, see "Overview of Customizing Icons in the Siebel Client" on page 510. If it does exist, then note the name of the bitmap.

3 Verify that the method that this toolbar icon calls currently exists.

4 If the method that this toolbar icon calls does not exist, then do the following:

a Add a Siebel Visual Basic or Siebel eScript script to the PreInvokeMethod.

b Write an If or Case statement in the script that references MethodName. Write the instructions for that MethodName in the If or Case statement.

c Change the last line of PreInvokeMethod from ContinueOperation to CancelOperation.

5 Create a new command object:

a In the Object Explorer, click Command.

b In the Commands list, add a new command.

c Define the required properties.

For more information, see "Properties of a Command" on page 680.

6 In the Object Explorer, click Toolbar.

7 In the Toolbars list, locate the toolbar to which you must add the new toolbar item.

8 In the Object Explorer, expand the Toolbar tree, and then click Toolbar Item.

9 In the Toolbar Items list, add a new toolbar item and then define the required properties.

You must use a button. You cannot use other types of elements, such as a combo box or label. For more information, see "Properties of a Toolbar Item" on page 683, and Article ID 517909.1 on My Oracle Support.

## Activating Menu Items and Toolbars

Siebel CRM automatically calls CanInvokeMethod for each item before it displays the menu or toolbar. If CanInvokeMethod returns FALSE, then Siebel CRM does the following:

1 Does not display the menu item or toolbar item.

2 Retargets CanInvokeMethod from the browser application to the applet class hierarchy on the Siebel Server, and then to the business component class hierarchy.

For more information, see "About the Method, Business Service, and Target Properties of the Command Object" on page 499.

### *To activate menu items and toolbars*

- Use CanInvokeMethod to activate or deactivate menu items in an application menu and applet menu, or toolbar items in a toolbar in the Siebel client.

## Creating an Applet Menu

You can modify an applet menu that come predefined with Siebel CRM. You can also create a custom applet menu. The Applet Method Menu Wizard allows you to modify an applet method menu. To construct an applet method menu, Siebel CRM uses the menu items from the class to which the applet belongs and the super class of the applet. It also explicitly creates menu items for the applet. You can use the wizard to do the following:

- Suppress inherited method menu items.
- Resurrect inherited method menu items.
- Create a new method menu item for an applet.
- Delete a predefined method menu item of an applet.

### *To use the Applet Method Menu Wizard*

1 In Siebel Tools, choose the File menu, and then the New Object menu item.

2 In the New Object Wizards dialog box, in the General Tab, click Applet Method Menu, and then click OK.

3 In the Applet Method Menu dialog box, do the following:

a In the project window, choose the project that is defined in the Project property of the applet.

b In the applet name window, choose the applet you must modify, and then click Next.

4 In the Applet Method Menu dialog box, do one of the following:

- To display a menu item, move the item to the Selected Menu Items window.
- To suppress display of a menu item, move it out of the Selected Menu Items Window.

5 Do one of the following:

- Click Finish.

  If you click Finish, then Siebel Tools saves all the changes that you made to the Siebel repository, displays the object definition for the applet in the Applets list, and exits this procedure.

- Choose Create New Menu Item, and then click Next.

  If you choose Create New Menu Item, then Siebel Tools replaces the Finish button with the Next button.

6 To create a new object definition for a method menu item, choose an entry from the Select the Command to be Executed by This Menu Item window.

7 In the Enter the Text to be Displayed for This Menu Item window, define the text to display for this method menu item, and then click Next.

Siebel Tools displays the Method Menu Item dialog box. You can examine the properties that you defined. Click Back to return to the appropriate dialog box to make a correction.

8 Click Create Menu Item to create the method menu item.

Siebel Tools creates the item.

9 Click Next.

Siebel Tools displays the method menu item you just defined in the Selected Menu Items window of the Applet Method Menu dialog box.

10 Click Finish.

Siebel Tools displays the Applet Layout.

## Activating or Suppressing an Applet Menu Item

You can modify an applet menu item that comes predefined with Siebel CRM. You can also define a custom applet menu item. For an example, see the topic about defining a menu item to start a task UI in *Siebel Business Process Framework: Task UI Guide*.

You can activate or suppress individual applet menu items. You can use the techniques described in this topic only for applet menus. You cannot use these techniques for application menus or toolbars.

Siebel CRM includes some applet menu items in almost all applets, such as Copy, Edit, and Delete. Siebel CRM includes other applet menu items in almost all list applets, such as Columns Displayed. You can activate an applet menu to make a menu item available globally for applets of a given class and subclass. You can then suppress it in applets where Siebel CRM must not display the menu item.

**CAUTION:** You cannot include a browser script in a business service that Siebel CRM calls from an applet menu item. The business service only works with a server script. If Siebel CRM executes a business service that includes a browser script from an applet menu item on the Siebel Server, then the business service fails.

### *To activate or suppress an applet menu item*

- Do one of the following:
  - Set the Suppress Menu Item property in the class method menu item
  - Use the applet method menu item object types

## About Adding an Applet Menu Item

Although you can add a class method menu item for a predefined menu item for a given applet class, Siebel CRM does not include this menu item as an applet method menu item in an applet where the menu item must display. You only create an applet method menu item in the following situations:

- To add a menu item to the applet that the applet class does not already provide.
- To suppress display of an applet menu item that the applet normally inherits. In this situation, do the following:
  - Create an applet method menu item object definition with the same name as the applet menu item you must suppress.
  - Make sure the Suppress Menu Item property contains a check mark.

# Using JavaScript to Customize a Toolbar

To take advantage of the functionality that high interactivity provides, you can customize a JavaScript toolbar or create a new JavaScript toolbar. For more information, see "About Standard Interactivity and High Interactivity" on page 36.

### *To use JavaScript to customize a toolbar*

1. Create a JavaScript file.

   You use this file to define a custom JavaScript toolbar class that is a subclass of JSSToolbar.

2. Copy the JavaScript file to the following directory on the Siebel Server:

   *ORACLE_HOME*\webmaster*Siebel_build_number*\scripts

3 In Siebel Tools, display the DLL object type and class object type.

For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

4 Create a DLL object:

a In the Object Explorer, click DLL.

b In the DLLs list, add a new record using values from the following table.

| Property | Value |
|---|---|
| Name | Enter a name for the DLL object. For example, BarcodeToolbar. |
| Project | Choose a project that is currently locked in the Siebel Repository. |
| File Name | Enter the file name that references the JavaScript file. For example, barcodeToolbar.js. |

5 Create a Class object:

a In the Object Explorer, click Class.

b In the Classes list, add a new record using values from the following table.

| Property | Value |
|---|---|
| Name | Enter the name of the class that is defined in the JavaScript file. For example, JSSBarcodeToolbar. |
| Project | Choose the project that you defined in Step 3. |
| DLL | Choose the name of the DLL object that you defined in Step 3. |
| High Interactivity Enabled | 1 |

6 If you create a new toolbar, then create a Toolbar object.

Make sure you set the Class property to the class defined in the JavaScript file. For example, JSSBarcodeToolbar. For more information, see "Creating a New Toolbar" on page 503.

7 Add new toolbar items.

For more information, see "Adding a New Toolbar Icon to a Predefined Toolbar" on page 504.

8 If you create a new toolbar, then add a swe:toolbar tag to the appropriate web template.

Make sure the name property in the swe:toolbar tag is the name of the Toolbar object you created in Step 6. For more information, see "Using Web Templates to Customize Toolbars" on page 530.

9 Add swe:toolbaritem tags to the appropriate swe toolbar tag.

For more information, see "Using Web Templates to Customize Toolbars" on page 530.

# Customizing Icons

This topic describes how to customize icons that Siebel CRM displays in the Siebel client. It includes the following topics:

# Overview of Customizing Icons in the Siebel Client

Table 62 describes object types Siebel CRM uses to display images in the Siebel client.

Table 62. Object Types Siebel CRM Uses to Display Images

| Object Type | Description |
|---|---|
| Bitmap | Allows you to associate an image file, such as a GIF file or JPEG file, with a Siebel object, such as a button control or field. It fulfills the following roles:<br>■ Defines an image in the Siebel repository. This image can be in any format the browser supports.<br>■ Defines the location of the image file and other properties, such as width and height.<br>A bitmap includes the following properties that Siebel CRM commonly uses:<br>■ **Height and Width.** Can be set to the height and width of the image that you must display on the Web page. If these properties are set, then the Siebel Web Engine uses them as width and height properties of the `img` tag. This technique allows you to create bitmap objects that share the same image file but that Siebel CRM renders with different dimensions.<br>■ **Alt Text.** Can be included in the alt attribute of the image tag.<br>You do not use the other properties of the bitmap with a Web image. Example properties include Data and Transparent Color. |
| Bitmap Category | Allows you to group image files together by function. Includes the following bitmap categories:<br>■ **Button Icons.** Contains images for buttons on applets that Siebel CRM displays in the Siebel client.<br>■ **HTML Control Icons.** Contains images that Siebel CRM uses for HTML controls in the Siebel client.<br>For example, the ScreenJumpTab and ViewJumpTab parameters in the InfraUIFramework section of the configuration file for the Siebel application reference HTML Control Icons for navigation controls. |
| HTML Hierarchy Bitmap | Allows you to display an image in a hierarchical applet, such as a tree applet. |
| Icon Map | Allows you to display an image for a field value. Includes the child icon object type. |

## How Siebel CRM Handles Image Files

Siebel CRM handles image files differently, depending on the file type:

- Imports BMP images into the Siebel repository. Sets the File Name field of the bitmap to read-only.
- Stores GIF and JPG files in the public*lang*\images folder of your Siebel installation. The bitmap references these files. Does not store GIF and JPG files in the Siebel repository.

**NOTE:** Siebel CRM only defines images that are associated with Siebel objects as bitmap objects in the Siebel repository. Example objects include icon maps, page tabs, and so forth. Siebel CRM does not associate some images in web templates, such as static images, with Siebel objects. Siebel CRM does not define these images as bitmap objects in the Siebel repository. It defines these objects in the configuration file for the Siebel application.

The Siebel Web Engine (SWE) uses the HTML img tag to render a bitmap.

### Displaying Object Types You Use to Customize Icons

You must display the object types that you use to customize icons in the Siebel client.

#### *To display object types you use to customize icons*

- Display the following object types:
  - bitmap category
  - child objects of the bitmap category
  - Icon map
  - child objects of the icon map
  - HTML hierarchy bitmap

For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

## Customizing a Bitmap Category and a Bitmap

You can customize a bitmap category and a bitmap.

#### *To customize a bitmap category and a bitmap*

1. Display object types you use to customize icons.

   For more information, see "Displaying Object Types You Use to Customize Icons" on page 511.

2. In Siebel Tools, in the Object Explorer, click Bitmap Category.
3. In the Bitmap Categories list, create a new bitmap category or choose a predefined bitmap category.
4. In the Object Explorer, expand the Bitmap Category tree, and then click Bitmap.

5 In the Bitmaps list, create a new bitmap using values from the following table.

| Property | Description |
|---|---|
| Name | Enter the name of the bitmap. |
| Alt Text | Enter alternative text that Siebel CRM uses in place of the name property for a bitmap. |
| File Name | Do one of the following:<br>■ To create a bitmap for a BMP file, leave the File Name property empty.<br>■ To create a bitmap for a GIF file, enter the name of the image file in the File Name property. If the image resides in a subfolder of the image folder, then include the subfolder. For example, for an image named image.gif:<br>■ That resides in the eapps/public/enu/images folder, set the File Name property to `image.gif`.<br>■ That resides in the eapps/public/enu/images/bttns folder, set the File Name property to `bttns/image.gif`. |
| Height | Enter the height of the bitmap, in pixels. |
| Width | Enter the width of the bitmap, in pixels. |

6 If you must create a bitmap for a BMP file, then do the following:

a Right-click the record in the Bitmaps list, and then choose Import Bitmap.

b In the Open dialog box, locate the BMP file that you must import, and then click Open.

Depending on the image you choose, Siebel Tools sets certain properties, such as Height and Width. It also imports the BMP file into the Siebel repository the next time you compile.

## Displaying an Icon on a Button

To display an icon instead of text on a button, you can associate a bitmap object with a button control, similar to a Toolbar icon. Unlike a Toolbar icon, a bitmap button control is a command button in the applet. For example, the More/Less button uses a bitmap object with a button control. Siebel CRM displays the More/Less button in the upper-right corner of many applets. The control uses the BTTNS_MORE bitmap object that is part of the HTML Control Icons bitmap category.

### *To display an icon on a button*

1 Create a bitmap object.

For more information, see “Customizing a Bitmap Category and a Bitmap” on page 511.

2 In the Object Explorer, click Applet.

3 In the Applets list, locate the applet that contains the control you must modify.

4 In the Object Explorer, expand the Applet tree, and then click Control.

5 In the Controls list, locate the control you must modify.

6 Define properties for the control using values from the following table.

| Property | Description |
|---|---|
| HTML Bitmap | Choose the bitmap object Siebel CRM must use if the button is active. |
| HTML Disable Bitmap | Choose the bitmap object Siebel CRM must use if the button is not active. |

For more information, see "About Applet Controls and List Columns" on page 115.

## Displaying an Icon as a Link

To display an icon as a link, you must make sure the properties are set correctly. Siebel CRM uses the contents of the Caption property of the control as the label for the link in the following situations:

- The HTML Type property of the control is set to Button.
- The HTML Bitmap and HTML Disabled Bitmap properties are not set.

### *To display an icon as a link*

- Perform the procedure described in "Displaying an Icon on a Button" on page 512, but make sure you set the HTML Type property of the control to Link.

### Using Custom HTML Types with a Link

You can use the HTML Bitmap and HTML Disabled Bitmap properties with custom HTML types. If you use the following tag in the definition of the custom HTML type in the SWF (Siebel Web Format) file, then the Siebel Web Engine uses the bitmaps:

```
swe:this property="Data" type="Link"
```

These bitmaps must exist in the HTML Control Icons bitmap category.

## Example of Using Icons to Represent Values in a Field

This topic describes one example of using images to represent a field. You might use this feature differently, depending on your business model.

An *icon map* is an object type that allows you to represent the values in a control or list column as icons. Each icon map includes a collection of child icon objects. Siebel CRM associates these icon objects with a bitmap object, which defines the image for the icon, and corresponds to a specific field value. The Icon Map property of a control or list column allows you to define the icon map that Siebel CRM uses to render the values in a field.

The example in this topic uses the Status list column on the Activity List Applet. Assume that the Status field can include the following values:

- Not Started
- In Progress
- Done

You must configure the Status field to display an icon for each of these values.

**NOTE:** If you must use a custom icon in a list applet, then you must size the icon according to the row font size of the list applet. For example, an eight point font is typical for Siebel CRM. If you use an eight point font, then the icon must be 23 pixels wide by 14 pixels high. If you change the list applet row font size dynamically, or if you place an icon that is larger than 23 pixels by 14 pixels in a row, then Siebel CRM scrambles the list applet rows.

### *To use icons to represent values in a field*

1. Create a bitmap category named Activity Status Icons.

   For more information, see "Customizing a Bitmap Category and a Bitmap" on page 511.

2. In the Bitmaps list, create three new bitmap objects for each image that you must display using values from the following table.

| Name | File Name |
|---|---|
| Not Started | notstarted.gif |
| In Progress | inprogress.gif |
| Done | done.gif |

   For more information, see "Customizing a Bitmap Category and a Bitmap" on page 511.

3. In the Object Explorer, click Icon Map.
4. In the Icon Maps list, create a new icon map named Activity Status.
5. In the Object Explorer, expand the Icon Map tree, and then click Icon.

6 In the Icons list, create three new icon objects for each field value using values from the following table.

| Name | Bitmap Category | Bitmap |
|---|---|---|
| Not Started | Activity Status Icon | Not Started |
| In Progress | Activity Status Icon | In Progress |
| Done | Activity Status Icon | Done |

Note how you use the following properties:

- **Name.** Set to the name of the field value.
- **Bitmap Category.** Set to the bitmap category you must use for the field value.
- **Bitmap.** Set to the bitmap object you must use for the field value.

7 In the Object Explorer, click Applet, and then locate the Activity List Applet in the Applets list.

8 In the Object Explorer, expand the Applet tree, expand the List tree, and then click List Column.

9 In the List Columns list, query the Name property for Status.

10 Set the HTML Icon Map property to Activity Status.

This is the icon map you created in Step 3. For more information, see "Using a Default Icon in an Icon Map" on page 515.

11 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Using a Default Icon in an Icon Map

If you use icons to represent values in a field, then the Siebel Web Engine renders the image that the bitmap references if the field value matches one of the icons you define. If the field value does not match any of the icons you define, then the Siebel Web Engine renders the actual field value in text.

You can create an icon named Default in an icon map. If the field value does not match any of the icons, then Siebel CRM uses the Default icon to represent values in the field. This feature is useful to create an icon that Siebel CRM uses if a field might contain different values, such as URLs.

### *To use a default icon in an icon map*

1 Create or locate an icon map that contains only one icon, named Default.

For more information, see "Example of Using Icons to Represent Values in a Field" on page 513.

2 Define the control or list column using values from the following table.

| Property | Description |
|---|---|
| HTML Type | Set to URL. |
| HTML Icon Map | Set to an icon map that contains only one icon, named Default. |

## Customizing Icons in a Tree Applet

An *HTML hierarchy bitmap* is an object type that defines the icons that Siebel CRM displays in a hierarchical object, such as a tree applet in the Siebel client. To view an example, do the following:

- In the Siebel client, click the Accounts screen tab, and then click the Explorer link.

  Siebel CRM displays the tree portion of the Account Tree Applet. The HTML hierarchy bitmap defines the icons that Siebel CRM uses to represent the folders, the plus symbol, and the minus symbol in the Account Tree Applet.

You can also customize other graphic elements in the tree applet. For more information, see "Customizing the Graphic Elements of a Tree Applet" on page 419.

### *To customize icons in a tree applet*

1 Open Siebel Tools.

2 If an existing bitmap does not meet your requirements, then you must modify an existing or create a new bitmap.

  The HTML hierarchy bitmap references bitmaps in a bitmap category. For more information, see "Customizing a Bitmap Category and a Bitmap" on page 511.

3 If an existing HTML hierarchy bitmap does not meet your requirements, then you must modify an existing or create a new HTML hierarchy bitmap.

  You can specify the icons that an HTML hierarchy bitmap references. For more information, see "Properties of an HTML Hierarchy Bitmap" on page 517.

4 In the Object Explorer, click Applet.

5 In the Applets list, locate the applet that contains the tree you must modify.

6 In the Object Explorer, expand the Applet tree, and then click Tree.

7 In the Trees list, locate the tree you must modify, and then set properties for the tree using values from the following table.

| Property | Value |
|---|---|
| HTML Hierarchy Bitmap | Enter the name of any HTML hierarchy bitmap. |

To modify an object in a list, do Step 6 and Step 7 for a list object type. For more information, see "How Applet Objects Reference an HTML Hierarchy Bitmap" on page 517.

8 (Optional) Define the tree node.

The tree node object is a child of the tree object. It includes the optional HTML Open Bitmap and HTML Close Bitmap properties:

- If you define these properties, then Siebel CRM uses them for the node on which the properties are defined. This is useful if different nodes must display different icons.
- If you do not define these properties, then Siebel CRM uses the Open Bitmap and Close Bitmap properties of the HTML Hierarchy Bitmap object.

For more information, see "Customizing a Tree Applet" on page 409.

9 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## How Applet Objects Reference an HTML Hierarchy Bitmap

The tree and list objects are child objects of the applet object. They include the HTML Hierarchy Bitmap property. You can set this property to the name of any HTML hierarchy bitmap object. This allows different object definitions of the tree object and list object to share the same bitmaps.

The predefined tree applets reference the bitmap objects that are defined in the HTML hierarchy bitmap named HTML Hierarchy Icons.

## Properties of an HTML Hierarchy Bitmap

Table 63 describes properties that Siebel CRM commonly uses with an HTML hierarchy bitmap.

Table 63. Properties That Siebel CRM Commonly Uses With an HTML Hierarchy Bitmap

| Property | Description |
|---|---|
| Name | The name for the HTML hierarchy bitmap object. |
| Collapse Bitmap, Collapse Elbow Bitmap, Collapse Tee Bitmap | Icons to collapse a node. |
| Expand Bitmap, Expand Elbow Bitmap, Expand Tee Bitmap | Icons to expand a node. |
| Elbow Bitmap, Tee Bitmap | Icons to create an elbow (L) or a Tee (T). |
| Bar Bitmap | Icon to create a vertical line. |
| Space Bitmap | Icon to create an indent. |
| Open Bitmap | Icon for a node that is an expanded state. |
| Close Bitmap | Icon for a node that is in a collapsed state. |
| Leaf Bitmap | Icon for a leaf node. |
| Arrow Down Bitmap, Arrow Up Bitmap | Icons to scroll a tree up or down. |

# 21 Configuring Siebel Web Templates and Siebel Tags

This chapter describes how to configure Siebel web templates and Siebel tags. It includes the following topics:



For more information, see Chapter 8, “About Siebel Web Templates and Siebel Tags.”

## Customizing Siebel Web Templates and Siebel Tags

This chapter describes how to customize Siebel web templates. It includes the following topics:



For other tasks that use web templates and tags, see the following topics:



### Editing the Layout of a Web Page

The Web Page Object is the top level object in the Web hierarchy that Siebel CRM uses to create Web pages, such as the following:

- Login pages
- Error pages
- Container pages

Similar to an applet or view, a Web page is associated with a Web template. Siebel CRM maps web page objects to placeholders in the template. The Web Page Editor allows you to view and edit web page objects. For more information, see "Editing the Layout of a View" on page 270.

### *To edit the layout of a web page*

1. Make sure the configuration context is set.

   For more information, see "Setting the Configuration Context" on page 311.

2. In Siebel Tools, in the Object Explorer, click Web Page.
3. In the Web Pages list, locate the web page you must modify, right-click, and then choose Edit Web Layout.
4. Choose a custom control from the combo box on the toolbar and then drag it to a placeholder.
5. Use the Properties window to set properties for the control, such as Caption, Method Invoked, and so forth.

   After you add controls to the web page, you can choose the Web Page Item object type in the Object Explorer, and then use the Web Page Items list to change the mappings you just created. For example, you can change the caption for the Queries menu label, which is the FavoritesLabel Web page item.

## Multiple Image Display in the Web Layout Editor

The layout editor might display multiple images because the template that the Web page references contains a conditional tag, such as swe:if or swe:case. The template content varies depending on if one of the conditions is met or is not met. For example, with a Page Container, the condition can determine if Siebel CRM uses a CTI Java Applet or some other subtle or nonvisual difference. The layout editor displays the page as if all the conditions are true. This is useful if you must edit any of the pages. However, because only one condition is typically true in the Siebel client, Siebel CRM does not display redundant images in the Siebel client.

# Adding Graphics to a Web Template

To improve the appearance or navigation of your Siebel application, you can create a GIF file and include a link to it from an HTML page.

### *To add graphics to a web template*

1. Place your graphic files in the following directory:

   `public\lang\images directory`

   Oracle Universal Installer creates the `public\lang\images` directory when you install Siebel CRM. The Siebel client includes three directories for a Siebel application. These directories contain all the files that Siebel CRM uses, including the graphics files.

2. Create a link to the graphic file from an HTML page.

3 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Displaying Multiple Views on a Page

The Siebel Web Engine can simultaneously display multiple views on a page. These views include the following main view and one or more alternate views:

- **Main view.** Chosen from the link bar. There is only one main view.
- **Alternate views.** Other views that Siebel CRM displays with the main view. For example, the Search View that displays applets that Siebel CRM uses for find and search operations.

You can display multiple views in the following ways:

- Place multiple views in separate HTML frames.
- Share multiple views in the same frame.
- Display multiple views in the main view in the main browser window and display a single alternate view in a pop-up window.

Only the main view can use high interactivity. Siebel CRM displays alternate views in standard interactivity. It is recommended that you define alternate views as simple views that do not contain complex navigation links. For more information, see "About Standard Interactivity and High Interactivity" on page 36.

**NOTE:** The examples in this topic describe how to create multiple view layouts if you use HTML frames. The procedure is similar to the procedure you use if you do not use HTML frames. If you do not use HTML frames, then to position the views, you can use HTML tables instead of frames and framesets.

To support multiple views, you must modify the structure of frames and framesets.

### *To display multiple views on a page*

1 Replace the first line of the swe:frameset code of the CCPageContainer.swt file with the following example code:

```
<swe:frameset htmlAttr="rows='80,50,50,*' border='0' frameborder='No'">
```

For more information, see "Guidelines for Naming a Siebel Web Template" on page 182.

2 Replace the view frame in the container page with a content frame.

This frame defines the area where Siebel CRM loads one or more views. Initially this frame contains a frameset that includes a view type frame. You can replace this view frame with the following example content frame:

```
<swe:frame type="Content" htmlAttr="marginheight='0' marginwidth='0' noresize
scrolling='Yes'">

   <swe:include file="CCMainView.swt"/>
```

```
</swe:frame>
```

For more information, see "Example Code of the CCMainView.swt File" on page 523.

3 Modify all the application container templates to use the content frame.

4 To display more views in the content area, load a different content container page in the content frame:

   a Call the LoadContentContainer method from a control or page item.

   b Make sure the User Property container loads the content container.

   For more information, see "Using the LoadContentContainer Method to Load Multiple Views" on page 522.

Siebel CRM behaves the same before and after you make this modification. You only add one more layer of frames in the content area. The unmodified application container page template included in the view frame without the outer content frame does not generate errors. However, you cannot use it to display multiple views.

## Using the LoadContentContainer Method to Load Multiple Views

You must use the Web Template Name of the content container page and not the SWT file name. For example, to display the search view with the main view, do the following:

- Create a content container page, such as CCSMainAndSearchView.swt.
- Use the LoadContentContainer method to load this page.

To load the main view and search view into two frames, the CCSMainAndSearchView.swt file contains the following tags:

```
<swe:frameset htmlAttr="cols='100%' border='0' frameborder='No'">
   <swe:frame type="View" htmlAttr="noresize scrolling='Yes'">
      <swe:current-view/>
   </swe:frame>
   <swe:frame type="AltView" name="Search" htmlAttr="noresize scrolling='Yes'">
      <swe:view name="Search View" id="Search" />
   </swe:frame>
</swe:frameset>
```

In this example, you still reference the main view in the swe:current-view tag. You reference alternate views in the swe:view tag.

To switch from displaying the search and main views to displaying only the main view, you can call the LoadContentContainer method again, but this time reference the container page that references the CCMainView.swt file.

### SWE View Tag

The swe:view tag uses the following format:

```
<swe:view name="xxx" id="yyy">
```

The swe:view tag includes the following attributes:

- **Name.** Name of the alternate view.
- **Id.** Identifies the location that this view occupies. You use this Id to replace this view with another view.

The swe:frame tag contains an alternate view named AltView. You can define only one alternate view for each frameset. If you add more than one alternate view, then you might encounter an error.

## Example Code of the CCMainView.swt File

The CCMainView.swt file that you reference in the swe:frameset code of the CCPageContainer.swt page includes the following frameset. This frameset contains the main view:

```
<swe:frameset htmlAttr="cols='100%' border='0' frameborder='No'">
   <swe:frame type="View" htmlAttr=" noresize scrolling='Yes'">
      <swe:current-view/>
   </swe:frame>
</swe:frameset>
```

# Displaying Different Sections of a Template Depending on the Browser Type

You use the Web Browser Administration views in the Siebel client to define capabilities for various browsers. FrameSupport is an example of a capability. It indicates that a browser can support frames. You can modify the records that define each browser as a new browser or if you introduce a new version of a current browser. For more information, see *Siebel Applications Administration Guide*.

You can use conditions in the swe:if tag to display different sections of a template, depending on which browser the user uses with the Siebel client. These conditions use the following format:

```
<service>, <method>, <args> ...
```

For more information, see "If Conditional Tag" on page 179.

**NOTE:** This topic includes the term User Agent. This term is a synonym for browser. The User Agent header property of an HTTP request provides a unique identifier for the type of client that makes the request. For example, *Mozilla/4.0 (compatible; MSIE 5.0; Windows NT 4.0)* for Microsoft Internet Explorer 5.0.

## Example of Creating Mappings for Specific Browser Types

A swe:if tag in the template conditionally executes blocks of code. The Web Layout Editor provides a visual approximation of how Siebel CRM renders the applet in the Siebel client. In the Siebel client, the current browser determines the conditional sections in the template that Siebel CRM executes.

For example, you can associate a template with a view that contains the following tags:

```
<swe:if condition="Web Engine User Agent, TestCapability, 'FrameSupport:TRUE'">
  <swe:frameset htmlAttr="cols='33%,66%'' border='1' frameborder='Yes'">
     <swe:frame type="Applet" htmlAttr="marginheight='0' marginwidth='0'
     scrolling='Auto'">
        <swe:applet id="101" hintText="Applet" var="Parent">
        <swe:this property="FormattedHtml"/>
        </swe:applet>
     </swe:frame>
  </swe:frameset>
</swe:if>
```

## Example of Identifying the Type of Browser

You can use the following example code to identify which type of browser the user is currently using. In this example, the condition evaluates to TRUE for the Microsoft Internet Explorer 5.5 browser and FALSE for all other browsers:

```
<swe:if condition="Web Engine User Agent, IsUserAgent, 'UserAgent:MSIE 5.5'">
   ...
</swe:if>
```

This example uses the following objects:

- Web Engine User Agent business service
- IsUserAgent business service method
- UserAgent business service method argument. To identify the browser type, this argument uses the following format:

  ```
  UserAgent:<A user agent name that is defined in the UA.INI file>
  ```

## Example of Determining Browser Capabilities

You can use the following example code to determine browser capabilities. In this example, the condition evaluates to TRUE for any browser that supports JavaScript and Java Applets:

```
<swe:if condition="Web Engine User Agent, TestCapability, 'JavaScript:TRUE',
'JavaApplets:TRUE'">
```

```
    ...
</swe:if>
```

This example uses the following objects:

- Web Engine User Agent business service
- TestCapability business service method
- Capability Name:Capability Value business service method argument. If you provide more than one capability as an argument, and if the browser supports all these capabilities, then the condition evaluates to TRUE.

## Capabilities of an Example Browser

This topic lists the capabilities that the Microsoft Internet Explorer version 5.0 browser supports. You can use this information as input to the TestCapability business service method:

- CookiesAllowed=TRUE
- HighInteract=TRUE
- ActiveX=TRUE
- Browser=IE
- Version=5
- DefaultMarkup=HTML
- VBScript=TRUE
- JavaScript=TRUE
- JavaApplets=TRUE
- User-Agent=Mozilla/4.0 (compatible; MSIE 5.0
- SynchExternalContent=TRUE
- FramesSupport=TRUE
- TablesSupport=TRUE

### Capabilities of the Extended Sections of Microsoft Internet Explorer

This topic lists the capabilities that the extended sections of the Microsoft Internet Explorer browser supports. You can determine the following capabilities for Microsoft Internet Explorer version 5.0:

- User-Agent=Mozilla/4.0 (compatible; MSIE 5.0
- Parent=IE 5.0
- Accept=image/gif, image/x-xbitmap, image/jpeg, image/pjpeg, application/vnd.ms-powerpoint, application/vnd.ms-excel, application/msword, */*

You can determine the following capabilities for Microsoft Internet Explorer version 5.5:

- User-Agent=Mozilla/4.0 (compatible; MSIE 5.5

- Parent=IE 5.0
- Version=5.5
- Accept=image/gif, image/x-xbitmap, image/jpeg, image/pjpeg, application/vnd.ms-powerpoint, application/vnd.ms-excel, application/msword, */*
- XML=TRUE
- WAP=FALSE
- StyleSheets=TRUE
- JavaScriptVer=1.3
- DHTML=TRUE

## Customizing How Siebel CRM Displays an Error That Occurs on the Siebel Server

If an error occurs on the Siebel Server when Siebel CRM submits a form, then the Siebel Web Engine displays the same page again and includes an error message. The swe:error tag specifies the location of this error message. If an error occurs outside of a form submission, then the Siebel Web Engine continues to use the value that is defined in the Error Web Page property of the application object.

You can use the swe:error tag to customize how Siebel CRM displays an error that occurs on the Siebel Server. Note the following behavior:

- If Siebel CRM encounters no errors when it renders a form, then Siebel CRM skips the contents of the swe:error tag.
- The only attribute of the swe:error tag is a property whose value must equal FormattedHtml. This configuration instructs Siebel CRM to display the contents of the error message.
- If you do not use a swe:error tag in a Siebel web template file, then the code automatically generates an error node, which is an instance of the CSSSWEErrorSWX code. Siebel CRM inserts this error node as the first child of the enclosing page or form node.
- Siebel CRM displays an error message in plain text. It displays each error message in a separate paragraph.
- The enclosing HTML tags determine the font and style of the error message. If the font uses the same color as the background, then the error message is not visible.

### *To customize how Siebel CRM displays an error that occurs on the Siebel Server*

1. To display the error message in a form, place the following tags in the swe:form tag:

```
<swe:error>
   <swe:this property="FormattedHtml"/>
</swe:error>
```

2. Make sure you use this tag in all swe:form tags.

### Format of the Swe:error Tag

The basic format of the swe:error tag is as follows:

```
<swe:error>
```

The format of the swe:error tag with the FormattedHtml property is as follows:

```
<swe:error property="FormattedHtml"/>
```

or

```
<swe:error>
   <swe:this property="FormattedHtml"/>
<swe:error/>
```

### Example of Using the Error Tag

The following code is an example of using the swe:error tag:

```
<swe:form>
   <swe:error>
      <b><font color="red"> <swe:this property="FormattedHtml"/> </font></b>
   </swe:error>
...
</swe:form>
```

For another example, see "Example Code of a Nongrid Form Applet Template" on page 160.

### Usage of the SWEErrMsg Item

You must use the swe:error tag instead of the swe:pageitem tag that is mapped to the _SWEErrMsg item in the Error Web Page property of the Siebel application. Siebel CRM version 7.0 and higher does not support _SWEErrMsg.

# Customizing Web Templates to Render Menus, Toolbars, and Thread Bars

This topic describes how to customize web templates to render menus, toolbars, and thread bars. For more information, see "About Menus and Toolbars" on page 497. It includes the following topics:

# Using Web Templates to Render Menus and Buttons

If the user clicks a menu that is defined as button or link in a Siebel Web template, then the Siebel Web Engine uses the swe:menu tag to activate a list of menu items. The swe:menu tag renders menus in the following ways:

- Application container page for an application menu
- Applet for a applet menu

Siebel CRM renders an applet menu as an icon button, typically placed to the left of other buttons, such as Edit and Delete. In the Siebel client, Siebel CRM uses the configuration in the SRF file to generate a set of menu items for a given applet. The tag must be defined in an applet web template for applet menus.

Siebel CRM only displays menus in high interactivity.

## Example Code to Render an Application Menu

To render an application menu, you can define the swe:menu tag in any type of template other than an applet web template. Siebel CRM uses the Menu and Menu Item object definitions in the Siebel repository to render a set of menus from a single swe:menu tag. The Menu property in the Application object definition references the Menu object definition. This Menu object definition specifies a set of application menus and menu items in each application menu. Siebel CRM predefines some menu items, such as the Logout menu item.

The following example code from the CCFrameBanner.swt file includes the swe:menu tag at the start of the definition for a banner:

```
<!--Start Banner-->
<swe:menu/>
<table class="banner" cellpadding='0' cellspacing='0' border='0'>
<tr>
   <td width="50%">
      <img src="images/SiebelLogo.gif" width="282" height="57" border="0" alt="" />
   </td>
   <td width="50%">
      <img src="images/spacer.gif" width="100%" height="58" border="0" alt="" />
   </td>
</tr>
```

## How the Menu Tag Renders a Menu

The swe:menu tag renders menu buttons or links for all menus for the following:

- **Applications.** Renders one button or link for each application menu that is defined for the Siebel application in the menu object definition and children of the menu object definition.
- **Applets.** Renders the applet menu button.

The swe:menu tag uses the following format:

```
<swe:menu type="XXX" bitmap="XXX" width="XXX" height="XXX" bgcolor="XXX"
fgcolor="XXX" />
```

The swe:menu tag includes the following attributes:

- **type.** Can be set to one of the following values:
  - **Default.** Siebel CRM renders the menu and the application menu items. If no value is defined for the *type* attribute, then Siebel CRM uses the default value.
  - **Button.** Siebel CRM renders a button that displays a menu that includes the menu items if the user clicks the button.
- **bitmap.** Used only if the Type attribute is Button. It defines the name of a bitmap object that Siebel CRM uses as the label for the button. This bitmap is defined in Siebel Tools in the HTML Control Icons bitmap category.
- **width.** Defines the width of the menu in pixels. For more information, see "Localizing an Application Menu" on page 596.
- **height.** Defines the height of the menu in pixels.
- **bgcolor.** Defines the background color of the menu. You must use the hexadecimal triplet format that HTML requires. For example, #FFFFFF.
- **fgcolor**. Defines the foreground color of the menu. You must use the hexadecimal triplet format that HTML requires.

## Example Code to Render Applet Buttons

The following code from the CCFormButtons.swt file is an example of the template that Siebel CRM uses to render applet buttons, including the menu button:

```
<!-- Buttons (Edit, Delete, Optional, Optional, Optional) --->

<!-- Menu,179 -->

   <td valign="middle" nowrap>

      <swe:menu/>

   </td>

   <td valign="middle"><img src="images/bttns/div.gif" height="13" border="0"
   align="middle" alt=""></td>

<!-- EditRecord -->

<swe:control id="132">

   <td valign="middle" nowrap>
```

```
        <swe:this property="FormattedHtml" hintText="Edit" hintMapType="Control"/>
      </td>
      <td> </td>
   </swe:control>
   (and so forth...)
```

# Using Web Templates to Customize Toolbars

Siebel CRM displays a toolbar as an HTML toolbar in standard interactivity and as a customizable JavaScript toolbar in high interactivity. For an application that uses computer-telephony integration (CTI), you can display another toolbar as a Java applet. For more information, see "About Standard Interactivity and High Interactivity" on page 36.

A JavaScript toolbar object resides in the JSSApplication hidden frame, which typically does not reload during the life cycle of the Siebel application. Therefore, Siebel CRM does not redraw when a page refresh occurs. The user interface part of the JavaScript toolbar resides in a visible HTML frame and redraws when the HTML frame reloads. It is recommended that the visible HTML frame is a persistent frame that reloads infrequently. HTML toolbars reside in the topmost frame in the application template, which is set aside for this purpose.

## Tags That You Use with a Toolbar

This topic describes the toolbar tags that you use with a web template.

### SWE Tag That Specifies a Toolbar

The swe:toolbar tag specifies a toolbar where the name corresponds to the Name property in the Toolbar object definition. Siebel CRM currently supports two types of toolbars: HTML toolbars and Java applet toolbars, as defined in the javaapplet attribute.

The swe:toolbar tag uses the following format:

```
<swe:toolbar name="XXX" javaapplet="true/false" width="XXX" height="XXX" />
```

The swe:toolbar tag includes the following attributes:

- **Name.** The name of the toolbar as defined in Siebel Tools.
- **Javaapplet.** Must be set to true for a Java toolbar, and false for an HTML toolbar.
- **Width**. Width of the toolbar in pixels.
- **Height.** Height of the toolbar in pixels.

### SWE Tag That Retrieves Toolbar Items

The swe:toolbaritem tag recursively retrieves all of the toolbar items for that toolbar from the Siebel repository. It exists between the toolbar start tag and end tag.

The swe:toolbaritem tag uses the following format:

```
<swe:toolbaritem>
```

The swe:toolbaritem tag does not include any attributes.

## Using Templates to Customize HTML and JavaScript Toolbars

You can define an HTML or JavaScript toolbar.

### *To use templates to customize HTML and JavaScript toolbars*

1. Add the following code to the Siebel web template file:

```
<swe:toolbar name=xxx>   // where xxx is the name of toolbar in the repository.
   // any HTML stuff here...
      <swe:toolbaritem>
   // any HTML stuff here...
</swe:toolbar>
```

2. For combo box items, make sure you target the command to a service.

## Customizing a Java Toolbar

You use a Java applet to customize the toolbar. This applet includes all the toolbar controls and the threads that interact with the Siebel Server. The Java applet calls the following methods:

- ShellUIInit method on the command target service when the applet attempts to initialize
- ShellUIExit method when the applet exits

A set of communication protocols is defined for the communication between the Java Applet and the service.

### *To customize a Java toolbar*

- Add the following code to the Siebel web template file:

```
<swe:toolbar name="xxx" javaapplet="true" />
```

# Using Web Templates to Customize the Thread Bar

The thread bar includes thread buttons that Siebel CRM displays in the following format:

```
title: value
```

You can omit the title or value. Separators separate thread buttons. For example, the greater than symbol (>) is a separator.

If a thread applet or thread field is not defined for a view, then Siebel CRM does not update the thread button when it displays the view.

Table 64 describes how Siebel CRM responds to actions the user performs in the thread bar. For more information, see "Customizing the Thread Bar" on page 273.

Table 64. How Siebel CRM Responds to User Actions in the Thread Bar

| User Action | Siebel CRM Response |
|---|---|
| User requests a new screen. | Siebel CRM creates a new thread to replace the current thread. |
| User clicks a view button. | Siebel CRM replaces the last thread with the new view that the user requested. |
| User clicks a drilldown link. | Siebel CRM appends a new step on the thread bar for the view that the user requested. |
| User clicks a thread button. | Siebel CRM deletes all the thread buttons to the right of the thread button that the user clicked and proceeds to the step view that SWEBMCount indicates. |

## How Siebel CRM Uses Bookmarks with the Thread Bar

A thread button can display a link that navigates the user to a previous page. The link requires the GotoBookmarkView Siebel Web Engine command. The link for each thread button must contain at least the following parameters:

```
SWECmd=GotoBookmarkView&SWEBMCount=2SWECount =3
```

where:

- *SWEBMCount=2* indicates that Siebel CRM uses bookmark number 2 to create the view.
- *SWECount=3* is the bookmark ID for the current view.

For example, Siebel CRM uses the swe tags and thread link format to translate the thread button for the A.K. Parker account into the following HTML format:

```
<a href = " www.siebel.com/start.swe?SWECmd=GotoBookmarkView&SWEBMCount=2&
SWECount=3> Account: AK Parker </a>
```

If the user clicks the thread button to display a bookmarked view that the user previously accessed, then Siebel CRM creates a new bookmark that identifies the view that is currently displayed. The bookmark ID for the new view is the current swe count increased by 1. The swe count is the count that Siebel CRM passes to the Siebel Server in the request.

Bookmark deletion policy is not modified with the above bookmark ID assignment policy. By default, Siebel CRM keeps the most recently created 20 bookmarks and deletes all other bookmarks. If the swe count in the user request is less than the swe count on the Siebel Server, then Siebel CRM deletes all the bookmarks that contain a swe count that is larger than the swe count in the user request.

## Customizing the Thread Bar

You can use the following swe tags to customize an HTML thread bar:

- **swe:threadbar.** Defines the start and finish of the thread bar section.
- **swe:threadlink.** Defines the definition of a thread button on the thread bar. This tag includes the following properties:
  - **FormattedHtml.** Display the HTML link.
  - **Title.** Display the title and value pair of the thread button.
- **swe:stepseparator.** Specifies which symbol to display to separate thread buttons.

Use the swe:threadlink and swe:stepseparator tags only in the swe:threadbar tag.

The usage of these swe tags is similar to that of the screen bar and view bar tags.

### *To customize the thread bar*

- Insert thread bar definitions into a Siebel web template file. Use the swe:threadbar, swe:threadlink, and swe:stepseparator tags. For usage with frames, do the following:
  - **Application does not use frames.** Insert the definition in a container page. For example, CCPageContainer.swt.
  - **Application uses frames.** Insert the definition in the Siebel web template file for the Viewbar frame or the View frame.

## Example Code to Customize the Thread Bar

The code in this topic creates a thread bar that uses the following format:

```
Home > Consumer:PCs > PCs:Laptops
```

The following code provides an example of how to insert thread bar definitions into a Siebel web template file:

```
<!-- Begin Threadbar section -->

<table class="Theadbar" width=100% border="0" cellspacing="0" cellpadding="0">

<tr valign="left">

 <td nowrap bgcolor="#6666CC" width=110>

    <img src="images/spacer.gif" width="110" height="25" border="0">

 </td>
```

```
<td width=99%>

   <swe:threadbar>

      <img src="images/spacer.gif" width="10" height="25" border="0"
      align="absmiddle">

      <swe:threadlink property="FormattedHtml">

      <font color="#000000"> <span > <nobr><swe:this property="Title"/></
      nobr> </span> </font>

      </swe:threadlink>

      <swe:stepseparator>&gt;</swe:stepseparator>

   </swe:threadbar>

   <img src="images/spacer.gif" width="10" height="25" border="0"
   align="absmiddle">

</td>

</tr>

</table>

<!-- End Threadbar section -->
```

# Customizing an HTML Control Type

Siebel CRM supports different control types. For example, Check Box, Button, Mail To, Text Area, and so forth. You can add a definition to the SWF (Siebel Web Format) file to define your own HTML type.

## Comparison of Using Cascading Style Sheets and Siebel Web Templates to Customize an HTML Control Type

You use a cascading style sheet to define general stylistic information about labels, titles, background colors, and so forth.

You use the cchtmltype.swf file to define more complex attributes that determine the appearance or client functionality of a type of HTML element. For example, a button type that is associated with a specific GIF image, or a type of link that connects the user with an FTP site.

To add qualities to a page element, you can define tags and attributes in the Siebel Web template file. You can also define types in the cchtmltype.swf file that you can reference in Siebel Tools for a specific control on a specific applet web template or web page object. This technique preserves the generality of the Siebel web template by avoiding the need to place HTML directly in the template. Because it reduces customization in the templates and stores more configuration information in the Siebel repository, this technique also reduces maintenance of Siebel CRM.

**NOTE:** High interactivity does not support a custom control type that calls a method. For more information, see “About Standard Interactivity and High Interactivity” on page 36.

# Creating a New HTML Type

You can create a new HTML type.

### *To create a new HTML type*

1. Add the name of the new type to the List of Values used for the HTML Type property in Siebel Tools (REPOSITORY_HTML_CTRL_TYPE).

   MiniButton is an example of a name.

2. Modify one of the SWF files that Siebel CRM uses:

   a. Add the format information for the new type.

      Siebel CRM uses two SWF files. The file you modify must use the SWF extension. It must reside in the same directory as the template files. One file contains the special types that Siebel CRM defines. The other file contains custom definitions that you define to add more types or to override Siebel types.

      Use the swe:htmltype and swe:this tags to define how to render the custom type using the following format:

```
<swe:htmltype name="XXX" mode="AAA" state="BBB">

    ..... HTML .....

    <swe:this property="YYY" />

    .... More HTML ....

</swe:htmltype>
```

   b. Set the UserSWFName parameter to the name of the SWF file that the application object manager must use.

      For more information about the application object manager, see *Siebel System Administration Guide*.

3. In Siebel Tools, change the HTML Type property of the control, list column, or page item to the new type.

4. In the template file, use the FormattedHTML property for the swe:control tag or the swe:pageItem tag.

# How the Siebel Web Engine Uses a Custom HTML Type

If the HTML type of a control, list column, or page item is a custom type, then the Siebel Web Engine uses the SWF format when it renders any element that is mapped to the control, and that defines the FormattedHtml property. The Siebel Web Engine does not use the format with any other property, such as Display Name. However, in the SWF file, the swe:this tag can reference these properties, except the FormattedHtml property.

Note the following examples:

- <swe:control id="1" property="FormattedHtml"/>
- <swe:control id="1"> ... <swe:this property="FormattedHtml"/> ... </swe:control>
- <swe:pageitem id="1"  property="FormattedHtml"/>
- <swe:pageitem id="1"> ... <swe:this property="FormattedHtml"/> ... </swe:pageitem>

### Format Requirements of an SWF File

You must make sure each format specification in an SWF file includes the following parts:

- An enclosing XML element that names the type and optionally names the mode and state in which Siebel CRM uses the current format
- The enclosed format content

You must make sure the content format meets the following requirements:

- It must be a valid, regular Siebel Web Engine format.
- It can reference all the properties of the current control, except FormattedHtml. To prevent recursion, it cannot reference FormattedHtml.
- It can use the Data property in the swe:this tag.

## Examples of Customizing an HTML Type

This topic describes examples of customizing an HTML type. You might use this feature differently, depending on your business model.

### Example of Customizing an HTML Type for a Control

To create a custom HTML type for the LabelRed control that displays the caption of the control in red, use the following code:

```
<swe:htmltype name="LabelRed">

   <font color="red"> <swe:this property="DisplayName"/> </font>

</swe:htmltype>
```

### Example of Customizing an HTML Type for an Applet Mode

You use the Mode attribute of the swe:htmltype tag to define a custom format for the Base, Edit, New, and Query applet modes. If you define a mode, then the Siebel Web Engine uses the format you define only if the current show mode matches the value defined for this attribute. For example, assume you create a new HTML type named SiebelText to display a control that Siebel CRM displays in the following ways:

- As a label and a text field in Edit mode
- As read-only text in Base mode

In this situation, you use the following code:

```
<swe:htmltype name="SiebelText">
   <swe:this property="Data" type="Text"/>
</swe:htmltype>
<swe:htmltype name="SiebelText" mode="Edit">
   <swe:this property="DisplayName"/>: <swe:this property="Data" type="Text"/>
</swe:htmltype>
```

For more information, see "Options to Control How the User Creates, Edits, Queries, and Deletes CRM Data" on page 118.

## Example of Customizing an HTML Type when Siebel CRM Cannot Call a Method

To display a different image depending on the state of a control or list column, you can define an optional attribute of the swe:htmltype tag, such as State. You can use the following states:

- **Disabled.** For a control or list column that calls a method, when Siebel CRM cannot call the method on the record.
- **Required.** For a control or list column that is required.

For example, to display a gray button when Siebel CRM cannot call a method, add the following code in addition to the default definition described earlier in this topic:

```
<swe:htmltype name="MiniButton" state="Disabled">
   <img src="images/graybtn_left.gif" border=0 height=15 width=2>
   <swe:this property="Data" type="Link" />
   <img src="images/graybtn_right.gif" border=0 height=15 width=2>
</swe:htmltype>
```

Note how Siebel CRM handles calls differently:

- If Siebel CRM cannot call a method with a predefined HTML type, then Siebel CRM does not display the control or list item.
- With a custom HTML type, Siebel CRM always uses the format defined in the SWF file to display the control or list item. The HTML that Siebel CRM generates for the following Data property when Siebel CRM cannot call a method is the caption of the control or list item without any *href* tags:

  ```
  swe:this property="Data" type="Link"
  ```

If Siebel CRM cannot call a method, then you can use a custom HTML type to hide a control or list column. For example, you can create the following empty swe:htmltype tag for the Disabled state:

```
<swe:htmltype name="MiniButton" state="Disabled"></swe:htmltype>
```

This code hides only the swe:control tag or the swe:this tag that calls the FormattedHtml property.

## Example of Customizing an HTML Type to Indicate a Required Field

To display the SiebelText type with an asterisk (*) to indicate a required field, you can add the following code in addition to the definitions for this type described earlier in this topic:

```
<swe:htmltype name="SiebelText" mode="Edit" state="Required">
   * 
   <swe:this property="DisplayName"/>
   : 
   <swe:this property="Data" type="Text"/>
</swe:htmltype>
```

The Siebel Web Engine uses the following order of precedence when it looks up HTML Type definitions in the SWF file:

1. Mode
2. State

It is recommended that you always create a default format definition for all custom HTML types. To create a default format definition, you define it without specifying the mode attribute and state attribute.

## Example of Using the Data Property of the SWE *This* Tag

The Data property of the swe:this is similar to a macro that casts the current, custom type to one of the intrinsic types, then inserts the FormattedHtml property of the intrinsic type. To use the Data property, you add a Type attribute to the swe:this tag. This Type attribute names the intrinsic type. For example, use the following code to create a new type named MiniButton. This code adds a special format to the Web Engine intrinsic type named Link:

```
<swe:htmltype name="MiniButton">
   <img SRC="images/btn_left.gif" border=0 height=15 width=2>
   <swe:this property="Data" type="Link" />
   <img src="images/btn_right.gif" border=0 height=15 width=2>
</swe:htmltype>
```

The following code outputs the same HTML as if the template included a separate swe:this tag, where the property is FormattedHtml and the HTML type of the control is the predefined Link type:

```
swe:this property="Data" type="Link"
```

You can only define a predefined type and not a custom type for the type attribute of a Data element.

# 22 Configuring ActiveX Controls

This chapter describes how to configure ActiveX controls. It includes the following topics:



## Process of Creating an ActiveX Control

To create an ActiveX control, perform the following tasks:



An *ActiveX control* is a self-contained program that you can run in other programs. An ActiveX control typically registers itself in the Windows registry. You can incorporate any registered ActiveX control in the applet of a Siebel application. You can use an ActiveX control to add certain features to an applet, such as a slider, media player, and so forth. You can also embed an entire application that you deploy as an ActiveX control.

**NOTE:** An ActiveX control works in most deployment environments. However, a development environment might or might not support an ActiveX control. For example, if you attempt to insert a Siebel ActiveX application control into an Excel worksheet, then an error similar to `Cannot insert object` results. Siebel CRM does not support certain third-party ActiveX controls. For example, Microsoft Web Browser, Microsoft Rich Textbox, and CTreeView.

### Making an ActiveX Control Available

This task is a step in "Process of Creating an ActiveX Control" on page 539.

To make an ActiveX control available for use, you must create DLL and class objects in Siebel Tools. These objects reference the CAB (cabinet) file that contains the control.

#### *To make an ActiveX control available*

1 Create a CAB file that contains the ActiveX control, or acquire access to a CAB file that contains the ActiveX control.

   Microsoft provides some utilities that you can use for assistance.

2 Copy the CAB file to the appropriate folder:

- If you deploy to a server environment, then copy the CAB file to the following folder:

  *ORACLE_HOME*\SWEApp\public*language_code*\applets

  where:

  - *ORACLE_HOME* is the full path to Siebel CRM installation directory on the Siebel Web Server.
  - *language_code* is the three-letter code for the language. For example, ENU for U.S. English or JPN for Japanese.

- If you deploy to a CAB file on the Siebel client, then copy the CAB file to the following folder:

  *ORACLE_HOME*\PUBLIC*language_code*\applets

  where:

  - *ORACLE_HOME* is the full path to the Siebel client root directory.
  - *language_code* is the three-letter code for the language. For example, ENU for U.S. English or JPN for Japanese.

3. In Siebel Tools, click DLL in the Object Explorer.
4. In the DLLs list, add a new record using values from the following table.

| Property | Description |
|---|---|
| Name | Enter a name for the DLL object. |
| Project | Choose a project. |
| File Name | Enter a file name and version that references the CAB file that contains the ActiveX control. For example:<br>`subman.cab#Version=7,0,0,0` |
| Code or Class Id | Enter the Class Id of the ActiveX control. For example:<br>`clsid:06314967-EECF-11D2-9D64-0000949887BE` |

5. In the Object Explorer, click Class.
6. In the Classes list, add a new record using values from the following table.

| Property | Description |
|---|---|
| Name | Enter a name for the class object. |
| Project | Choose the project you used in Step 4. |
| DLL | Choose the name of the DLL object you created in Step 4. |
| Object Type | ActiveX Control |

# Adding an ActiveX Control to an Applet

This task is a step in "Process of Creating an ActiveX Control" on page 539.

You use the Applet Layout Editor to add an ActiveX control to an applet.

### *To add an ActiveX control to an applet*

1. In Siebel Tools, in the Object Explorer, click Applet.
2. In the Applets list, locate the applet you must modify.
3. Right-click the record in the Applets list, and then choose Edit Web Layout.
4. Drag and then drop the ActiveX icon from the Palette to a placeholder in the web template.

   Siebel Tools displays the Insert ActiveX Control dialog box. This dialog box lists the ActiveX controls that are currently registered on your computer.
5. In the Insert ActiveX Control dialog box, choose the desired ActiveX control and then click OK.

   Siebel Tools replaces the placeholder with the ActiveX control.
6. Set the Class property of the control to the name of the class that you created in Step 6 on page 540.

   The default properties of the ActiveX control are defined as control user properties.

# Setting Properties for an ActiveX Control

This task is a step in "Process of Creating an ActiveX Control" on page 539.

An ActiveX control includes a set of properties that vary from control to control. To view or modify the properties of an ActiveX control, you can use the Properties window or activate the property sheet for the control.

## Using the Properties Window to Set the Properties of an ActiveX Control

You can use the properties window to set the properties of an ActiveX control.

### *To use the properties window to set the properties of an ActiveX control*

1. Right-click the ActiveX control in the Applet Web Template Layout window, and then choose the View Properties Window menu item.
2. Click the Categorized tab in the Properties window.

   The Categorized tab arranges properties under the following headings:

   - **ActiveX.** Includes properties for the native ActiveX control.
   - **Basic.** Includes basic properties for the control.

- **Misc.** Includes properties of the predefined Control object type.

3 Make changes to property settings as you do with a typical Siebel object.

Siebel Tools displays the changes you make to the native properties in the Applet Web Template Layout window, such as if you change a text color or font property. Siebel Tools saves changes you make to the native properties with the applet, just as it does with Siebel properties.

### Using the Property Sheet to set the Properties of an ActiveX Control

You can use the native property sheet of the ActiveX control to set properties. If you use the property sheet, then you can set only the properties of the ActiveX object. You cannot set properties of the predefined control. You must use the Properties window to set properties of the predefined control.

#### *To use the property sheet to set the properties of an ActiveX control*

1 Right-click the ActiveX control in the Applet Web Template Layout window, and then choose the ActiveX Control Properties menu item.

If a native property sheet is available for the control, then Siebel Tools displays it.

2 Set the properties, as required.

If you exit the Applet Web Template Layout window or perform a Save, then Siebel Tools saves these settings with the applet.

## Using ActiveX Methods and Events

An ActiveX control displays a set of methods and events that are provided with the control. You can call a method from a script that you write in browser script that is attached to the control or to another object. You can program an event procedure to respond to events that the control generates.

#### *To use ActiveX methods and events*

1 Right-click the ActiveX control in the Applet Web Template Layout window, and then choose the ActiveX Control Methods menu item.

Siebel Tools displays the ActiveX Control Methods dialog box. This dialog box lists the methods and the specified format for calling each method. It is for reference purposes only.

2 Make a note of the method you must call, and then click Close.

3 Do one of the following:

- Call the method from a script.
- Program the event procedure.

# Distributing ActiveX Controls

If you distribute ActiveX controls to licensed users, then you must distribute any dependency DLLs along with the ActiveX controls. For information about these dependency DLLs, contact the ActiveX vendor. An example of a dependency is the number and type of DLLs that must accompany the ActiveX control.

### *To distribute ActiveX controls*

1. Contact the ActiveX vendor to determine the dependency DLLs.
2. Distribute the ActiveX controls and dependency DLLs to licensed users.

# 23 Improving the Performance of Siebel Business Applications

This chapter describes how to tune and improve the performance of a Siebel application. It includes the following topics:



## How a CIAI Index Can Improve a Query

The *CIAI query* is a feature that uses an index to support a case-insensitive and accent-insensitive (CIAI) query on certain text columns. The purpose of the CIAI query is to improve query performance. If a database uses a CIAI index to perform a search, then the Siebel database is not required to perform table scans to locate records, and the database can perform the search more quickly.

For example, in the S_CONTACT table, assume the LAST_NAME column is defined for a CIAI query and uses the LAST_NAME_CI column. Assuming an IBM DB2 database, if you query for the name Smith, then the object manager creates a query similar to the following:

```
SELECT column list FROM S_CONTACT
WHERE LAST_NAME_CI = SMITH
```

The Siebel database then uses the CIAI index on LAST_NAME_CI to locate the records.

For Text and CLOB physical types, the Case Insensitivity Wizard does the following work:

- Accepts the Text or CLOB physical type
- Does not create a CIAI column or CIAI indexes for a Text or CLOB physical type
- Sets the Default Insensitivity property to DB Case & Accent

For more information, see "Types of Tables and Columns That CIAI Query Supports" on page 696.

### How Siebel CRM Implements a CIAI Column and Index in a Database

The type of database determines how Siebel CRM implements a CIAI column or index that exists in the Siebel repository. For example, Siebel CRM implements a CIAI column in the following ways:

- On MS SQL, as a calculated column
- On Oracle, as indexes that use functions
- On IBM DB2, as a schema column

### Effect of CIAI Columns on Sorts

If querying on a column that is configured for CIAI, then the ORDER_BY clause might or might not include the CIAI column depending on the following situations:

- A view with the Visibility Applet Type property set to All uses the CIAI column in the ORDER_BY clause.
- A view with the Visibility Applet Type property set to Org does not use the CIAI column for sorts.

If querying on another column in the same view that is not configured for CIAI, then Siebel CRM does not use the CIAI column in the ORDER_BY clause.

# Using the Case Insensitivity Wizard to Improve Query Performance

This topic describes how to use the Case Insensitivity Wizard to configure columns to support a CIAI query. It includes the following topics:



For more information, see "How a CIAI Index Can Improve a Query" on page 545.

## Overview of the Case Insensitivity Wizard

The *Case Insensitivity Wizard* is a tool you can use to configure a column to support a CIAI query. This wizard does the following work:

- If you use an input file, then validates the format of all records in the input file. For more information, see "Input File You Can Use with the Case Insensitivity Wizard" on page 552.
- Validates that all tables and columns are eligible for CIAI configuration. For more information, see "How the Case Insensitivity Wizard Verifies Eligibility" on page 547.

- For each eligible base column, defines a new CIAI column and a CIAI index in the Siebel repository. The CIAI column contains data in the base column. The wizard converts this data to uppercase. For more information, see "Index Strategy Variable of the Case Insensitivity Wizard" on page 550.
- Sets the Default Insensitivity property for the base column to DB Case & Accent. You can also run the Case Insensitivity Wizard in a special mode to set the Default Insensitivity property on columns that do not contain an index.
- Sets flags and performs other configuration operations in the Siebel repository that are required to support a CIAI query.

Siebel Tools does not create columns or indexes in the Siebel database until you compile the Siebel repository.

## How the Case Insensitivity Wizard Verifies Eligibility

The Case Insensitivity Wizard verifies that all tables and columns it configures for CIAI meet the following eligibility criteria:

- The table and column exist in the Siebel repository.
- The column is active and belongs to the defined table.
- Siebel CRM supports the table type, column functional type, and column physical type for each CIAI configuration.
- The column already includes one or more indexes. If no index is defined on the column, but the column is otherwise eligible, then the wizard accepts the column but does not create a CIAI column or any CIAI indexes for the column. The Case Insensitivity Wizard sets the Default Insensitivity property to DB Case & Accent. For more information, see "Using the Case Insensitivity Wizard on Columns That Do Not Contain an Index" on page 554.

## How the Case Insensitivity Wizard Applies a Naming Format

When the Case Insensitivity Wizard creates a CIAI column name or index name, it uses a naming format that is similar to the naming format that the EIM Table Mapping Wizard uses. The naming format is fixed. You cannot override it. For more information, see "Mapping a Custom Table to an Interface Table" on page 571 and "Objects You Use with Enterprise Integration Manager" on page 689.

The Case Insensitivity Wizard uses the following naming format:

- **Column name.** Appends a _CI suffix to the CIAI column name. For example, if the parent column is LAST_NAME, then the CIAI column is LAST_NAME_CI.
- **Index name.** Uses the following format to append a string to the base table name:

  *BASE_TABLE_NAME*_C#

  where:

  *#* is an integer starting at 1 and incremented as required to create a unique name.

  For example, S_CON_ADDR_C1 is a CIAI index that the wizard creates for the S_CON_ADDR table.

## How the Case Insensitivity Wizard Limits the Length of An Object Name

The default length for a column name or index name is 30 characters. If a CIAI column name or index name exceeds the maximum length, then the Case Insensitivity Wizard does the following:

- Truncates the column base name for a column name
- Truncates the table base name for an index name

The wizard does the following:

- Deletes underscores one at a time, beginning with the leftmost underscore.
- Deletes vowels one at a time, beginning with the rightmost vowel.
- Deletes characters one at a time, beginning with the rightmost character. Characters include letters, numbers, and so forth.

The Case Insensitivity Wizard does not truncate a prefix or a suffix.

You can manually limit the length of schema object names to 18 characters. For more information, see "Limiting the Length of Schema Object Names Manually" on page 557

### How the Case Insensitivity Wizard Makes Sure Each Name Is Unique

If the Case Insensitivity Wizard truncates a column or index name, then the name might not be unique. If this situation occurs, then the wizard truncates the rightmost character in the base column name or base table name. The wizard replaces the truncated character with an integer, starting with 1. To maintain the overall string length, the wizard does the following:

- Increments the integer if the truncated name is not unique
- Truncates the name to make room for more digits if the wizard requires more digits to make the name unique

## How the Case Insensitivity Wizard Reports an Error

The Case Insensitivity Wizard reports errors in a pane in the Case Insensitivity Wizard. The errors list provides information so that you can identify the column and the cause of the problem. You can do one of the following:

- Correct the errors and rerun the Case Insensitivity Wizard.
- Ignore the errors. When the Case Insensitivity Wizard configures columns, it skips each column that generates an error.

You can export errors that the Case Insensitivity Wizard reports to a text file. Errors typically fall into one of the following categories:

- **Input file format error**. Punctuation error or improper use of configuration options.
- **Table and column eligibility problem**. Occurs if you choose tables and columns that the Case Insensitivity Wizard does not support.
- **Project not locked**. You must lock any table you define in the Table variable before you run the wizard. The wizard displays the list of projects that you must lock.

# Variables You Can Use with the Case Insensitivity Wizard

The Case Insensitivity Wizard includes the following variables:

- Table
- Column
- Method
- Index Strategy
- Operation

## Method Variable of the Case Insensitivity Wizard

The method variable of the Case Insensitivity Wizard determines how the wizard configures a CIAI query for a column. This topic describes the methods that are available.

### About the Force Case Method

If you set the method to Force Case, then the Case Insensitivity Wizard does not create a CIAI column or index. You can use the Force Case method for a column where the Force Case property of a table column is already set.

If the Force Case property is FirstUpper, Lower, or Upper, then Siebel CRM forces the column data to the case that is set in the Force Case property before it writes data to the Siebel database. Because all data in the base column is in the same case, the object manager can use the base column and the base column indexes for a query that is not case-sensitive. A CIAI column and CIAI indexes are not required. To retrieve records, the object manager uses the indexes that are already defined on the base column.

If Force Case is FirstUpper, LOWER, or Upper, then the Case Insensitivity Wizard considers Force Case to be set for a column. If Force Case is empty, then the wizard does not consider Force Case to be set.

### About the Database Method

The Database method defines a CIAI column for the base column. It uses the index strategy variable to create indexes. The Case Insensitivity Wizard does the following work for indexes that contain multiple columns as keys:

- For the first key where the column becomes CIAI enabled, the wizard defines a copy of the index. In the copy, the key references the CIAI column instead of the base column.
- For each additional key that is CIAI enabled, the wizard deletes the index copy in the Siebel repository and redefines it so keys reference the additional CIAI columns.

For example, assume the following:

1. The S_CONTACT table contains Base Column A. This column includes Index A, which uses the LAST_NAME and FST_NAME columns as keys.

2 You choose the LAST_NAME column for a CIAI query and define the Copy All index strategy.

3 The Case Insensitivity Wizard defines the LAST_NAME_CI column and a CIAI index for the new column.

4 To create Index B for Base Column A, the wizard copies Index A and specifies LAST_NAME_CI and FST_NAME as keys.

5 You choose the FST_NAME column for a CIAI query.

6 As part of configuring FST_NAME for a CIAI query, the wizard does the following work in the Siebel repository:

- Defines a new FST_NAME_CI column.
- Deletes Index B on Base Column A and redefines it with the LAST_NAME_CI and FST_NAME_CI keys.

For more information, see "Index Strategy Variable of the Case Insensitivity Wizard" on page 550.

## Index Strategy Variable of the Case Insensitivity Wizard

The *index strategy* is a variable that determines how the Case Insensitivity Wizard defines indexes for the CIAI column.

Table 65 describes the index strategies you can use with the method variable set to Database. The wizard sets the Default Insensitivity property to DB Case & Accent no matter which index strategy you use.

Table 65. Index Strategies You Can Use With the Database Method

| Index Strategy | Work That the Case Insensitivity Wizard Performs |
|---|---|
| None | Defines no new CIAI columns or indexes. |
| Single | Defines a new CIAI column and defines a single CIAI index on it.<br>For every index in which the base column participates, the wizard does not create another index that references the CIAI column. |
| Copy All | Defines a new CIAI column and a CIAI index for the column.<br>For every index in which the base column participates, the wizard defines a copy of that index. The copy references the CIAI column instead of the base column. |

## How the Case Insensitivity Wizard Uses Default Values

The Table Name and Column Name are the only required variables for the Case Insensitivity Wizard. If you omit the other variables, then the Case Insensitivity Wizard uses the defaults described in this topic.

### Default Values for the Method Variable

The Case Insensitivity Wizard uses the following default values for the method variable:

- If the Force Case property is set on the table column, then the wizard uses the Force Case method.
- If the Force Case property is not set on the table column, then the wizard uses the Database method.

### Default Values for the Index Strategy Variable

The Case Insensitivity Wizard uses the following defaults for the index strategy variable:

- If the method is Force Case, then the wizard sets the index strategy to None.
- If the method is Database, and if the base column does not contain an index, then the wizard sets the index strategy to None.
- If the method is Database, and if the base column contains an index, then the wizard uses the Copy All index strategy.

If the Case Insensitivity Wizard uses None as an index strategy, then the wizard does not define new columns or indexes. It sets the Default Insensitivity property to DB Case & Accent.

The Case Insensitivity Wizard executes the following default logic:

- If the Force Case property is set on a column, then the wizard does not define columns or indexes.
- If the column contains an index, then the wizard does not define columns or indexes.

In these situations, the Case Insensitivity Wizard accepts the column as eligible but does not define columns or indexes. These default behaviors define implicit eligibility requirements.

### Default Values for the Operation Variable

If you do not include the Operation variable, then the Case Insensitivity Wizard sets Operation to On, regardless of the method or index strategy.

## Using the Case Insensitivity Wizard on a Table

If you run the Case Insensitivity Wizard to configure a large number of columns for a CIAI query, or if you must use a nondefault method or index strategy, then you can use an input file. The wizard reads the input file, and then configures the columns in the file. Using an input file allows you to control which configuration options the Case Insensitivity Wizard uses. Oracle provides recommended input files. For more information, see "Input File You Can Use with the Case Insensitivity Wizard" on page 552.

### *To use the Case Insensitivity Wizard on a table*

1. In Siebel Tools, open the repository.

   For more information, see "Choosing the Correct Repository when Running the Case Insensitivity Wizard" on page 557.

2. Lock the tables that are listed in the input file.

3 From the Tools menu, choose Utilities, and then Case Insensitivity.

4 Choose Administer the Columns Listed in This File, and then click Browse.

Siebel Tools displays the tools\objects directory, which contains the default csv input files.

5 Choose the desired csv file, click Open, and then click Next.

The Case Insensitivity Wizard validates the following:

- Format of the input file
- Eligibility of all tables and columns

If the file contains an error, then the wizard lists the records that contain the errors. If you continue, then the wizard skips records that contain errors. If there are errors, then click Export to export the error list to a text file, correct the errors, and then restart the Case Insensitivity Wizard.

For more information, see "Input File You Can Use with the Case Insensitivity Wizard" on page 552.

6 Click Next.

The Case Insensitivity Wizard displays the records in the input file.

7 Review the configuration settings and verify they are correct.

If you must change any configuration settings, do the following:

a Click Export.

The Case Insensitivity Wizard exports the list to a text file.

b Edit the text file, and then restart the Case Insensitivity Wizard, specifying the edited text file as the input file.

8 Click Next.

The Case Insensitivity Wizard displays the changes it will make to repository tables and indexes.

9 (Optional) If you must save a record of the changes, then click Export.

The Case Insensitivity Wizard writes the changes to a text file.

10 Click Finish.

The Case Insensitivity Wizard configures the columns in the Siebel repository to support a CIAI query.

11 In the Tables list, click Apply/DDL.

12 Compile your changes.

## Input File You Can Use with the Case Insensitivity Wizard

The Case Insensitivity Wizard can accept a comma-delimited (.csv) file as input. Each line in the file is one record that defines one column that the wizard configures for a CIAI query. Oracle provides a recommended input file. The input files include a csv file extension and are located in the objects subdirectory of your Siebel Tools installation. These files list columns that Siebel CRM frequently uses for queries. You can edit these files or create new input files.

You must use the following format for each record:

*TABLE_NAME*,*COLUMN_NAME*,*Method*,*Index Strategy*,*Operation*

where:

*TABLE_NAME* and *COLUMN_NAME* are required.

For example:

```
S_CONTACT,EMAIL_ADDR,Database,Copy All,On
```

The Case Insensitivity Wizard inserts the default value for any optional variable that you omit.

If you omit a variable from a record, then you must provide a delimiting comma that represents the placeholder for the variable. In the following example, the Index Strategy variable is omitted:

```
S_CONTACT,EMAIL_ADDR,Database,,On
```

The Case Insensitivity Wizard does not perform special handling for a denormalized column. To configure a CIAI query on denormalized columns, you must include them in an input file.

For more information, see "Variables You Can Use with the Case Insensitivity Wizard" on page 549.

## Using the Case Insensitivity Wizard on a Table Column

To run the Case Insensitivity Wizard, you can manually choose a table column. The wizard uses configuration defaults to configure the column. To modify the configuration options, you can export the configuration strings to a text file, edit them, and then use the edited file as an input file to run the wizard.

### *To use the Case Insensitivity Wizard on a table column*

1. In Siebel Tools, open the desired repository.

   For more information, see "Choosing the Correct Repository when Running the Case Insensitivity Wizard" on page 557.

2. In the Object Explorer, click Table.

   As an alternative, you can display the Object Explorer in Flat mode, click Column, and then locate the desired column in the Columns list.

3. In the Tables list, choose the table you must modify.

4. In the Object Explorer, expand the Table tree, and then click Column.

5. In the Columns list, right-click the column you must modify, and then choose Case Insensitivity.

   The Case Insensitivity Wizard does the following:

   - Validates the eligibility of the chosen column

- Lists any column that contains an eligibility error in the Configure Case Insensitivity dialog box.

If there is an error, then you can export the error list to a text file, correct the error, and then restart the Case Insensitivity Wizard. To export the error list, click Export. If there is an error and you continue, then the Case Insensitivity Wizard skips any column that contains an error.

**TIP:** To run the Case Insensitivity Wizard for multiple columns, hold down the CTRL key while you choose each column in the Columns list.

6 Continue with Step 7 on page 552.

## Using the Case Insensitivity Wizard on Columns That Do Not Contain an Index

The Case Insensitivity Wizard defines a CIAI column and index only on a column that already includes an index. However, you can run the Case Insensitivity Wizard for a column that does not include an index but that meets all the other eligibility criteria. This mode changes the Default Insensitivity property from None to DB Case & Accent. In a query, Siebel CRM converts column values to uppercase before it performs the comparison. This work allows a search to be case and accent insensitive.

For example, in the S_CONTACT table, assume the LAST_NAME column does not include an index. You run the Case Insensitivity Wizard to set the Default Insensitivity property to DB Case & Accent. If you query for the name Smith, or any case variant such as SMITH or smiTH, then the object manager uses a query similar to the following:

```
SELECT column list FROM S_CONTACT
WHERE UPPER(LAST_NAME) LIKE UPPER(Smith)
```

### *To use the Case Insensitivity Wizard on columns that do not contain an index*

1 In Siebel Tools, open the desired repository.

For more information, see "Choosing the Correct Repository when Running the Case Insensitivity Wizard" on page 557.

2 From the Tools menu, choose Utilities, and then the Case Insensitivity menu item.

3 Choose the Enable for All Unindexed Columns option, and then click Next.

The Case Insensitivity Wizard does the following:

- Locates unindexed columns that meet CIAI eligibility criteria
- Displays a list of tables that you must lock

4 Click Export to export the list of tables to a text file, then exit the Case Insensitivity Wizard.

5 Open the text file in a text editor.

6 In Siebel Tools, lock all tables that are listed in the text file.

7 Start the Case Insensitivity Wizard again, choose the Enable for All Unindexed Columns option, and then click Next.

The Case Insensitivity Wizard does the following:

- Locates unindexed columns
- Displays a list that describes how the unindexed columns are configured

8 Verify that method is Database and Index Strategy is None for all columns.

If the index strategy is None, then the Case Insensitivity Wizard does not create a CIAI column or index.

9 Click Next.

The Case Insensitivity Wizard displays a list that describes the Siebel repository changes it will make.

10 Verify that the Default Insensitivity property is DB Case & Accent for all columns.

11 Click Finish.

The Case Insensitivity Wizard makes the changes to the Siebel repository.

## Using the Case Insensitivity Wizard to Accomplish Various CIAI Configuration Tasks

You can use the Case Insensitivity Wizard to accomplish various CIAI configuration tasks.

### *To use the Case Insensitivity Wizard to accomplish various CIAI configuration tasks*

- Use Table 66 to determine how to run the wizard.

Table 66. Running the Case Insensitivity Wizard to Accomplish Various CIAI Configuration Tasks

| Work You Must Perform | How to Run the Case Insensitivity Wizard |
|---|---|
| Define new columns to support a CIAI query. | Use an input file or choose files manually. |
| Deactivate CIAI for defined columns. | Use an input file that specifies the desired columns. For each column, set Operation to Off. |
| Change the Default Insensitivity property from None to DB Case & Accent for eligible columns without indexes. | Choose the Tools menu, Utilities, and then the Case Insensitivity menu item. Choose the Enable for All Unindexed Columns option. |
| Change the method from Force Case to Database for columns that are already defined. | Use an input file or choose files manually. |

Table 66. Running the Case Insensitivity Wizard to Accomplish Various CIAI Configuration Tasks

| Work You Must Perform | How to Run the Case Insensitivity Wizard |
|---|---|
| Change the method from Database to Force Case for columns that are already defined. | Use an input file that specifies the desired columns. For each column, set Operation to Off. This technique deactivates the CIAI column and CIAI indexes. Verify that the Force Case property is set for base columns. |
| Change the index strategy from Single to Copy All for columns that are already defined. | Use an input file that specifies to change the index strategy from Single to Copy All. |
| Change the index strategy from Copy All to Single for columns that are already defined. | Do the following:<br>■ Run the Case Insensitivity Wizard, using an input file that specifies the desired columns. For each column, set Operation to Off. This technique deactivates the CIAI column and CIAI indexes.<br>■ Next, run the Case Insensitivity Wizard on the same base columns with method set to Database and Index Strategy set to Single. This technique activates the index on the CIAI columns. |

## Using the Case Insensitivity Wizard to Deactivate CIAI Configuration

You can use the operation variable to deactivate CIAI configuration of columns. The operation variable determines if the columns and indexes that the Case Insensitivity Wizard creates are or are not active. The available values are On or Off. The default value is On.

### *To use the Case Insensitivity Wizard to deactivate CIAI configuration*

- Run the Case Insensitivity Wizard against a column. Set the Operation to Off.

  The wizard does the following work:

  - Deactivates the CIAI index on the CIAI column.
  - Sets the related CIAI indexes to inactive for indexes in which the base column participates.
  - Does not deactivate CIAI columns that reference the base column. You must manually set inactive to TRUE for each of these columns.
  - Does not delete CIAI columns or CIAI indexes in the Siebel repository.

**NOTE:** You cannot manually change the Default Insensitivity property of a predefined Siebel column to None. You must run the Case Insensitivity Wizard for this column with Operation set to Off. This column is the last column in the csv file.

# Choosing the Correct Repository when Running the Case Insensitivity Wizard

This topic describes how to choose the correct repository.

### *To choose the correct repository when running the Case Insensitivity Wizard*

1. If you are not upgrading a development environment, then do the following:
   a. In the development environment, run the Case Insensitivity Wizard on the Siebel Repository.
   b. Generate another schema.ddl file, and then use it to update your test and production environments.
2. If you are upgrading a development environment, then run the Case Insensitivity wizard on the New Customer Repository.

   Later in the upgrade process, Siebel CRM renames this repository to Siebel Repository. To revise the columns you configured for a case insensitive query, you can run the Case Insensitivity Wizard after an upgrade is complete. For more information, see *Siebel Database Upgrade Guide*.

# Limiting the Length of Schema Object Names Manually

You can manually limit the length of schema object names to 18 characters.

### *To limit the length of schema object names manually*

1. In Siebel Tools, choose the View menu, and then the Options menu item.
2. Choose the Database tab of the Development Tools Options dialog box.
3. Make sure the Limit Schema Object Names to 18 Characters option contains a check mark, and then click OK.

# Other Techniques to Set Case Sensitivity

This topic describes other techniques you can use to set case sensitivity.

## Using the Configuration File to Set the Case Sensitivity of Queries

You can configure queries to be case sensitive or case insensitive. However, this configuration does not apply to DTYPE_ID fields because these fields always conduct case sensitive searches.

### *To configure queries to be case sensitive or case insensitive*

- Use one of the following values to set the Default Sensitivity parameter in the configuration file:
  - Set Default Sensitivity to TRUE for case sensitive queries.

- Set Default Sensitivity to FALSE for case insensitive queries.

### Using the ForceCase Property of a Field to Force Case Sensitivity

You can use the ForceCase property of a business component field to force case sensitivity. If the user steps off the record, then Siebel CRM applies the case that is defined in the ForceCase property. If the ForceCase property contains no value, then the text remains in the same case in which the user entered the text.

#### *To use the ForceCase property of a field to force case sensitivity*

- Set the ForceCase property of a business component field to one of the following values:
  - Upper to force the text to all uppercase
  - Lower to force the text to all lowercase
  - FirstUpper to force the first letter of each word to uppercase

# Improving the Performance of a Siebel Application

This topic describes how you can improve the performance of a Siebel application. It includes the following topics:



## Improving Performance by Preventing a Secondary Query on a Foreign Key

Siebel CRM typically configures a multi-value link with a primary join. In this situation, the foreign key that this join uses to identify the primary record might not find the primary. For example, this problem can occur in the following situations:

- The primary record is deleted from the multi-value group.
- The multi-value group is new and does not contain any records.

You can define the multi-value link to update the primary foreign key to a value of NULL, or to a special value of NoMatchRowId, depending on your requirements. The purpose of the NoMatchRowId value is to prevent a secondary query on a foreign key value that failed. This technique improves performance in the same way that a primary join improves performance.

For more information, see "About the Auto Primary Property of a Multi-Value Link" on page 561, and "How Siebel CRM Constructs a Multi-Value Group" on page 474.

### *To improve performance by preventing a secondary query on a foreign key*

1. If most parent records in the multi-value group do not include any child records, then do not set the Check No Match property of the multi-value link to TRUE.

   In this situation, if you set Check No Match to TRUE, then performance is almost as slow as not having a primary join at all, and you might encounter serious negative performance consequences. In most situations, you must not set Check No Match to TRUE.

   For more information, see "About the Check No Match Property of a Multi-Value Link" on page 559.

2. If a user can add a record to the multi-value group other than through the multi-value group, then consider setting Check No Match to TRUE.

   Consider the following examples:

   - If a user can add a record to the same multi-value group through a multi-value link that is defined on the Contact business component in addition to a multi-value link that is defined on the Account business component
   - If Enterprise Integration Manager adds records to the child business component

3. If you set CheckNoMatch to TRUE, then set the Use Primary Join property of the multi-value link to TRUE.

   If the CheckNoMatch property is TRUE, and if the Use Primary Join is FALSE, then to find the child records, Siebel CRM always performs the secondary query. For more information, see "About the Use Primary Join Property of a Multi-Value Link" on page 561.

## About the Check No Match Property of a Multi-Value Link

If you set the Check No Match property of the multi-value link to TRUE, then Siebel CRM does the following work:

- If Siebel CRM encounters a parent record where the value of the primary foreign key is NoMatchRowId, then Siebel CRM does not perform a secondary query because a value of NoMatchRowId indicates that there are no child records in the multi-value group.
- If Siebel CRM encounters a parent record where the primary foreign key is empty, NULL, or invalid, then Siebel CRM performs a secondary query to determine if there are child records in the multi-value group:
  - If Siebel CRM finds there are no child records, then it sets the Primary ID Field to NoMatchRowId. For more information, see "About the Primary ID Field" on page 100.

- If the Auto Primary property of the multi-value link is DEFAULT, and if the secondary query locates a matching detail record, then Siebel CRM updates the foreign key with the row ID of the record that the query located.
- If the Auto Primary property of the multi-value link is NONE, and if the secondary query does not locate a matching detail record, then Siebel CRM leaves the current value intact.

## Improving Performance by Defining the Primary ID Field of a Multi-Value Link

If you define a primary ID, then Siebel CRM can retrieve one primary record more quickly from the master business component through a join than it can retrieve all records through a subquery. The primary ID converts a one-to-many relationship into a one-to-one relationship, which simplifies retrieval of the row from a query with subqueries to a simple join query. This configuration improves performance, especially if the user scrolls through the records of a list applet that displays the parent.

For example, in the Account business component the Primary ID Field property of the Business Address multi-value link is Primary Address Id. The Account Address Mvg Applet displays the corresponding multi-value group. Siebel CRM stores the row ID for the primary record in the Primary Address Id field in the account record. The Primary check mark in the list column identifies the primary. Each time Siebel CRM displays a different account record, the multi-value fields for the Address load only the values from the record of the primary Business Address. It is not necessary to query the Business Address business component for multiple rows. This configuration can significantly improve performance, especially in a list applet.

Most predefined multi-value links designate a primary record. A multi-value link that does not designate a primary record uses the first record that Siebel CRM retrieves from the child business component. The link and multi-value link include a set of properties that you can define to instruct Siebel CRM to obtain the record Id of the first record that displays records from the child table each time the parent record changes. You can create a primary field for a one-to-many or a many-to-many relationship.

**NOTE:** In a multi-value group applet, the list column that displays the check mark indicates the primary or nonprimary status of each record. This list column obtains data for the column from the SSA Primary Field system field. Although Siebel Tools does not display this field in the Object Explorer or Object List Editor, you can reference it from a list column.

For more information, see the following topics:


- About Multi-Value Links on page 97
- How Siebel CRM Constructs a Multi-Value Group on page 474
- Creating Multi-Value Groups and Multi-Value Group Applets on page 471
- System Fields of a Business Component on page 91


### *To improve performance by defining the Primary ID field of a multi-value link*

1 Create a Primary Id column.

2 Create a new field that references the Primary Id column you created in Step 1.

3 In a multi-value link, set the Primary Id Field property to the field you created in Step 2.

The Primary Id Field property specifies the name of the field in the parent business component that contains the row IDs that reference primary records in the child business component.

**NOTE:** Do not display the Primary ID Field in the Siebel client. If you display the Primary ID Field in an editable control or list column on an applet, then the multi-value group applet does not update the primary. If you must display the Primary ID Field in the Siebel client, such as for testing, then use a read-only control or list column.

4 Set the Use Primary Join property of the multi-value link to TRUE.

For more information, see "About the Use Primary Join Property of a Multi-Value Link" on page 561.

5 Set the Auto Primary property.

For more information, see "About the Auto Primary Property of a Multi-Value Link" on page 561.

## About the Use Primary Join Property of a Multi-Value Link

The Use Primary Join property of a multi-value link enables the primary join feature. If you set Use Primary Join to TRUE, then Siebel CRM obtains the primary child record for each parent record through a join with the Primary ID Field. If you set Use Primary Join to FALSE, then Siebel CRM queries the child table each time a parent changes.

## About the Auto Primary Property of a Multi-Value Link

The Auto Primary property determines how Siebel CRM enters row IDs into the Primary ID Field. It uses the Primary system list column in the multi-value group applet. The user can manually choose the primary. You can set the Auto Primary property to one of the following values:

- **DEFAULT.** The first record automatically becomes the primary.
- **SELECTED.** If the user views the multi-value group applet and then exits, then the highlighted record becomes the primary. For more information, see "About the Select Option of the Auto Primary Property" on page 561.
- **NONE.** The user must include the primary manually.

### About the Select Option of the Auto Primary Property

The SELECTED option only applies if several multi-value links reference the same child business component. For example, with the predefined Bill To Business Address multi-value link and the predefined Ship To Business Address multi-value link. These multi-value links exist in the Order business component and in the Account business component. In this example, if a primary is not set for the Bill To address, then when Siebel CRM performs a separate query to bring back all addresses that are associated with the account or order, Siebel CRM determines if one of the addresses is or is not already chosen as the primary for the Ship To address. If it is, then Siebel CRM sets that address as the primary for Bill To address.

### How the Auto Primary Property Affects the Read-Only Status of the Primary ID Field

If the Auto Primary property of a multi-value link contains a value of SELECTED, then defining a read-only property at the applet level does not force the SSA Primary Field to be read-only. If the destination business component of the multi-value link is read-only, then Siebel CRM might display an error message that is similar to the following: `This operation is not available for a read-only field 'SSA Primary Field'`. This errors occurs because Siebel CRM automatically updates the Primary ID Field through the SSA Primary Field system field, which is part of the destination business component. If this business component is read-only, then the Primary ID Field is read-only and Siebel CRM cannot update it. For more information, see "System Fields of a Business Component" on page 91.

## Improving Performance by Modifying Custom Search Specifications

You can improve performance by modifying custom search specifications.

### *To improve performance by modifying custom search specifications*

- Examine your custom search specifications:
  - Avoid a field in the search specification that references a join.

    If a business component defines an outer join, and if a joined field that uses the outer join is included in the search specification for the business component, then the SQL generates changes to the inner join for performance reasons.
  - Avoid using a business component field that is calculated.
  - Avoid using a NOT or OR operator in the search specification. These operators force the Siebel database to execute a full table scan, which can adversely affect performance.

For more information, see *Siebel Performance Tuning Guide*.

## Improving Performance by Using Declarative Configuration to Enable a Button

You can script the WebApplet_PreCanInvokeMethod to set the CanInvoke parameter of an event to TRUE, which enables a button. However, it is recommended you use declarative configuration to enable a button because there is a performance cost for scripting the WebApplet_PreCanInvokeMethod event.

### *To improve performance by using declarative configuration to enable a button*

- Use declarative configuration rather than scripting to enable a button.

  You can configure the CanInvokeMethod applet user property to enable a button. For more information on using a minibutton to call a custom method, see *Siebel Object Interfaces Reference*.

# Improving Performance When Using Applet Toggles

Siebel CRM loads all available applet toggles each time the user navigates to an applet. Because Siebel CRM cannot cache an applet toggle, a negative affect on performance might occur. For more information, see *Siebel Performance Tuning Guide*.

### *To improve performance when using applet toggles*

- Make sure no applet toggles are defined that are not used or are not necessary.

# Improving Performance by Deactivating Unused Screens

This topic describes how to deactivate predefined screens that Siebel CRM does not use in your implementation.

### *To improve performance by deactivating unused screens*

- Use one of the following techniques:
  - Log in to the Siebel client, and then use the Responsibility Administration Screen to disassociate all views of the unused screen from the responsibilities that your organization uses. This technique does not require you to recompile the SRF file. It also provides an easy upgrade path if you decide to use the screen or views later. At that time, no configuration or software upgrade is required. You only need to reassign the views to the relevant responsibility.
  - Use Siebel Tools to deactivate the screen. This technique requires you to compile the SRF file. When you compile, Siebel CRM does not include the inactive screen in the SRF file.

# Considering Factors That Affect Chart Performance

When a chart traverses records in the business component, Siebel CRM monitors the progress in a display at the bottom of the window. Because traversing all records of a business component might require significant time, a chart is not appropriate for a data set that contains more than one thousand records.

When you design your implementation, consider how the following factors affect the performance of a chart in Siebel CRM:

- The number of records in the business component
- If the chart must or must not search a multi-value group to obtain data
- If a data point field is or is not defined
- If the data point field is a currency field, then consider the number of records whose currency is not the functional currency
- The processor, operating system, and database system you use

## Considering Factors That Affect MLOV Performance

A custom MLOV can affect performance especially if the field that the list references is part of a search or sort. If you configure an MLOV, then you must consider and verify performance qualities. For more information, see *Siebel Performance Tuning Guide*.

# 24 Transferring Data Between Databases

This chapter describes how to map a custom table to an interface table. It includes the following topics:



This chapter describes only how to map a custom table to an interface table. To fully transfer data between databases, you must perform more configuration. For more information, see *Siebel Enterprise Integration Manager Administration Guide*.

## Overview of Transferring Data Between Databases

This topic describes an overview of Siebel Enterprise Integration Manager, which you can use to transfer data between databases.

### Related Topics

For more information, see the following topics:

- How the S_Party Table Controls Access on page 62
- Guidelines for Customizing a Foreign Key That Affects Enterprise Integration Manager on page 71
- Adding an Extension Column to a Base Table on page 238
- Guidelines for Using Enterprise Integration Manager with an MLOV on page 607

## About Interface Tables

*Siebel Enterprise Integration Manager* (EIM) is a server component in the Siebel EAI component group that uses interface tables to transfer data between the Siebel database and other corporate data sources.

An *interface table* is an intermediate database table that provides a staging area between the Siebel database and other databases. It includes the following qualities:

- A Siebel administrator uses it to perform bulk imports, exports, updates, and deletes.
- The name of an interface table begin with the EIM_ prefix.
- The Type property of an interface table is set to Interface.
- A database administrator typically uses a third-party tool to enter values in an interface table. SQL Loader is an example of a third-party tool.

To use EIM to enter values in custom extension tables and extension columns, you create mappings between the new columns and EIM interface tables. You use the EIM Table Mapping Wizard to create these mappings. For more information, see "Mapping a Custom Table to an Interface Table" on page 571.

## Object Types That Enterprise Integration Manager Uses

Figure 81 illustrates the objects and relationships that EIM uses.

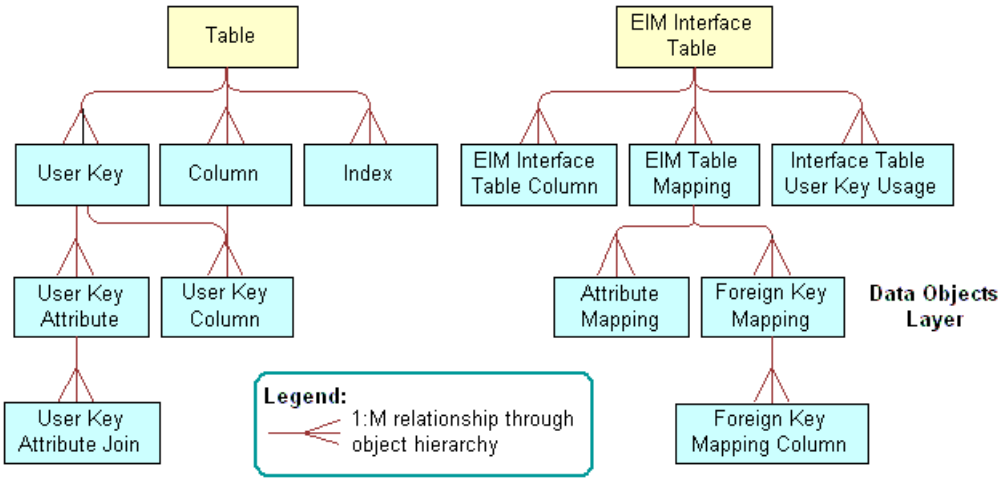



Figure 81. Objects and Relationships That EIM Uses

### EIM Interface Table Object Type

An *EIM interface table* is an object type that provides an alternative representation of the table object type. It includes some of the same properties as the table object type plus other properties that are specific to an interface table.

### EIM Interface Table Column Object Type

An *EIM interface table column* is an object type that provides an alternative representation of the column object type. It contains all the properties of the column object type in addition to some properties that are specific to EIM.

Figure 82 illustrates how the child columns of a given interface table are the same as the child columns of a table. The EIM_PRI_LST price list interface table is an example.

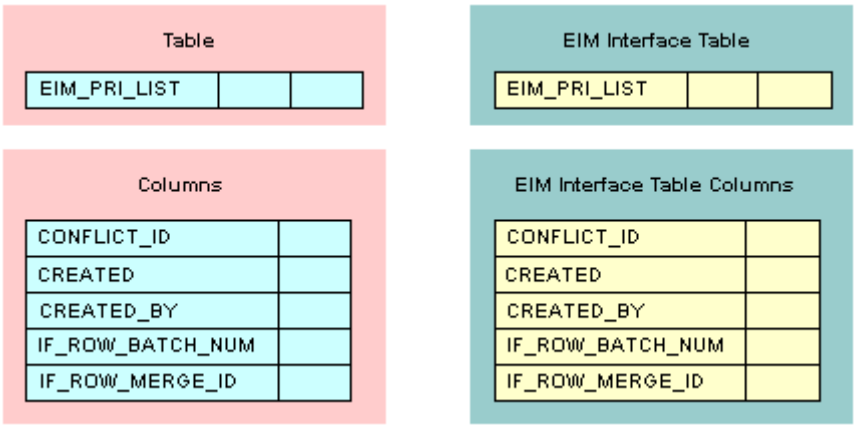



Figure 82. child Columns of an Interface Table Are the Same as Child Columns of a Table

## EIM Table Mapping Object Type

An *EIM table mapping* is an object type that references a data table that the parent EIM interface table object definition updates. One EIM interface table can update one or more data tables.

Figure 83 illustrates how the Destination Table property of each EIM table mapping object identifies the name of the data table to update.

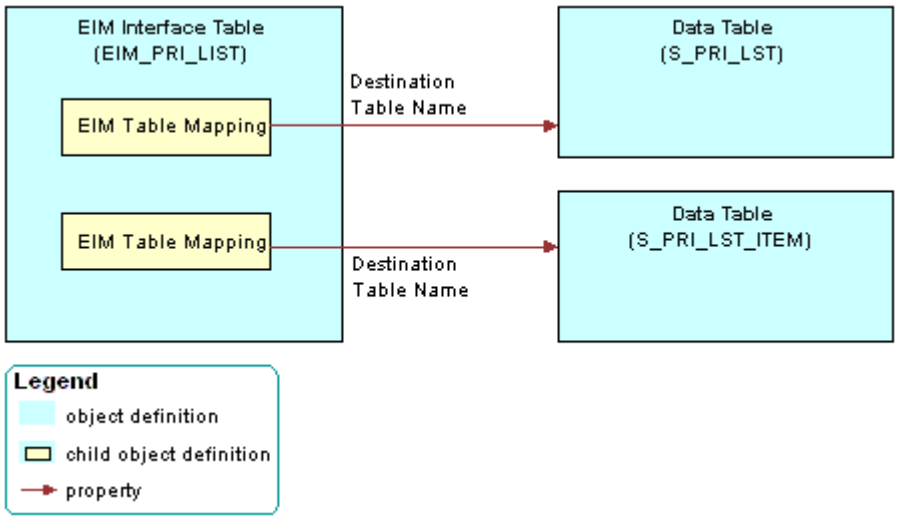



Figure 83. Example of How an EIM Interface Table References a Data Table

## Interface Table User Key Usage Object Type

An *interface table user key usage* is an object type that provides support for alternative user keys for base tables. It defines the use of a nontraditional user key for a given base table in a specific interface table.

**CAUTION:** Do not modify the object definition of an interface table user key usage. Any modification can adversely affect performance and operation.

## Attribute Mapping Object Type

An *attribute mapping* is an object type that identifies a column in a data table that EIM updates. This column resides in the destination table that is defined in the parent EIM table mapping. An attribute mapping includes the following properties:

- **Interface Table Data Column.** Identifies the column in the interface table that supplies the data.
- **Base Table Attribute Column.** Identifies the column in the destination table that receives the data.

If you add an extension column to a table, and if an interface table must provide data to the extension table, then you must add a corresponding attribute mapping.

Figure 84 illustrates an example of how an EIM table mapping references a data table.

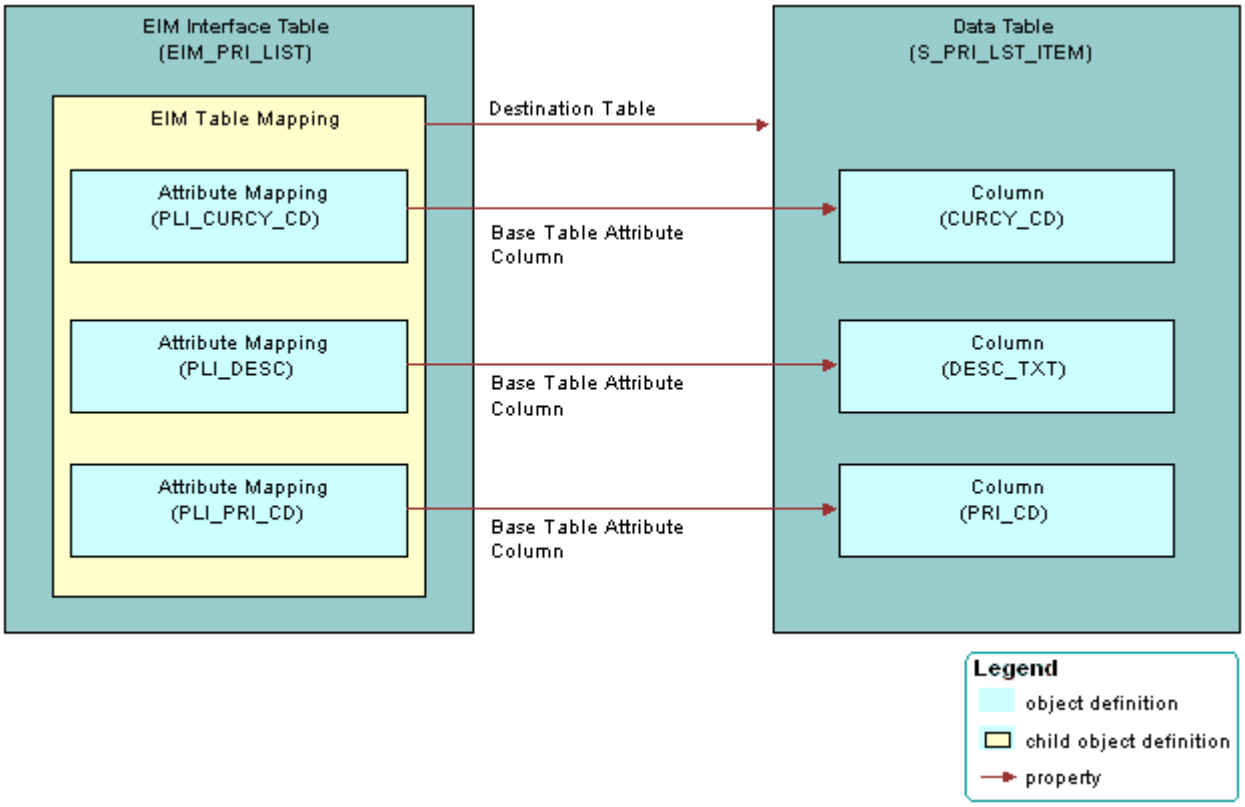



Figure 84. Example of How an EIM Table Mapping References a Data Table

## Foreign Key Mapping Object Type

A *foreign key mapping* is an object type that identifies a foreign key column in the destination table. EIM pulls data from an interface table and enters it into this foreign key column. EIM stores a foreign key as a numeric row ID value in a data table. To use data from an interface table in a foreign key, you must map the interface column to a combination of user key columns in the destination table rather than directly to the foreign key column.

Figure 85 illustrates an example of how a foreign key map references a data table. To access the desired row, Siebel CRM uses a combination of attribute columns in the destination table of the foreign key. EIM obtains the foreign key value from that row. A foreign key mapping is not a one-to-one column mapping from an interface table to a destination table. Because the numeric foreign key does not exist in the interface table, you cannot map it.

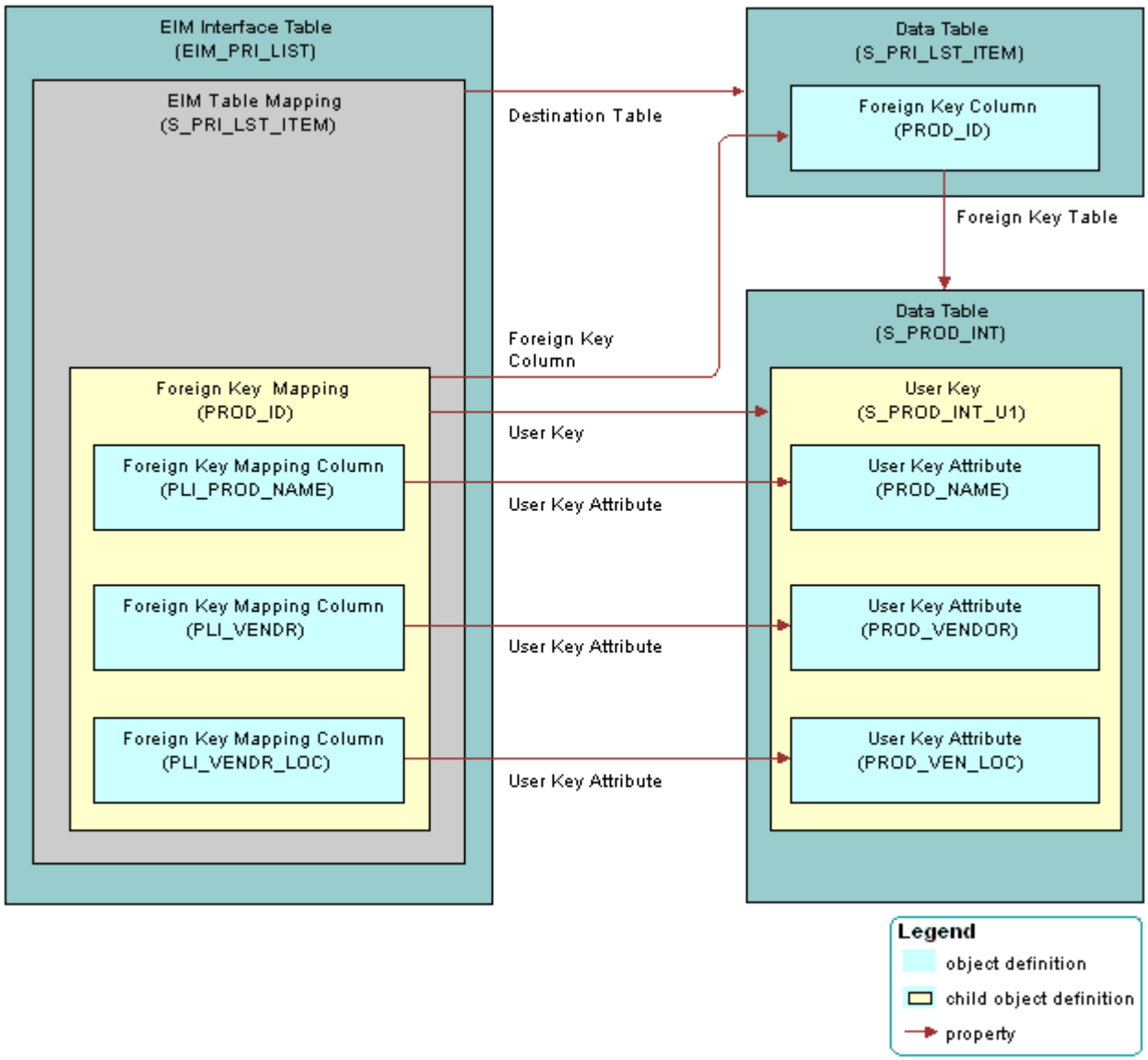



Figure 85. Example of How a Foreign Key Map References a Data Table

## Foreign Key Mapping Column Object Type

A *foreign key mapping column* is an object type that does the following:

- To locate rows in the table that the foreign key references, identifies one of the attribute columns EIM uses. EIM combines values from the user key columns to form a key that uniquely identifies rows in that table.
- Identifies the user key columns so EIM can derive foreign key values during an import or export.

### User Key Object Type

A *user key* is an object type that provides a set of attribute columns and related information that specifies how EIM can access the table rows for a specific EIM usage. For more information, see "How a User Key Creates a Unique Set of Values" on page 61.

### User Key Column Object Type

A *user key column* is an object type can be an attribute or a foreign key. In most situations user key columns constitute the columns in the user key index with the exception of the CONFLICT_ID column. A user key index typically includes a _U1 suffix.

### User Key Attribute Object Type

A *user key attribute* is an object type that the parent user key specifies in the set of attribute columns that collectively identifies rows in the grandparent table. The column name is defined in the Name property of the user key attribute.

### User Key Attribute Join Object Type

A user *key attribute join* is an object type that specifies a join operation that EIM can use to convert a user key attribute that is a foreign key to another table into attribute column values in that table.

For example, the S_PROD_INT products table includes the S_PROD_INT_U1 user key. This user key references the following columns:

- PROD_NAME
- PROD_VENDOR
- PROD_VEN_LOC

Because EIM obtains the PROD_NAME column from the S_PROD_INT table, no join is required.

EIM must use a join to obtain the PROD_VENDOR and PROD_VEN_LOC columns from the S_ORG_EXT accounts table. EIM uses a join on VENDR_OU_ID, which is a foreign key from the S_PROD_INT table to the S_ORG_EXT table.

# Mapping a Custom Table to an Interface Table

This topic describes how to map a custom table to an interface table. It includes the following topics:

To map custom columns and tables to a predefined EIM interface table, you use the EIM Table Mapping Wizard.

### *To map a custom table to an interface table*

1. Make sure the table you must map is the appropriate type, includes a user key attribute, and that Siebel CRM supports the mapping.

   For more information, see "Guidelines for Using the EIM Table Mapping Wizard" on page 574.

2. In Siebel Tools, display all child object types of the EIM interface table object type.

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

3. in the Object Explorer, click Table.

4. In the Tables list, locate the table that must reference an EIM Table.

   This table is the primary table into which EIM imports data from the predefined interface table.

5. Right-click the record, and then choose EIM Table Mapping.

   Siebel Tools displays the Interface Table Mapping dialog box. It enters data into the Base Table name window of this dialog box. It derives this data from the table you located in Step 4.

6. In the Enter Column Name Prefix window, enter a prefix.

   Siebel Tools does the following:

   - If a prefix does not already exist for the EIM table, then Siebel Tools adds the new prefix you enter to the EIM interface table columns that are related to the table.
   - If a prefix already exists for the EIM table, then Siebel Tools uses the existing prefix.

7. In the Select the Interface Table window, choose a value from the list, and then click Next.

   Siebel Tools constrains the list you use to choose the EIM interface table to display only those interface tables to which your new custom table includes a foreign key relationship. Siebel Tools sorts this list by EIM table name. If the Exist field of the interface table is Y, then the EIM table is already mapped to the base table. If you extend a predefined Siebel table, then a table with a Y in the Exist field is an ideal candidate for EIM mapping.

8. Click Finish to accept the configuration and generate the EIM Interface Table object.

   Siebel Tools begins the mapping, which might take several minutes. For more information, see "Relations That the EIM Table Mapping Wizard Creates" on page 574.

9. To verify the mappings, do the following:

   a. In the Object Explorer, click EIM Interface Table.

b In the EIM Tables list, run a query for all changed records.

When you run the query, make sure the Changed property contains a check mark. Leave all other properties empty.

c To verify the mapping, examine child objects.

d Identify any new mappings that are not necessary.

10 If any new mappings are not necessary, then do the following:

a Deactivate the unnecessary mappings.

b Rename or delete the *ORACLE_HOME*\bin\diccache.dat file on the Siebel Server.

c Run the following query to review any more columns that Siebel Tools generated:

T_*

## Relations That the EIM Table Mapping Wizard Creates

Figure 86 illustrates relations between objects that the EIM Table Mapping Wizard creates. The wizard maps objects and adds child objects to the predefined EIM interface table object. For more information about EIM objects that the wizard creates, see "Objects You Use with Enterprise Integration Manager" on page 689.

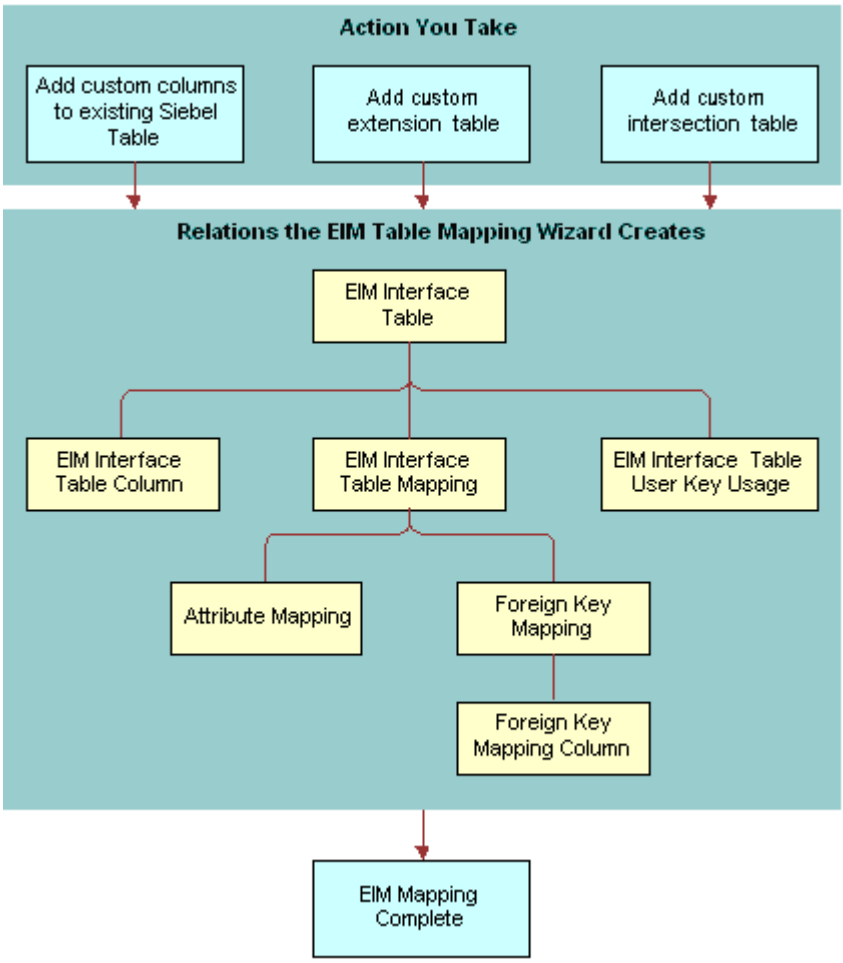



Figure 86. Relations That the EIM Table Mapping Wizard Generates

# Guidelines for Using the EIM Table Mapping Wizard

If you use the EIM Table Mapping Wizard, then use the following guidelines:

- You must set the Type property for any table you use with the EIM Table Mapping Wizard to one of the following values:
  - Data (Public)
  - Data (Intersection)

- Extension
- Extension (Siebel)

- You cannot use the EIM Table Mapping Wizard with a custom table because there is no EIM table to choose in the EIM Table Mapping Wizard.
- You can map a single column in an interface table to multiple base tables or extension tables. However, do not map multiple interface table columns to a single column in a target table because it can create ambiguity for EIM.
- EIM does not validate an interface table or a column definition. EIM validates a list of values against the lists of values that are defined for the base columns to which the values are mapped.

### Restrictions on Adding or Modifying EIM Mappings

Table 67 describes restrictions on adding or modifying EIM mappings.

Table 67. Restrictions on Adding and Modifying EIM Mappings

| From | To | Restriction |
|---|---|---|
| Interface table column | Base column | Supported if there are predefined mappings from the interface table to the data table. |
| Interface table extension column | Base column | Supported if there are no other mappings to the base column. Use with caution. |
| Interface table column | Extension table column | Supported if there are predefined mappings from the interface table to the base table of the extension table. |
| Interface table extension column | Extension table column | |

## Starting the EIM Table Mapping Wizard for a Table That Does Not Use the Foreign Key

To start the EIM Table Mapping Wizard for a Siebel base table that does not use the foreign key as part of the user key, you must create a temporary column and then run the wizard. For more information, see Article ID 507151.1 on My Oracle Support.

### *To start the EIM Table Mapping Wizard for a table that does not use the foreign key*

1. Create a temporary column. Use properties described in the following table.

| Property | Value |
|---|---|
| Inactive | Contains a check mark. |

| Property | Value |
|---|---|
| User Key Sequence | <> NULL |
| Foreign Key Table Name | Choose the target table for the interface table.<br>**NOTE:** In many but not all situations, this table is the parent table of the temporary column. |

2 Run the EIM Table Mapping Wizard.

By creating the temporary column, The EIM Table Mapping Wizard lists predefined EIM interface tables that are already mapped to this table as the target or destination table. The wizard also lists EIM tables that are mapped to tables with which this table uses a foreign key. However, the foreign key must be part of the Traditional U1 Index user key of this table.

For more information, see "Mapping a Custom Table to an Interface Table" on page 571.

3 After the EIM Table Mapping Wizard finishes, delete the column you created in Step 1.

## Deactivating Instead of Deleting an EIM Attribute Mapping

Do not delete any attribute mapping. Instead, you can deactivate an attribute mapping if you no longer require it.

### *To deactivate instead of deleting an EIM attribute mapping*

1 In Siebel Tools, display all child object types of the EIM interface table object type.

For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2 In the Object Explorer, click EIM Interface Table.

3 In the EIM Interface Tables list, locate the table that contains the attribute mapping you must modify.

4 In the Object Explorer, expand the EIM Interface Table tree, and then click EIM Table Mapping.

5 In the EIM Table Mappings list, locate the table mapping that contains the attribute mapping you must modify.

6 In the Object Explorer, expand the EIM Table Mapping tree, and then click Attribute Mapping.

7 In the Attribute Mappings list, locate the attribute mapping you must modify.

8 Make sure the Inactive property contains a check mark.

# Changing Data from NULL to No Match Row Id

If a primary child column includes no match, then Siebel CRM labels the columns differently depending on how you load data:

- If you load data through EIM and a primary child column includes no match, then EIM labels the column with NULL.
- If you load data through the Siebel client and a primary child column includes no match, then Siebel CRM labels the column with No Match Row Id.

You must fix this problem.

### *To change data from NULL to No Match Row Id*

1. In the Siebel client, open the record set.
2. Manually step through each record that EIM created.

   Siebel CRM replaces each instance of a NULL value with No Match Row Id.

# 25 Configuring Dock Objects for Siebel Remote

This chapter describes how to configure docking rules for Siebel Remote. It includes the following topics:



# About Dock Objects

*Synchronization* is the process that Siebel Remote performs to allow a Siebel Mobile Web Client to connect to a Siebel Server and exchange updated data and files. This client typically operates on a remote laptop that is not connected to the Siebel Server. To support remote computing, Siebel Remote allows field personnel to share current information with members of virtual teams of other remote and connected users across an organization.

A *dock object* is an object type that is a logical grouping of tables that contain special schema structures that synchronize data between a server database and a local database in a coherent manner.

When Siebel CRM updates data on the Siebel Server, Siebel Remote synchronizes the local database when the remote user connects to the Siebel Server and performs a synchronization. Siebel Remote only synchronizes the data that it must download to the local database. During the synchronization, Siebel Remote uploads any updates that exist in the local database to the Siebel Server. For more information, see *Siebel Remote and Replication Manager Administration Guide*.

## Types of Dock Object

This topic describes the types of dock objects.

### Private Dock Object

A *private dock object* is a type of dock object that routes data that cannot be configured. It makes sure that Siebel Remote never routes the rows in the dock objects to any remote user. During synchronization, Siebel Remote does the following:

- Uploads to the Siebel Server all records from tables that are part of a private dock object.
- Does not download any of these records to the remote user.

### Enterprise Dock Object

An *enterprise dock object* is a type of dock object that distributes records without restriction. During synchronization, Siebel Remote uploads to the Siebel Server all records from tables that are part of an enterprise dock object. Only an administrator must update these tables. Remote users typically download these tables from the Siebel Server but they do not upload them to the server. To minimize synchronization time, you must use an enterprise dock object only with the following tables:

- Tables that contain small amounts of data.
- Tables that contain static data or data that changes only occasionally.

### Limited Dock Object

An *limited dock object* is a type of dock object that contains individual rules to identify the records that Siebel Remote must download to a specific user. This user must only receive records with which the user must be involved. For more information, see "Dock Object Visibility Rule" on page 580.

## Dock Object Table

A *dock object table* is an object type that identifies the tables that contain records that Siebel Remote transfers. It is a child of the dock object. Foreign keys in the data objects layer relate all the tables that appear in the Dock Object Tables list in Siebel Tools to the primary table that is defined in the Primary Table Name property of the dock object. A dock object table can reference other tables in the Table Name property of the dock object table.

For example, the Primary Table Name property of the Opportunity dock object is set to S_OPTY. Dock object tables that are children of the Opportunity dock object reference other tables, such as the S_NOTE_OPTY table and the S_OPTY_REL table. This example describes how a dock object is a set of logical records. In this example, opportunities are the logical records. Each logical record is a collection of one or more physical database records that are spread across multiple tables.

## Dock Object Visibility Rule

A *dock object visibility rule* is an object type that Siebel Remote uses to determine if it must download records to the user. It is a child of the dock object. If you use limited dock objects, then Siebel Remote downloads different data to different local databases depending on the following items:

- Employee identity of each local database owner
- Position
- Organization
- Visibility to data from different dock objects
- Relationship between dock objects

For more information, see *Siebel Remote and Replication Manager Administration Guide*.

## Types of Dock Object Visibility Rules

Table 68 describes the values you can enter in the Type property of the dock object visibility rule when you use a limited dock object.

Table 68. Type Property of the Dock Object Visibility Rule

| Type Property | Description |
|---|---|
| Calendar | Examines remote user access to the calendar of the user who owns the record. Applies only to calendar appointment records. |
| Category | Examines the category that is visible to the user. |
| Check Dock Object | Examines the relationship to another record that the user receives. For more information, see "Check Dock Object Visibility Rule" on page 581. |
| Employee | Examines the foreign key to the employee record of the remote user, and downloads data depending on the identity of the remote user.<br><br>To find all candidate rules, Siebel Remote identifies all columns that are foreign keys to the S_USER table, except CREATED_BY and LAST_UPD_BY. |
| Employee Manager | Examines the foreign key to the employee record of someone who directly reports to the remote user, and downloads data according to the employees who report to the remote user.<br><br>To find all candidate rules, Siebel Remote identifies all columns that are foreign keys to the S_USER table, except CREATED_BY and LAST_UPD_BY. |
| Organization | Examines the same business unit in which the remote user resides. |
| Position | Examines the foreign key to the primary Position of the remote user, and downloads data according to the position of the remote user.<br><br>To find all candidate rules, Siebel Remote identifies all columns that are foreign keys to the S_POSTN table. |
| Position Manager | Examines the foreign key to the Position of someone who reports directly to the remote user, and then downloads data according to the positions that report to the remote user position.<br><br>To find all candidate rules, Siebel Remote identifies all columns that are foreign keys to the S_POSTN table. |
| SQL | Handles special exceptions through custom SQL. |

### Check Dock Object Visibility Rule

Siebel Remote uses the Check Dock Object visibility rule to download data depending on data from other dock objects. The relationship between data in other dock objects and the current dock object determines which records from the current dock object Siebel Remote downloads.

The Foreign Key Table Name property of the table columns determines the candidate Check Dock Object rules that the Docking Wizard can find. For each foreign key, the following Check Dock Object rules exist regardless of where the foreign key column resides:

- Rules that use the dock object as the destination dock object. To determine these rules, Siebel Remote uses the foreign keys on the primary table of one of the following objects:
  - **The current dock object.** To find this kind of rule, Siebel Remote uses an algorithm that finds all foreign key columns except columns that reference the S_USER table or the S_POSTN table. It finds these columns in the table of the current dock object. For these foreign key columns, the algorithm finds the foreign key table that these foreign key columns reference. The dock object of the foreign key table becomes the object for the Check Dock Object of the newly created Check Dock Object rule in the current dock object.
  - **Other dock objects.** To find this kind of rule, Siebel Remote uses an algorithm that finds all foreign key columns that reference the primary table of the current dock object, on any table that is part of a limited dock object. The algorithm adds the appropriate Check Dock Object visibility rules to these limited dock objects, with the current dock object being the object for the Check Dock Object.
- Rules that use this dock object as the Check Dock Object rules. To determine these rules, Siebel Remote uses the foreign keys on the primary table of one of the following objects:
  - The current dock object
  - Other dock objects

  The algorithm for these types of rules is similar to the algorithm for rules that use this dock object as the destination dock object. The main difference involves switching the source table or column and target table or column.

## Example of a Dock Object Visibility Rule

The example in this topic describes how Siebel Remote compares the overall visibility strength of a set of dock object visibility rules to the strength of each dock object table. Siebel Remote then uses this comparison to determine which records it downloads to the user.

A dock object visibility rule includes the Visibility Strength property. For most situations, the value for this property can be 0, 100, or any integer between 0 and 100. A visibility strength of 100 indicates full visibility. A visibility strength of 0 indicates no visibility. It is recommended that you use a value of 100 or less. If your configuration requires a higher value, then you can use any value up to 254.

### *To examine an example of a dock object visibility rule*

1. In Siebel Tools, display the object type named dock object and all child objects of the dock object.

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.
2. In the Object Explorer, click Dock Object.
3. In the Dock Objects list, query the Name property for Opportunity.
4. In the Object Explorer, expand the Dock Object tree, and then click Dock Object Table.
5. Note the values in the Visibility Strength property.

   For example, note the following:

- Visibility strength for the S_NOTE_OPTY table is 100.
- Visibility strength for the S_OPTY table is 50.

6 In the Object Explorer, click Dock Object Visibility Rule.

7 Note the following values for the first record that Siebel Tools displays in the Dock Object Visibility Rules list.

| Property | Value |
|---|---|
| Sequence | 1 |
| Visibility Strength | 100 |
| Comment | You are on the sales team of the Opportunity |

8 Note the following values for the sixth record that Siebel Tools displays in the Dock Object Visibility Rules list.

| Property | Value |
|---|---|
| Sequence | 6 |
| Visibility Strength | 50 |
| Comment | Opportunity for an Account you have full visibility on |

### How Siebel Remote Processes the Rules in This Example

Siebel Remote evaluates each record in the Dock Object Visibility Rules list in ascending order according to the value in the Sequence property:

- If a dock object visibility rules passes, then Siebel Remote stops evaluating the rules and uses the value in the Visibility Strength property of the rule that passed as the overall strength for the rule.
- If none of the dock object visibility rules pass, then Siebel Remote uses zero for the overall strength for the rule.

In this example, Siebel Remote does the following:

1 Determines the overall visibility strength of the dock object visibility rules. For example:

- If the user is on the sales team for the opportunity, then Siebel Remote uses the value in the Visibility Strength property of the first record in the Dock Object Visibility Rules list. This value is 100.
- If the user is not on the sales team for the opportunity, then Siebel Remote evaluates each visibility rule in sequence until a rule passes. For example, assume visibility rules with 2, 3, 4, and 5 in the Sequence property all fail. Assume the user does possess full visibility to the account for the opportunity, so rule 6 passes. In this situation, Siebel Remote uses the value in the Visibility Strength property for the rule that contains 6 in the Sequence property. This value is 50.

2 Compares the visibility strength it obtained it Step 1 to the Visibility Strength property of the first table that Siebel Tools displays in the Dock Object Tables list, and then does the following:

   - If the visibility strength from the visibility rule is greater than or equal to the visibility strength defined for the table, then Siebel Remote downloads all records from the table to the user.
   - If the visibility strength from the visibility rule is less than the visibility strength defined for the table, then Siebel Remote does not download any records from the table to the user.

3 Repeat Step 2 for each subsequent record that Siebel Tools displays in the Dock Object Tables list.

For example, assume the overall visibility strength from Step 1 is 50. In this situation, Siebel Remote does the following:

- Does not download any records from the S_NOTE_OPTY table.
- Downloads all records from the S_OPTY table.

In this situation, the user receives all opportunity records but no notes for any opportunity. If the user is on the sales team of the opportunity, then the user receives all notes for the opportunities.

# Configuring Dock Objects

This topic describes how to configure dock objects. It includes the following topics:



### Related Topics

For more information, see the following topics:


- Setting Up a Developer as a Remote User on page 197
- Guidelines for Creating a Custom Docking Rule on page 71
- Determining Technical Fit for Reusing a Predefined Object on page 216
- Downloading a Data Layer Customization to Remote Users on page 245

# Reusing a Predefined Dock Object

Siebel CRM includes dock objects with a predefined Siebel application. Before you create a new dock object, review the predefined dock objects and associated visibility rules thoroughly to determine if they meet your visibility requirements.

Table 69 lists some important business components and their associated dock objects.

Table 69. Important Business Components and Their Dock Objects

| Business Component | Dock Object | Primary Table | Visibility Level |
|---|---|---|---|
| Action | Activity | S_EVT_ACT | Limited |
| Account | Party | S_PARTY | Limited |
| Asset Mgmt - Asset | Asset | S_ASSET | Limited |
| Contact | Party | S_PARTY | Limited |
| Employee | Party | S_PARTY | Limited |
| Opportunity | Opportunity | S_OPTY | Limited |
| Position | Party | S_PARTY | Limited |
| Internal Product | Product | S_PROD_INT | Limited |
| Service Request | ServiceRequest | S_SRV_REQ | Limited |

**NOTE:** The Party dock object represents the Employee and Position records. The visibility level for the Party dock object is Limited. However, the SQL rules in the Party dock object determine visibility for employee and position records as Enterprise.

### *To reuse a predefined dock object*

1. In Siebel Tools, display the object type named dock object and all child objects of the dock object.

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2. In the Object Explorer, click Business Component.
3. In the Business Components list, locate the business component you seek.

   For example, query the Name property for Opportunity.

4. Note the value in the Table property.

   For example, Siebel Tools displays the S_OPTY table in the Table property for the Opportunity business component.

5. In the Object Explorer, choose the Flat tab and then click Dock Object.

6 In the Dock Objects list, query the Dock Object Table property for the table you identified in Step 4.

   If a dock object references the table, then Siebel Tools displays the dock object. For example, the Opportunity dock object references the same table that the Opportunity business component references.

7 If your query provides a result, then you might be able to reuse the predefined dock object. Do the following:

   a Note the value in the Name property.

   b In the Object Explorer, click the Types tab, and then click Dock Object.

   c Query the Name property for the value you noted in Step a.

   d Examine the dock object and the child objects of the dock object to determine if they meet your requirements.

## Creating a New Dock Object

The *Docking Wizard* is a tool you can use to do the following:

- Create a new dock object for a custom extension table that is not already in a dock object.
- Create a new dock object table for a custom dock object.
- Create new dock object visibility rules for a custom or predefined dock object.

The Docking Wizard automatically creates or updates the following objects:

- Dock object.
- Dock object table.
- Dock object visibility rule. For more information, see "How the Docking Wizard Creates Visibility Rules" on page 589.

You can use the Docking Wizard to create public, private, and limited dock objects.

For more information, see "Guidelines for Using the Docking Wizard" on page 587 and "How the Docking Wizard Behaves Depending on Where You Start It" on page 588.

### *To create a new dock object*

1 Review the predefined dock objects.

   It might not be necessary to create a new dock object. If a dock object already references a table, then Siebel Tools disables the Docking Wizard menu item and you cannot choose it. For more information, see "Reusing a Predefined Dock Object" on page 585.

2 Make sure related projects are locked.

   For more information, see "Locking Related Projects" on page 589.

3 In the Object Explorer, click Table.

4 In the Tables list, locate the custom extension table to which you must associate a docking object.

5 (Optional) Start the Docking Wizard from a table:

a In the Tables list, right-click the record, and then choose the Docking Wizard menu item.

For example, right-click the CX_TEST_PRI table. You must choose a custom extension table that includes the CX_ prefix in the name column.

b In the Add Table to Dock Object dialog box, enter the name of the dock object into the Dock Object field.

You must use the DOX prefix. For example, DOX PRI.

c Choose a project for the dock object.

Siebel Tools displays all locked projects in the Project list.

d In the Visibility level section, choose Private, Enterprise, or Limited.

If you chose Limited, then the Docking Wizard automatically creates the visibility rules. For more information, see "How the Docking Wizard Creates Visibility Rules" on page 589.

6 (Optional) Start the Docking Wizard from a table column:

a In the Object Explorer, expand the Table tree, and then click Column.

b In the Columns list, locate the column to which you must associate a dock object.

A custom extension column includes an X_ prefix in the Name property.

c Right-click the record, and then choose the Docking Wizard menu item.

The Docking Wizard menu item is active only if one of the following situations is true:

- The column name includes an X_ prefix.
- The table name includes a CX_ prefix and a dock object already references the table.

You can start the Docking Wizard multiple times regardless of how many times you start it for a column.

7 Click Next, review your changes, and then click Finish.

Siebel Tools creates the dock object.

8 Verify that Siebel Tools created the new objects.

For more information, see "Verifying That Siebel Tools Created Dock Objects" on page 590.

9 Rebuild the databases.

For more information, see "Rebuilding the Databases After You Run the Docking Wizard" on page 591.

## Guidelines for Using the Docking Wizard

If you use the Docking Wizard, then use the following guidelines:

- For a custom extension table, make sure a dock object does not already reference the table. If a dock object does already exist, then do not start the Docking Wizard from the table.
- Do not start the Docking Wizard on a predefined Siebel table.
- You can start the Docking Wizard from a custom extension column that is added to a predefined table.
- You cannot add a custom intersection table to the dock object of a table that Siebel Remote downloads. If you require this functionality, then see "Getting Help from Oracle" on page 192.
- You can create a new dock object for a custom table that includes a mandatory foreign key to another custom table that is already part of a custom dock object. You can also add it to the predefined custom dock object. This technique depends on your business requirements and desired outcome.
- The Docking Wizard creates rules with the following visibility strengths:
  - Visibility strength of 50 for a dock object visibility rule
  - Visibility strength of 50 for a custom dock object table
  - Visibility strength of 100 for a check dock object

  You must get assistance from Oracle to modify these strengths. For more information, see "Getting Help from Oracle" on page 192.

## How the Docking Wizard Behaves Depending on Where You Start It

The behavior of the Docking Wizard differs depending on if you start it from a table or a table column.

If you start the Docking Wizard from a table, then the following applies:

- If the custom table is a stand-alone table, then you must create a new dock object for the table, and then create the dock object visibility rules.
- If the custom table includes foreign keys to other custom tables that are already in certain dock objects, then you can do one of the following:
  - Create a new dock object.
  - Add the table to a predefined custom dock object.
- If you start the Docking Wizard from a stand-alone custom table, then only the Create a New Dock Object option is active in the Add Table to Object dialog box. The Add the Table to an Existing Dock Object option is not active.

If you start the Docking Wizard from a column, then you do not need to make any choices. The Docking Wizard adds the following dock object visibility rules:

- For a regular foreign key, the Docking Wizard adds the following dock object visibility rules:
  - One rule from the dock object of the table to the dock object of the foreign key table
  - One rule from the dock object of the foreign key table to the dock object of the table

  These rules are for a Check Dock Object visibility type.

- For a foreign key to the S_POSTN table, the Docking Wizard only adds a position dock object visibility rule.

### How the Docking Wizard Creates Visibility Rules

You do not manually create new dock object visibility rules. Siebel Tools automatically adds visibility rules to the dock object depending on the visibility type of the dock object and the structure of the tables involved. Siebel Tools does this in the following situations:

- You use the Docking Wizard to add a dock object table to a custom dock object.
- You start the Docking Wizard from a custom extension column that is a foreign key to another table.

You can use the Docking Wizard to create the following types of limited dock object visibility rules:

- Employee
- Employee Manager
- Position
- Position Manager
- Check Dock Object

For more information, see "Dock Object Visibility Rule" on page 580.

### Locking Related Projects

The Docking Wizard creates visibility rules on associated dock objects. If another project requires a new visibility rule, and if that project is not locked, then Siebel Tools displays a dialog box that informs you to lock the project. Note the following requirements:

- If you create a new dock object for a stand-alone custom table, then you must lock the project that the new dock object references before you create the new dock object.
- If you create a new dock object for a custom table that is not a stand-alone table, then you must do the following before you create the new dock object:
  - Lock the project that the new dock object references.
  - Lock all projects for the dock objects in which the parent table of the custom table resides.

## Adding a Dock Object Table to an Existing Dock Object

You can add a new dock object table to an existing dock object. If the user possess access to the parent record in the existing table, then Siebel Remote downloads records from the new dock object table.

The Docking Wizard adds new dock object visibility rules for a predefined dock object. Siebel Remote uses the new dock object visibility rules to determine to download or not download records from an existing table to the Remote user. This technique is appropriate in the following situations:

- If the new table acts as a parent to the primary table of another, limited visibility dock object.
- If the new table includes a foreign key to the primary table of another limited visibility dock object.

### *To add a dock object table to an existing dock object*

1. Complete Step 1 on page 586 through Step 4 on page 587.
2. In the Tables list, right-click the record, and then choose the Docking Wizard menu item.

   For example, right-click the CX_TEST_PRI table. You must choose an existing extension table that includes the CX_ prefix in the name column.
3. In the Add Table to Dock Object dialog box, choose the Add the Table to an Existing Dock Object option.
4. Choose an entry from the Dock Object list.

   Siebel Tools displays a list of all Dock Objects that contain tables to which the new table includes a foreign key.
5. Choose an entry from the Source Column list.

   This list allows you to choose a column from the new table that is a foreign key to the parent table that is contained in the chosen Dock Object Table. Typically, Siebel Tools only displays one column, but there might be more in some situations.

   If you choose the Source Column, then Siebel Tools displays a value in the Target Table field.
6. Click Next, review your changes, and then click Finish.

   Siebel Tools creates a dock object table object and then displays it in the Dock Object Tables list.
7. Verify that Siebel Tools created the new objects.

   For more information, see "Verifying That Siebel Tools Created Dock Objects" on page 590.
8. Rebuild the databases.

   For more information, see "Rebuilding the Databases After You Run the Docking Wizard" on page 591.

## Verifying That Siebel Tools Created Dock Objects

After you create a new dock object, dock object table, or dock object visibility rule, you can verify that Siebel Tools created the new objects.

### *To verify that Siebel Tools created dock objects*

1. Display the object type named dock object and all child objects of the dock object.

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.
2. In the Object Explorer, click Dock Object.

3 In the Dock Objects list, locate the new dock object.

4 In the Object Explorer, expand the Dock Object tree and then click Dock Object Table.

5 In the Dock Object Tables list, locate the new table.

6 In the Object Explorer, click Dock Object Visibility Rule.

7 In the Object Visibility Rules list, locate the new visibility rules.

For more information, see "Dock Object Visibility Rule" on page 580 and *Siebel Remote and Replication Manager Administration Guide*.

## Rebuilding the Databases After You Run the Docking Wizard

After you run the Docking Wizard you must rebuild the following databases:

- Visibility database, which uses the dobjinst.dbf file
- Visibility ID database, which uses the visdata.dbf file

This rebuild allows database extract and download to work properly. For more information, see *Siebel Remote and Replication Manager Administration Guide*.

### *To rebuild the databases after you run the Docking Wizard*

1 Stop the Siebel Server services.

2 Delete or rename the following files, if they exist:

*ORACLE_HOME*\bin\diccache.dat

*ORACLE_HOME*\bin\dicdata.dat

3 Start the Siebel Server services.

4 Stop the Transaction Processor.

5 Stop the Transaction Router.

6 To rebuild the dobjinst.dbf file, start the Transaction Processor with the TsDbRecreate parameter set to TRUE.

7 To rebuild the visdata.dbf file, start the Transaction Router with the IdDbRecreate parameter set to TRUE.

8 Reextract the Remote client.

9 Make sure the tables now include data that references extraction and download information.

## Cleansing Dock Objects

Dock object integrity might be compromised in the following situations:

- If you delete a custom table, column, or dock object.
- If you redefine a foreign key column to reference a different table.

In these situations, you must cleanse the dock objects before you can use the Docking Wizard again or before you can use Siebel Remote.

### *To cleanse dock objects*

1. In Siebel Tools, in the Object Explorer, click Dock Object.
2. In the Dock Objects list, click Cleanse.

   Siebel Tools does the following:

   a. Examines all dock objects in the Dock Objects list.

   b. Prompts you to make sure all the dock objects are clean. If they are not, then Siebel Tools deletes some objects.

   c. If the projects on which you work are not locked, then Siebel Tools prompts you to lock them. After Siebel Tools finishes, it repeats Step b.

## Creating a Table for a Dock Object

You can create a table for a dock object.

### *To create a table for a dock object*

1. In Siebel Tools, make sure related projects are locked.

   For example, lock the project that the new dock object will reference, such as Dock Opportunity. For more information, see "Locking Related Projects" on page 589.

2. Choose the File menu, and then choose the New Object menu item.
3. In the New Object Wizards dialog box, choose the Table icon in the General tab, and then click OK.
4. In the first General dialog box, do the following:

   a. Enter the name of your custom extension table with a CX_ prefix.

      You must include a CX_ prefix. For example, CX_TEST_PRI.

   b. Choose the project.

   c. Choose the type of table.

5. Click Next and then click Finish.

   Siebel Tools creates the table and then displays the Tables list.

# 26 Localizing Siebel Business Applications

This chapter describes how to configure your Siebel application so that you can deploy it in a localized environment. It includes the following topics:



## Overview of Localizing a Siebel Application

This topic describes an overview of localizing Siebel CRM. It includes the following topics:



### Related Topics

For more information, see the following topics:


- Generating and Deploying a Browser Script on page 203
- Troubleshooting a View That Siebel CRM Does Not Display in the Siebel Client on page 283
- Setting the Input Method Editor Mode on a Control or List Column on page 320
- Using the Conversion Wizard to Convert a Form Applet to Grid Layout on page 324
- Guidelines for Modifying a Predefined Query on page 184
- Properties of a Command on page 680

# About Localization in the Development Environment

*Localization* is the process of configuring Siebel CRM so that you can deploy it into an environment that requires information be displayed in a format that is specific to the local environment, such as the natural language in which a set of users communicates. Siebel CRM maintains, in the same repository, a translatable text string and data that is specific to a language for a Siebel object. Siebel Tools allows you to edit a property that is specific to a locale for an object, such as an applet, view, or control. For more information, see *Using Siebel Tools* and *Siebel Global Deployment Guide*.

## Locale Object Types

A *locale* is an object type that you use to define locale data for the parent object of an object type that contains localizable data, such as a symbolic string. Siebel CRM stores data for a locale object type in a set of repository tables that Siebel CRM designates specifically for storing locale data. These tables use a naming format that includes the name of the base table followed by the suffix _INTL. For more information, see *Using Siebel Tools*.

## Siebel Tools Language Mode

To determine the localizable data to use with translatable data, Siebel Tools runs in a specific language mode. Siebel Tools runs in an English-American user interface, but you can edit localizable data in the language of your choice. The default edit language is English-American. Siebel Tools includes a language mode that you can choose from the Development Tools Options dialog box. If you add more languages, then you must enter the language code in all capital letters. For more information, see *Using Siebel Tools*.

## Checking Out and Checking in Locale Data

The Siebel Server tracks the language in which the project is checked out. Siebel Tools displays this information in the Server Language column of the Check Out dialog box. This feature allows your team to work with data in a language other than the language in which the project is checked out.

You can get locale data for a specific project. You can do this if you change your current working language. For example, assume you only use language data for English-American as your current working language in Siebel Tools, and you must switch to French. To view any localizable data in Siebel Tools, you must get the locale data for French.

For more information, see *Using Siebel Tools*.

## Locale Management Utility

The Locale Management Utility is a tool you can use in Siebel Tools. It allows you to export and import text strings and locale information to an external file. You typically use this utility to export strings to send out for translation and then to import the translated strings back into the Siebel repository. It facilitates a concurrent application configuration and localization process. You use this option if you deploy in multiple languages. To start this utility, you choose the Tools menu, Utilities, and then the Locale Management menu item. For more information, see *Using Siebel Tools*.

### Compiling and Deploying

Every time you configure a column to be multilingual, you must compile a new SRF file. You only need to compile the Table ListOfValues project. You must deploy changes to users so that they can view the configured lists in the desired language.

The Replication Level field of a multilingual list of values (MLOV) determines the replication level of the list of values record. Setting this field to All routes the record to the regional databases and mobile clients. However, if you run the MLOV Converter Utility in translation mode to update the target columns and S_LST_OF_VAL table, then the utility does not log changes in the transaction log table. Therefore, you must reextract the regional databases and remote clients. For more information, see "Converting Your Current Data for an MLOV" on page 608.

## Setting the Language Mode of the Applet Layout Editor

This task is a step in "Process of Using the Applet Layout Editor" on page 311.

Siebel Tools displays the current language in the lower right corner of the Siebel Tools window. For example, Language:ENU. This language allows you to work with data in a language other than English. Example data includes a translatable text string. The language mode also determines the records that are specific to a locale that Siebel Tools transfers during check in and check out and compiles to the SRF file. You can set the language mode.

### *To set the language mode*

1. In Siebel Tools, choose the View menu, and then the Options menu item.
2. Choose the Language Settings tab.
3. Choose the appropriate language in the Language window, and then click OK.

   For more information, see *Using Siebel Tools*.

## Deleting a Control or List Column While in Language Override Mode

If you work in language override mode, then do not delete a control or list column from an applet Web layout.

**CAUTION:** If you work in language override mode, then do not delete a control or list column from an applet Web layout. Instead, make sure the Visible property for the control does not contain a check mark. If you delete a control or list column while working in language override mode, then Siebel Tools deletes the corresponding object for all languages, not just for the language in which you work. If you undo after you cut items from the applet layout, then close the Applet Layout Editor without saving your changes. For more information, see "Deleting a Control or List Column" on page 314.

# Localizing an Application Menu

When Siebel CRM translates an application menu to a language other than English, more space might be required to fit all the characters that the other language uses in the menu. To allow for this requirement, you can increase the width parameter in a swe tag.

### *Localizing an application menu*

- Increase the width parameter in the swe:menu tag in the CCFramebanner.swt web template.

  For example, to localize an application menu for Japanese, increase the width parameter from 275 to 405. For more information on the CCFrameBanner.swt web template, see "Customizing Web Templates to Render Menus, Toolbars, and Thread Bars" on page 527.

# Localizing Help

This topic describes how to deploy help in different languages. If you must use Siebel CRM in a language that is not available from Oracle, and you must deploy help in that language, then you must localize the help. For more information, see *Siebel Global Deployment Guide*.

### *To localize help*

1. If the predefined localized help meets your requirements, then use that predefined help and exit this task.

   Siebel CRM comes with predefined localized help. For more information see, "Predefined Localized Help" on page 596.

2. If the predefined localized help does not meet your requirements, then customize the ENU (American English) help to meet your requirements.
3. To translate the HTML source files, modify the flat files.

   These HTML files constitute the help.

4. Test you modifications and correct any errors.
5. Distribute the localized help to the Siebel Servers and Siebel clients.

## Predefined Localized Help

Siebel CRM comes with predefined localized help. Localized help files are located in the language-specific folders on the Siebel Server or the Siebel client. Help files are installed in the following location on the Siebel Server:

*ORACLE_HOME*\public*install language*\help

where:

- *ORACLE_HOME* is the directory where you installed the Siebel Web Server Extensions
- *install language* is the language you chose during installation

For details about the location of the help files for Siebel CRM, see"Location of Help Files for an Employee or Partner Application" on page 647 and "Location of Help Files for a Customer Application" on page 650.

# Localizing a Multilingual List of Values

This topic describes how to localize a multilingual list of values. It includes the following topics:



A *multilingual list of values* (MLOV) is a type of list of values that allows you to display values in the natural language in which the user communicates. It also allows a user who works in a particular language to retrieve values for another language.

Siebel CRM displays an MLOV in a static list. To configure an MLOV for a predefined static list, the list must meet the following requirements:

- It must be bounded.
- It must not be hierarchical.

For more information about the active language, see *Siebel Global Deployment Guide*. For more information about list of value fields, see *Siebel Applications Administration Guide*.

### Related Topics

For more information, see the following topics:


- About Static Lists on page 437
- Creating a List of Values on page 463
- Guidelines for Modifying a Predefined Query on page 184


## About Language-Independent Code

The list of values table contains the following columns:

- Display Value
- Language Independent Code

Monolingual and multilingual lists of values display values from the Display Value column. If the user chooses a value in a list, then the actual value that Siebel CRM stores in the Siebel database is different for monolingual and multilingual lists of values:

- A monolingual list stores the display value.
- A multilingual list stores the language-independent code.

*Language-independent code* (LIC) is a mechanism that allows Siebel CRM to do the following:

- Store data in a form that a user working in another language can retrieve
- Roll up of data for management reports regardless of the language of the user who enters the data

Table 70 describes an example of how language-independent code works. In this example, a multilingual list displays the Display Value of Mr., Señor, or Herr, depending on the active language of the user. The list stores the value Mr. in the Siebel database because Mr. is the value that is defined in the Language Independent Code column.

Table 70. Example of How Language-Independent Code Works

| Display Value | Language-Independent Code |
|---|---|
| Mr. | Mr. |
| Señor | Mr. |
| Herr | Mr. |

**NOTE:** The language-independent code value for predefined list of values data is typically the same as the American-English version.

Because you define an MLOV on a column basis, the columns that are not configured for multilingual continue to store display values instead of language-independent codes.

## Configuring a Multilingual List of Values

To configure an MLOV, you modify objects in Siebel Tools and then perform administration tasks in the Siebel client. If your implementation uses certain Siebel modules, such as Siebel Workflow, then you must perform more configuration. For more information, see "Configuring Certain Siebel Modules to Use MLOV Fields" on page 614.

### *To configure a multilingual list of values*

1. Consider potential performance issues.

   For more information, see "Considering Factors That Affect MLOV Performance" on page 564.

2. In Siebel Tools, display the following object types:
   - Dock object

- Dock object visibility rule

For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

3 Make sure the list of values is translatable:

a In Siebel Tools, in the List of Values list, locate the list of values you must modify.

For more information, see "Creating a New List of Values" on page 464.

b Make sure the Translate property contains a check mark.

For more information, see "Modifying the Translate Property" on page 603.

c Make sure the Multilingual property contains a check mark.

4 Make sure the list is bounded:

a In the Object Explorer, choose the Flat tab, and then click Pick List.

b In the Pick Lists list, query the Type Value property for the type of list of values you must modify.

c Make sure the Bounded property contains a check mark.

5 Make sure the columns that the list references are bounded and consistent:

a In the Object Explorer, click Column.

b In the Columns list, query the LOV Type property for the list of values type you must modify.

c Make sure the LOV Bounded property for each column contains a check mark.

For more information, see "Example of Determining If the List Is Bounded" on page 600.

d Make sure the Translation Table Name property is set to S_LST_OF_VAL for all columns.

e Make sure the LOV Type for the list matches the LOV Type of the column that the field for the list references.

6 Make sure you can use the column with an MLOV.

For more information, see "Columns That You Cannot Use with an MLOV" on page 601.

7 Make sure the column that is referenced by the field that uses the list contains the following property.

| Property | Value |
|---|---|
| Translation Table Name | S_LST_OF_VAL |

8 Check the visibility rules for references to the list of values that is a part of your MLOV configuration:

a In the Object Explorer, choose the Flat tab, and then click Dock Object Visibility Rule.

b In the Dock Object Visibility Rules list, query the SQL Statement field for literals across all rows that are not empty.

c Identify the values that Siebel CRM must translate.

d If necessary, change the Display Value to the language-independent code.

You must change the display value for any reference in a visibility rule that references a list of values entry for a type that you configure for multilingual support. Note that you cannot change visibility rules.

9 Compile your changes.

10 Configure display values for each language you must support:

a Open the Siebel client, navigate to the Administration - Data screen, and then click the List of Values link.

b Locate the list of values you must modify.

c Create a new record for each display value for the type of list of values that you use for a specific language.

For more information, see "Adding Records for All Supported Languages" on page 604.

d Repeat Step c for each language you must support.

11 Use the MLOV Converter Utility to convert data for the current lists of values.

For more information, see "Converting Your Current Data for an MLOV" on page 608.

12 Test your changes.

## Example of Determining If the List Is Bounded

Table 71 lists columns for the AVAILABILITY_STATUS list of values type. Although three of the columns are bounded, you cannot configure these columns as multilingual because the NEXT_AVAIL_CD column is not bounded. If you run the MLOV Converter Utility on this configuration, then the utility displays an error message similar to `columns are inconsistently` bounded. For more information, see "Fixing an Inconsistently Bounded List of Values or an Improperly Set Translation Table Property" on page 613.

Table 71. Example of Inconsistently Bounded Columns

| Name | LOV Type | LOV Bounded |
|---|---|---|
| CURR_AVAIL_CD | AVAILABILITY_STATUS | Y |
| NEXT_AVAIL_CD | AVAILABILITY_STATUS | Y |
| CURR_AVAIL_CD | AVAILABILITY_STATUS | Y |
| NEXT_AVAIL_CD | AVAILABILITY_STATUS | N |

You can change the LOV Bounded and LOV Type properties of the column in the following situations:

- For a predefined column that is not already assigned to a predefined list of values type.

- For a predefined column that is already assigned to a predefined list of values type and that has the LOV Bounded property set to FALSE, you can change the LOV Bounded property to TRUE. Siebel CRM supports this configuration only in the context of enabling an MLOV.

**NOTE:** You can configure a custom extension column for use with an MLOV. Do not configure a column for an MLOV unless you are sure that you intend to use that column in your implementation.

## Example of Translating Names That Siebel CRM Displays in a List of Values

The Tactics GanttChart Ax Applet - Home Page applet is a standard Gantt chart applet that is part of the Home Page View (DBM) view. This applet is similar to the FS DB Planned GanttChart AX Applet in the predefined FS AxGanttChart View. The FS Dispatch Board Screen includes the FS AxGanttChart View.

The following LOV types control how Siebel CRM displays information in the Tactics GanttChart Ax Applet - Home Page applet:

- The MONTH_NAME LOV type controls the month names.
- The DAY_NAME LOV type controls the day names.

Siebel CRM displays the month and day names in the right frame of the Gantt chart applet. This frame includes scheduled time periods in a calendar. You can translate the month and day names.

### *To translate names that Siebel CRM displays in a list of values*

1. In Siebel Tools, in the List of Values list, locate the list of values you must modify.

   For more information, see "Creating a New List of Values" on page 464.

2. Add translated display values for the languages that Siebel CRM must display.

   For more information, see "Adding Records for All Supported Languages" on page 604.

3. Make sure the Multilingual property contains a check mark for the LOV type row and the display value rows.

## Columns That You Cannot Use with an MLOV

Table 72 lists columns that you cannot use with an MLOV.

Table 72. Columns That You Cannot Use with an MLOV

| Table | Column | LOV Type | Bounded? |
|---|---|---|---|
| S_AGREE_POSTN | APPR_ROLE_CD | AGREEMENT_APPR_ROLE | Yes |
| S_CONTACT | PREF_LANG_ID | No LOV type | No |
| S_CONTACT_X | ATTRIB_48 | No LOV type | No |
| S_CS_RUN | STATUS_CD | CALL_SCRIPT_SAVE_STATUS | Yes |

Table 72. Columns That You Cannot Use with an MLOV

| Table | Column | LOV Type | Bounded? |
|---|---|---|---|
| S_DOC_ORDER | TAX_EXEMPT_REASON | GLOBAL_TAX_EXEMPTION | Yes |
| S_ONL_LAYOUT | CONTROL_TYPE_CD | No LOV type | No |
| S_ORG_EXT | DIVN_CD | SAP_DIVN_CD | Yes |
| S_ORG_EXT | DIVN_TYPE_CD | DIVISION_TYPE | Yes |
| S_ORG_EXT_XM | NAME | No LOV type | No |
| S_PRI_LST_ITEM | PRI_METH_CD | SRVC_PRICING_METHOD | Yes |
| S_PROD_INT_CRSE | CRSE_TYPE_CD | SOURCE TYPE (Internal) | Yes |
| S_PROD_INT_X | ATTRIB_50 | No LOV type | No |
| S_PROD_INT_X | ATTRIB_51 | No LOV type | No |
| S_PROD_INT_X | ATTRIB_53 | No LOV type | No |
| S_PROJ_ORG | PROJ_ROLE_CD | PS_SUBCONTRACTOR_ROLE | No |
| S_PROJITEM | PROD_AREA_CD | PROD_DEFECT_SUB_AREA | Yes |
| S_PROJITEM | STATUS_CD | No LOV type | No |
| S_SRC | SRC_CD | SOURCE_TYPE | Yes |
| S_SRC | STATUS_CD | CAMPAIGN_STATE | No |
| S_SRC_EVT | FORMAT_CD | EVENT_FORMAT | Yes |
| S_SRCH_PROP | NAME | No LOV type | No |

## Defining Properties of an MLOV

You can define properties of an MLOV in Siebel Tools.

### *To define properties of an MLOV*

1 In Siebel Tools, locate the list of values you must modify in the List of Values list.

For more information, see “Creating a New List of Values” on page 464.

2 Define properties for the MLOV using values from the following table.

| Property | Description |
|---|---|
| Multilingual | Indicates the list of values is multilingual. The MLOV Converter Utility sets this flag for the values in the list of values. For more information, see "Converting Your Current Data for an MLOV" on page 608.<br><br>If you add a new MLOV record after the MLOV Converter Utility executes, then you must manually add a check mark to the Multilingual property to make sure it is consistent with the previously created records. |
| Language Name | Indicates the natural language. In the Siebel client, Siebel CRM derives the values for this list from the Languages view in the Administration - Data screen. |
| Translate | If you add a list of values type that must function as an MLOV, then make sure the Translate property contains a check mark. Do not change the Translate field for a predefined list of values. For more information, see "Modifying the Translate Property for a Predefined List of Values" on page 603. |
| Language-Independent Code | The internal language-independent code for a list of values. Siebel CRM stores it in the Siebel database for an MLOV that a Siebel application enables and references. The language-independent code must be 30 characters or less. It is typically the English-American version. You cannot change the language-independent code.<br><br>If you click the List of Values Explorer link in the Siebel client, then the Code field displays the language-independent code. |
| Display Value | Contains the text that Siebel CRM displays in a list. Siebel CRM stores it in the Siebel database for an MLOV that is not enabled.<br><br>To determine the display value, if display values exist for more than one language for a list of values, then Siebel CRM uses the current active language. |

## Modifying the Translate Property

A *translatable list of values* a list of values that Siebel CRM can translate into another language without affecting the functionality of Siebel CRM. The Translate property indicates if Siebel CRM is allowed to translate the display value to another language. If the Translate property contains a check mark, then Siebel CRM can translate. You must update this information manually to reflect your configuration for any MLOV you add.

### Modifying the Translate Property for a Predefined List of Values

The following situations apply for a predefined list of values:

- Do not change the Translate property for a predefined list of values.
- Siebel CRM does not translate an MLOV whose Translate property does not contain a check mark.
- The Translate property is an information-only property that Siebel Engineering uses.

- No client or server functionality is associated with the Translate property.
- To translate the chosen text to the language-independent code, Siebel CRM hard codes translate functionality to use the Display Value property. You cannot use a different value for translation.

## Adding Records for All Supported Languages

If you add a new list of values record for a multilingual list of values type, and if you do not add records for each supported language, and if a user who uses one of these languages attempts to view the information, then Siebel CRM displays the language-independent code instead of the display value.

If you use Assignment Manager, then you must add records for all the languages you support. For more information, see "Configuring Siebel Assignment Manager to Use MLOV Fields" on page 618.

For more information about adding records to the list of values table, see *Siebel Applications Administration Guide*.

### *To add records for all supported languages*

- If you add a new list of values record for a multilingual list of values type, then you must add records for all supported languages.

  For example, assume you must support German, French and English. In this situation, you create two new records for each display value. One record for German and one record for French.

  Make sure the language-independent code for each new record is the same as the original record. Make sure the Language and Display Value fields are set differently to reflect the language.

  For more information, see "Defining Properties of an MLOV" on page 602.

## Running a Query Against Fields That an MLOV Controls

To perform a search, Siebel CRM applies the following function to the language-independent code:

```
LookupValue (LOV Type, Language-Independent Code)
```

You can use this function to configure search with a predefined query and search expression.

For more information about the LookupValue function, see "Guidelines for Using Code in an MLOV Configuration" on page 606. For more information, see "Guidelines for Modifying a Predefined Query" on page 184.

For more information about query operators and expressions, see *Siebel Developer's Reference* and *Siebel Fundamentals*.

### *To run queries against fields that an MLOV controls*

1 Use the display value for the search specification.

   Do not use the language-independent code to query. A query translates the search specification to the appropriate language-independent code. For more information, see "Options to Filter Data Displayed in an Applet" on page 120.

2 Make sure the Display Value you use as the search specification corresponds to the language that Siebel CRM uses to perform the query.

   If the query runs through a Siebel interface, such as COM, then the language that Siebel CRM uses for this translation is configured in the configuration file that Siebel CRM uses with the interface.

## Deactivating an MLOV Record Instead of Deleting It

When you administer an MLOV during the lifetime of a Siebel application, it might be necessary to deactivate an MLOV record that Siebel CRM no longer requires. It is recommended that you deactivate the record instead of deleting it. Siebel CRM can correctly display an inactive record in other tables that use the record. Siebel CRM does not include inactive records in any lists. Enterprise Integration Manager ignores inactive records when it validates a list of values.

If you delete an MLOV record, then Siebel CRM does the following:

- Uses the display value in the list of values entries to display the language-specific text. Note that Siebel CRM cannot correctly display records in other tables that use the MLOV record.
- To display the language-independent code, Siebel CRM uses the language-independent codes in the target columns that refer to the deleted record.

### *To deactivate an MLOV record instead of deleting it*

1 In the Siebel client, navigate to the Administration - Data screen, and then choose the List of Values link.

2 Make sure the Active field does not contain a check mark.

   By default, Siebel CRM includes a check mark for the Active field.

## Guidelines for Localizing a Multilingual List of Values

This topic describes guidelines for localizing an MLOV.

### Guidelines for Configuring a Multilingual List of Values

If you configure an MLOV, then use the following guidelines:

- Make sure language-independent code is unique. For more information, see "Language-Independent Code Must be Unique" on page 607.

- If the header row entry is inactive, then make sure the Display Value rows are not active.
- You cannot customize a hierarchical MLOV. Siebel CRM does not support this configuration. If you require a hierarchical MLOV, then see Article ID 473813.1, which was previously published as Siebel Technical Note 632 on My Oracle Support. For help with a hierarchical MLOV, see "Getting Help from Oracle" on page 192.
- Do not create more than one header row for a given MLOV type. For example, assume an MLOV named ACCOUNT_STATUS includes nine Display Value rows, three rows each for English, Spanish, and German. Siebel CRM requires only one header row for these nine values. If you create three header rows for the ACCOUNT_STATUS MLOV, then the MLOV will fail.
- Make sure the length of the table column that stores the language-independent code is equal to the longest display value for the MLOV.

  **CAUTION:** The length of the table column that stores the language-independent code must equal the longest display value for the MLOV. This length is 30 characters. If it does not, then Siebel CRM truncates the display value. If the predefined column does not meet your requirements, and if you use a custom extension column, then you must make sure the column is a VARCHAR column and has a maximum length of 30.
- Make sure any customization you perform that directly involves the list of values table is compatible with other MLOV functionality in your Siebel application. For display, Siebel CRM uses a lookup to convert the underlying language-independent code to the corresponding display value. For search and sort, Siebel CRM performs a database join to the list of values table.
- Associate an MLOV with only one business component field. Siebel CRM uses only one multilingual list type for each column. However, multiple business components can reference a table, and multiple business component fields can reference the same column in a table. When run in validation mode, the MLOV Converter utility makes sure an MLOV is associated with only one field. For more information, see "Converting Your Current Data for an MLOV" on page 608.

## Guidelines for Using Code in an MLOV Configuration

If you use code in an MLOV configuration, then use the following guidelines:

- Do not hard-code the conditions for a dynamic drilldown or toggle applet. Instead, use the LookupValue function. A drilldown or toggle applet references a business component field that includes a value from a list of values. Because these values are dynamic, you must not hard-come them. For example, a dynamic drilldown might navigate the user in the following ways:
  - To a Credit Card screen if the account type is Credit Card
  - To a Savings screen if the account type is Savings
- Never use Siebel Visual Basic to hard-code the Display Value. Instead, use the language-independent code. Siebel Visual Basic does not include a function that retrieves a Display Value that is specific to a particular language. To write Siebel Visual Basic code using only language-independent code, you must create a calculated business component field that contains the language-specific translation for a language-independent code.
- Use the LookupName function only in a calculated field or in a search specification. You cannot use it with Siebel scripting. For more information, see "Options to Filter Data Displayed in an Applet" on page 120.

- For the Pre Default Value and Post Default Value properties of a business component field that uses a list of values list, always prepend the LookupValue function with *Expr:*. The first argument is the LOV Type. The second argument is the language-independent code. The function returns the language-specific Display Value. For example:

  ```
  Expr: “LookupValue (““FS_PROD_ALLOC_RULES””, ““Default””)”
  ```

- If you define a search specification for a business component, link, applet, or list, then use the LookupValue function. For example:

  ```
  [Invoice Code] = LookupValue('FS_INVOICE_CODE', 'Auction')
  ```

  For more information, see “Options to Filter Data Displayed in an Applet” on page 120.

## Guidelines for Using Enterprise Integration Manager with an MLOV

Enterprise Integration Manager (EIM) can import and export data. You can import data into the list of values table and other tables in Siebel CRM. If you use Enterprise Integration Manager with an MLOV, then use the following guidelines:

- If you import data into the list of values table, then you must make sure the source table includes a language code and a name-value pair. This pair includes the display value and the language-independent code.
- If you import data into any other table, then you must provide a language code for the LANGUAGE command-line parameter for EIM. The source table must include the display value for multilingual columns in the language defined in the parameter. EIM validates imported data against list of values entries. It converts incoming data to the related language-independent code during the import.
- When EIM validates MLOV values during an import, it ignores list of values entries that are marked inactive.
- During an export, you must define a language code for the LANGUAGE parameter so that EIM can correctly translate the language-independent code in the table to the display value.

For more information, see *Siebel Enterprise Integration Manager Administration Guide*.

## Language-Independent Code Must be Unique

If you create a multilingual list of values or a hierarchical list of values, then use a unique language-independent code. For a monolingual list where there is no language-independent code, use unique display values. For example, assume a customer requires the following country and state hierarchical list of values:

- Parent list of values is COUNTRY.

  Required values include Australia and USA.

- Child list of values is STATE.

  Required values include Western Australia and Washington State.

In this example, WA is not assigned to the language-independent code for both child list of value entries. Because the meaning is different for each location, Siebel CRM assigns a unique language-independent code. For example, WESTERN_AU and WASH_STATE_USA.

There are situations where it is appropriate to use duplicate values in the child list of values, but you must assign these the same display values in the same language. For example:

- Parent list of values is DEFECT_TYPE

  Required values include Product Defect and Documentation Defect

- Child list of values is STATUS

  Required values include Open and Closed

Because the status can be Open for each type of defect, the list of values table contains multiple entries with the display value Open, one for each time that Siebel CRM can use it with each parent list of values entry. Because the LookupValue function returns the first value in the list of values table that matches the supplied LOV_TYPE and language-independent code values, it is essential that Siebel CRM assigns the same display value.

# Converting Your Current Data for an MLOV

After you configure Siebel CRM to use an MLOV, you use the MLOV Converter Utility to convert data for the current lists of values. The MLOV Converter Utility does the following:

- For each column configured for an MLOV, locates values in lists of values in user data that are not in the S_LST_OF_VAL table.
- Inserts these values into the S_LST_OF_VAL table as inactive.
- Changes the display value of bounded columns to the language-independent code and sets the value for the Multilingual property to true.

Note the following:

- It is recommended that you backup the Siebel database before you run the utility. You cannot reverse or undo a conversion.
- You must perform this conversion even if you recently completed a new installation of your Siebel application.
- You can run the utility as often as necessary. The utility only processes data that is not already converted.

You run the MLOV Converter Utility in one of the following modes:

- **Validation.** Validates the current repository for data inconsistencies. If the utility finds inconsistencies, then the utility writes errors to a log file and then stops.
- **Translation.** Does the following:
  - If a column is configured for an MLOV, then the utility changes the display value for the column to the language-independent code.

- If you set the target column for a LOV Type to multilingual, then to make sure the multilingual state of the target column and the corresponding list of values in the S_LST_OF_VAL table are consistent with each other, the utility sets the MULTILINGUAL flag to TRUE in the S_LST_OF_VAL table.

  The MLOV Converter Utility sets the multilingual flag to TRUE for the header row and the Display Value rows for the MLOV.

- Verifies that target columns that use the MLOV type are configured. A *target column* is a column that stores the display value or the language-independent code as part of user data.

### *To convert your current data for an MLOV*

1. In Siebel Tools, delete all indexes that reference the columns you must convert.

   You will recreate these indexes after you finish the MLOV conversion.

2. Start the Siebel Database Configuration Wizard.

   For information, see *Siebel Installation Guide for Microsoft Windows*. If you use UNIX, then see *Siebel Installation Guide for UNIX*.

3. Define the required parameters.

   For more information, see "Parameters You Use to Run the MLOV Converter Utility" on page 610.

4. Choose Run Database Utilities.

5. Choose Multi-Lingual List of Value Conversion.

6. Choose Validate Mode.

7. Run the MLOV Converter Utility.

8. Review the log file and resolve errors, as necessary.

   The MLOV Converter Utility checks for errors and writes them to a log file. The default name of the log file is `mlovupgd_verify.log`. The default location of the file is the `siebsrvr\LOG` directory.

9. If the utility reports an error, then resume the utility in validation mode.

   For more information, see "Resuming the MLOV Converter Utility If an Error Occurs" on page 610.

10. Repeat Step 2 through Step 9 until the utility does not report any errors.

11. Repeat Step 2 through Step 5 to restart the Siebel Database Configuration Wizard.

12. Specify Translation Mode, and then run the MLOV Converter Utility.

13. Recreate the indexes you deleted in Step 1.

14. Compile and test your changes.

    For more information, see *Using Siebel Tools*.

## Parameters You Use to Run the MLOV Converter Utility

Table 73 describes the parameters you use to run the MLOV Converter Utility.

Table 73. Parameters You Use to Run the MLOV Converter Utility

| Name of Dialog Box | Values You Must Choose |
|---|---|
| Siebel Enterprise Parameters: Gateway Name Server Address | Gateway Name Server Address<br>Enterprise Server Address |
| Installation and Configuration Parameters: Siebel Server Directory | Siebel Server Directory |
| Installation and Configuration Parameters: Siebel Database Server Directory | Database Server Directory |
| Database Server Options: Siebel Database Operation | Run Database Utilities |
| Database Utilities: Database Utility Selection | Multilingual List of Values Conversion |
| MLOV Parameters: MLOV Operation | Validate or Translate, depending on the mode you must run. |
| Installation and Configuration Parameters: Language Selection | Base language of your Siebel application. |
| Installation and Configuration Parameters: RDBMS Platform | RDBMS Platform |
| Installation and Configuration Parameters: OBDC Data Source Name | OBDC Data Source Name |
| Installation and Configuration Parameters: Database User Name | Database User Name<br>Database Password |
| Installation and Configuration Parameters: Table Owner | Table Owner Name<br>Table Owner Password |
| MLOV Parameters: Repository Name | Repository Name |
| Configuration Parameter Review | Review the parameters you defined and then click Finish. |

# Resuming the MLOV Converter Utility If an Error Occurs

If an error occurs, then you can resume running the MLOV Converter Utility in validation mode or in translation mode.

### *To resume the MLOV Converter Utility if an error occurs*

1 Open a DOS prompt and then navigate to the following directory:

*ORACLE_HOME*\BIN

If you use UNIX, then open a shell prompt.

2 If you use Windows, then do one of the following at the command prompt:

- To resume running in validation mode, type the following command:

  ```
  siebupg /m master_mlov_verify.ucf
  ```

- To resume running in translation mode, type the following command:

  ```
  siebupg /m master_mlov_translate.ucf
  ```

3 If you use UNIX, then do one of the following at the shell prompt:

- To resume running in validation mode, type the following command:

  ```
  srvrupgwiz /m master_mlov_verify.ucf
  ```

- To resume running in translate mode, type the following command:

  ```
  srvrupgwiz /m master_mlov_translate.ucf
  ```

# Using the MLOV Converter Utility to Convert Multiple Languages

The MLOV Converter Utility only upgrades one language at a time. If the target columns include data in more than one language, then you must run the utility for each language. For example, assume the ENU and DEU display values exist in a column that is enabled for an MLOV. If you run the converter in ENU, then the utility does the following work:

- For each value that the converter finds, it checks if this value exists as a Display Value for a LOV record of the LOV Type and the language, which in this example is ENU.
- If the value exists, then the converter updates the column with the LIC value.
- In this example, DEU does not exist in the value, and the converter creates a new LOV record for the LOV Type and ENU.

  You do not need these new LOV records, and you must remove them.

### *To use the MLOV Converter utility to convert multiple languages*

1. In Siebel Tools, choose the Screens menu, System Administration, and then the List of Values menu item.
2. In the List of Values list, query the Display Value property for the name of the MLOV you must convert.

   As a result of your query, Siebel Tools displays the display value rows for the MLOV.
3. Set the Multilingual property for each record in the List of Values list using values from the following table.

| Property | Value |
|---|---|
| Multilingual | Does not contain a check mark. |

4. In the List of Values list, query the Display Value property for the name of the MLOV you must convert.

   As a result of your query, Siebel Tools displays the header row for the MLOV.
5. Make sure the Multilingual property in the List of Values list does not contain a check mark.
6. Run the MLOV Converter utility for one of the languages you must convert.

   For more information, see "Converting Your Current Data for an MLOV" on page 608.
7. Remove the check mark from the Multilingual property for each object you modified in Step 5 and Step 6.

   Note that the MLOV Converter utility automatically adds a check mark to the Multilingual property.
8. Delete the unwanted records that the converter utility created.
9. Repeat Step 2 through Step 7 for each additional language you must convert.

# Troubleshooting Problems with an MLOV Conversion

When the MLOV Converter Utility finishes, it writes log files to the following directory:

```
siebsrvr\log\mlov_verify_validation\output or siebsrvr\log\mlov_translate\output
```

It writes errors to the mlovupgd_verify.log file.

## Fixing an Inconsistently Bounded List of Values or an Improperly Set Translation Table Property

If a List of Values is not bound consistently, or if the Translation Table property is not set to S_LST_VAL, then the utility logs the follow message in the mlovupgd_verify.log file:

```
The following Validation checks for:

1- Two or more columns defined in the same LOV domain are inconsistently bounded
(one bounded, one not)

2- Two or more columns are defined in the same LOV domain and at least one of them
does not have a Translation Table Name of  S_LST_OF_VAL
```

The utility includes a log entry for each error it encounters. The utility includes the LOV type, column, and table.

### *To fix an inconsistently bounded list of values or an improperly set Translation Table property*

1. Make sure the list is consistently bounded.
2. For more information, see Step 5 on page 599.
3. Make sure the Translation Table property is set properly.
4. For more information, see Step 5 on page 599.
5. To make sure you corrected all errors, run the MLOV Converter Utility in validation mode.

## Fixing a LOV Domain That Is Not in the S_LST_OF_VAL Table

If a list of values domain is not represented in the S_LST_OF_VAL table, then the utility logs the following message in the mlovupgd_verify.log file:

```
The following Validation checks for:

LOV domains in the repository that are not represented in S_LST_OF_VAL
```

In this situation, a list of values domain does reside in the Siebel repository but it fails one of the following tests:

- It is not represented as a value in the list of values table.
- The list of values type is not LOV_TYPE.

This problem can occur in the following situations:

- You delete a record in the list of values table instead of deactivating it. For more information, see "Deactivating an MLOV Record Instead of Deleting It" on page 605.
- You enter an incorrect entry in the LOV Type property for a column added using a database extension.

### *To fix a LOV domain that is not in the S_LST_OF_VAL table*

1. Correct the LOV Type property:
   a. In Siebel Tools, correct the entry in the LOV Type property.

      For more information, see "Adding Records for All Supported Languages" on page 604.

   b. Compile your changes.

   A script creates a matching record in the list of values table for any values it finds in the target tables that do not include matching records in the list of values table. The script marks these records as inactive.

   c. In the Siebel client, navigate to the Administration - Data screen, and then add language-specific entries for the base records you just compiled.

      This allows Siebel CRM to display the values in the active language.
2. Add the list of values domain:
   a. In the Siebel client, navigate to the Administration - Data screen, and then click the List of Values link.
   b. Add the list of values domain and set the Type field to LOV_TYPE.

# Configuring Certain Siebel Modules to Use MLOV Fields

This topic describes how to configure certain Siebel modules, such as Siebel Workflow, to use MLOV fields. It includes the following topics:



## Configuring Siebel Workflow to Use MLOV Fields

To determine if a condition is true, Siebel Workflow compares values in target tables against values in the Business Process administration tables. However, Siebel Worklfow cannot compare the language-independent code to the display value because of the following differences:

- Siebel CRM stores the language-independent code in the MLOV column of the database table.
- Siebel CRM stores the display value in the Business Process Administration table.

To allow Siebel Worklfow to work with an MLOV column, you must configure workflow objects so that they compare the language-independent code in the target table with the language-independent code in the Business Process Designer administration table. You must do this for the following objects:

- Conditions for the workflow policy
- Argument for the workflow policy

For more information, see *Siebel Business Process Framework: Workflow Guide.*

## Preparing Policy Conditions and Action Arguments for an MLOV

In this topic, you prepare policy conditions and action arguments for an MLOV.

### *To prepare policy conditions and action arguments for an MLOV*

1. In Siebel Tools, display the following object types:
   - Workflow policy
   - Workflow policy program
   - Workflow policy program arg

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.
2. In the Object Explorer, click Business Component.
3. In the Business Components list, locate the relevant business component.
4. In the Object Explorer, expand the Business Component tree, and then click Field.
5. In the Fields list, identify the fields that are enabled for an MLOV.
6. Of the fields that are enabled for an MLOV, identify the fields that reference the workflow policy conditions and action arguments.
7. For each field that references a workflow policy condition, do the following:
   a. "Creating an Applet That Uses Language-Independent Code" on page 615.
   b. "Creating a List That Uses Language-Independent Code" on page 616.

## Creating an Applet That Uses Language-Independent Code

In this topic, you create an applet that uses language-independent code.

### *To create an applet that uses language-independent code*

1. In the Object Explorer, click Applet.
2. In the Applets list, locate an applet that resembles the functionality you require.

   For example, Account Status Pick Applet.
3. Right-click the applet, and then choose Copy Record.

4 Set properties using values from the following table.

| Property | Value |
|---|---|
| Name | Append LIC to the name. For example, Account Status Pick Applet LIC. |

5 In the Object Explorer, expand the Applet tree, expand the List tree, and then click List Column.

6 In the List Columns list, locate a list column that resembles the functionality you require.

7 Right-click the list column, and then choose Copy Record.

8 Set properties using values from the following table.

| Property | Value |
|---|---|
| Name | Name |
| Field | Name |

9 Create a list that uses language-independent code.

For more information, see "Creating a List That Uses Language-Independent Code" on page 616.

## Creating a List That Uses Language-Independent Code

In this topic, you create a list that uses language-independent code.

### *To create a list that uses language-independent code*

1 In the Object Explorer, click Pick List.

2 In the Pick Lists list, locate a picklist that resembles the functionality you require.

For example, Picklist Account Status.

3 Right-click the picklist, and then choose Copy Record.

4 Set the properties using values from the following table.

| Property | Value |
|---|---|
| Name | Append LIC to the name. For example, Picklist Account Status LIC. |
| Sort Specification | Name |

5 Configure the workflow policy and workflow policy program argument.

For more information, see "Configuring the Workflow Policy and Workflow Policy Program Argument" on page 617.

## Configuring the Workflow Policy and Workflow Policy Program Argument

In this topic, you configure the workflow policy and workflow policy program argument.

### *To configure the workflow policy and workflow policy program argument*

1 Configure the workflow policy:

   a In the Object Explorer, click Workflow Policy Column.

   b In the Workflow Policy Columns list, locate the workflow policy column that you must use with an MLOV.

   c Set the properties for the workflow policy column. Make sure you set them in the order in which they are listed in the following table, starting with the Applet property.

| Property | Value |
|---|---|
| Applet | Choose the applet you created in Step 3 on page 615. |
| PickList | Choose the picklist you created in Step 3 on page 616. |
| Source Field | Name |

2 Configure the workflow policy program argument:

   a In the Object Explorer, click Workflow Policy Program.

   b In the Workflow Policy Programs list, locate the workflow policy program that contains the argument you must enable for use with an MLOV.

   c In the Object Explorer, expand the Workflow Policy Program tree, and then click Workflow Policy Program Arg.

   d In the Workflow Policy Program Arguments list, choose the argument you must enable for use with an MLOV.

   e Set properties for the argument using values from the table in Step 1.

3 Compile your changes.

4 Administer the values:

   a Open the Siebel client, navigate to the Administration - Business Process screen, and then click the Workflow Policies link.

      Make sure the Siebel client is connected to the Siebel repository file you just compiled.

   b In the Policies List, locate the policy you must modify.

   c In the Conditions List, choose the condition and then enter the value.

   d In the Arguments List, choose the argument, enter the value, and then step off the record.

      Siebel CRM stores the language-independent code.

# Configuring Siebel Assignment Manager to Use MLOV Fields

To determine if a condition is true, Siebel Assignment Manager compares values in target tables against values in the Assignment Manager administration tables. However, Assignment Manager cannot compare the language-independent code to the display value because of the following differences:

- Siebel CRM stores the language-independent code in the MLOV column of the database table.
- Siebel CRM stores the display value in the Assignment Manager administration table.

To allow Assignment Manager to work with an MLOV column, you must configure the criteria values and criteria skills so that they compare the language-independent code in the target table with the language-independent code in the Assignment Manager administration table. This situation is similar to configuring Siebel Workflow. For more information, see "Configuring Siebel Workflow to Use MLOV Fields" on page 614.

For more information, see "Siebel Assignment Manager" on page 43 and *Siebel Assignment Manager Administration Guide*.

## Preparing Criteria Values and Criteria Skills for an MLOV

In this topic, you prepare criteria values and criteria skills for an MLOV.

### *To prepare policy conditions and action arguments for an MLOV*

1. Complete "Preparing Policy Conditions and Action Arguments for an MLOV" on page 615 with the following modifications:
   a. In Step 1 on page 615, display the workflow policy column and assignment attribute object types.
   b. In Step 6 on page 615, identify the fields that reference the following object types:
      - Criteria values
      - Criteria skills
      - Workload rules
2. Set the criteria for each field that references criteria values and criteria skills:
   a. In the Object Explorer, click Assignment Attribute.
   b. In the Assignment Attributes list, locate the assignment attribute that must work with an MLOV field.

c Set properties of the assignment attribute using values from the following table.

| Property | Value |
|---|---|
| Translate | Contains a check mark. |
| Translate Pick Field | Choose the field that stores the language-independent code. The Name field usually stores the language-independent code. |

d Repeat Step 2 for each field until you configured all criteria.

3 Set the workload rules for each field you identified in Step b on page 618:

a Create a new list to display language-independent code values.

b Create a new applet to display language-independent code values.

c Configure the workflow policy column to use the new list and applet.

d Choose the values for predefined records.

Work you perform in this step is similar to work you perform to configure a workflow policy. For more information, "Preparing Policy Conditions and Action Arguments for an MLOV" on page 615.

4 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Configuring Siebel Anywhere to Use MLOV Fields

You can configure Siebel CRM to use MLOV fields with Siebel Anywhere. After you complete this task, you can perform typical tasks associated with Siebel Anywhere, such as creating and distributing a Siebel client repository upgrade kit. You must perform more configuration to create and distribute a Siebel client repository upgrade kit. For more information, see *Siebel Anywhere Administration Guide*.

### *To configure Siebel Anywhere to use MLOV fields*

1 In Siebel Tools, in the Object Explorer, click Table.

2 In the Tables list, locate the S_UPG_KIT table.

3 In the Object Explorer, expand the Table tree, and then click Column.

4 In the Columns list, locate the STATUS column, and then set properties using values from the following table.

| Property | Value |
|---|---|
| Translation Table Name | S_LST_OF_VAL |

5 Compile and test your changes.

For more information, see *Using Siebel Tools*.

# 27 Configuring the Customer Dashboard

This chapter describes how to configure the Customer Dashboard. It includes the following topics:



## Overview of the Customer Dashboard

The *Customer Dashboard* is a feature that provides access to customer information, such as contact name and account number. It remains persistent as the user navigates through Siebel CRM. The Customer Dashboard is visible as a separate frame that Siebel CRM displays below the screen tabs in the Siebel client. For more information, see *Siebel Fundamentals*.

Note the following:

- Siebel CRM updates the Customer Dashboard. To receive this data, the Customer Dashboard must be open.
- This information remains in the Customer Dashboard until Siebel CRM executes the Clear Dashboard command.
- During a session, Siebel CRM saves all data that it displays in the Customer Dashboard. The user can use the Forward and Backward buttons to display this stored data.
- You can configure a button on an applet that updates the Customer Dashboard with information from the currently chosen row in an applet. For more information, see "Configuring a Button to Update the Customer Dashboard" on page 637.
- You can configure the Customer Dashboard to display data from any business component.

### Objects That the Customer Dashboard Uses

Table 74 describes the object types that the Customer Dashboard uses. All object types use Persistent Customer Dashboard in the Name property except the business service method object type. For example, the Customer Dashboard references the Persistent Customer Dashboard virtual business component. This business component references the Persistent Customer Dashboard business object.

Table 74. Objects That the Customer Dashboard Uses

| Object Type | Description |
|---|---|
| Business object | Groups together business components that can update the Customer Dashboard. |
| Business component | A virtual business component. |
| Business service | Controls functionality of the Customer Dashboard. |
| Applet | Displays data in the Siebel client. |
| View | Displays applets in the Siebel client. |
| Business service method | Updates the Customer Dashboard. Upon receiving the arguments, the methods evaluate the set of fields to display, retrieves the data, and then enters the data into the Customer Dashboard. |

## Enabling the Customer Dashboard

By default, the Customer Dashboard is enabled for Siebel Call Center, Siebel Sales, and Siebel Service. You can enable the Customer Dashboard for other applications.

### *To enable the Customer Dashboard*

1. In Siebel Tools, display the business service user prop object type, which is a child of the business service object type.

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2. In the Object Explorer, click Business Service.
3. In the Business Services list, locate the Persistent Customer Dashboard business service.
4. Verify that the Inactive property does not contain a check mark, which is the default setting.
5. In the Object Explorer, expand the Business Service tree, and then click Business Service User Prop.
6. In the Business Service User Props list, query the Name property for Applications.

7 Add the Siebel application to the Value property.

For example, to activate Customer Dashboard for the Siebel Employee Relationship Management application (Siebel ERM), you add Siebel ERM to the user property as described in the following table.

| Name Property | Value Property |
|---|---|
| Applications | Siebel Universal Agent; Siebel Field Service; Siebel Sales Enterprise; Siebel ERM |

# Process of Configuring the Customer Dashboard

To configure the Customer Dashboard to display data, perform the following tasks:

1 Adding a Business Component to the Customer Dashboard on page 623

2 Mapping a Business Component Field to a Customer Dashboard Field on page 626

3 Creating a Label for a Customer Dashboard Field on page 629

## Adding a Business Component to the Customer Dashboard

This task is a step in the "Process of Configuring the Customer Dashboard" on page 623.

The Customer Dashboard displays a set of fields from multiple business components, such as the Account, Contact, Employee and Service Request business components. You can configure the Customer Dashboard to display information from other business components. To do this, you add the business component to the Persistent Customer Dashboard business object.

The Customer Dashboard does not simultaneously display data from multiple business components. It does display data in different contexts. For example, Siebel CRM displays the following information in the Customer Dashboard:

- If the user is in the Accounts screen and clicks Update, then Siebel CRM displays account data.
- If the user is in the Contacts screen and clicks Update, then Siebel CRM displays contact data.

### *To add a business component to the Customer Dashboard*

1 In Siebel Tools, display the business service user prop object type, which is a child of the business service object type.

For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2 Associate the business component with the business object:

a In the Object Explorer, click Business Object.

b In the Business Objects list, query the Name property for Persistent Customer Dashboard.

c In the Object Explorer, expand the Business Objects tree, and then click Business Object Component.

d To determine if a record already exists for the business component that must provide data to the Customer Dashboard, examine the Bus Comp property. If it does exist, then exit this task.

e Add a new business object component using values from the following table.

| Property | Description |
|---|---|
| Bus Comp | Choose the name of the business component you must add. |

3 Define the business component list:

a In the Object Explorer, click Business Service.

b In the Business Services list, locate the Persistent Customer Dashboard business service.

c In the Object Explorer, expand the Business Service tree, and then click Business Service User Prop.

d In the Business Service User Props list, add a user property using values from the following table. For more information, see "About the Business Component List" on page 625.

| Property | Description |
|---|---|
| Name | Enter a name for this business service user property that represents the business component list. Use the following format:<br>`List integer`<br>where:<br>*integer* is a number.<br>For example:<br>`List 1` |
| Value | Enter the name of the business component and the names of the business component fields that must provide data to the Customer Dashboard. Use the following format:<br>*business component name*;*business component field name*;*business component field name*<br>where:<br>■ *business component name* is the value that Siebel Tools displays in the Name property of the business component. You must begin this list with the business component name.<br>■ *business component field name* is the value that Siebel Tools displays in the Name property of the business component field. If you list multiple field names, then you must use a semicolon to separate each name.<br>For example:<br>`Contact;Last Name;First Name;Full Name` |

## About the Business Component List

A *business component list* identifies the business component and the list of business component fields that provide data to the Customer Dashboard. To create this list, you define the following properties of a user property of the Persistent Customer Dashboard business service:

- **Name.** Identifies the name of the business component list.
- **Value.** Identifies the name of the business component and the list of business component fields that constitute the business component list.

Table 75 describes the predefined List 1 business component list for contacts and List 2 for opportunities.

Table 75. Example Business Component Lists in the Business Service User Property of the Persistent Customer Dashboard Business Service

| Name Property | Value Property |
|---|---|
| List 1 | Contact;Last Name;First Name;Full Name;Email Address;Work Phone #;Account;Account Location;Fax Phone #;Job Title;Mobile Phone # |
| List 2 | Opportunity;Name;Account;Account Location;Oppty Id;Close Date;Sales Rep;Revenue;Sales Stage |

## Mapping a Business Component Field to a Customer Dashboard Field

This task is a step in the "Process of Configuring the Customer Dashboard" on page 623.

A *customer dashboard field* is a field that Siebel CRM displays in the Customer Dashboard. To create this field, you define a business service user property for the Persistent Customer Dashboard business service. You define the following properties for this business service user property:

- **Name.** Identifies the name of the Customer Dashboard field. For example, Field 1.
- **Value.** Identifies the business component list and a field from the business component list.

Siebel CRM predefines the following field names for the Customer Dashboard:

- Field 1.
- Field 2.
- Field 3.
- Field 4. Formatted to display a phone number.
- Field 5.
- Field 10.
- Field 12.

### *To map a business component field to a customer dashboard field*

1. In the Object Explorer, click Business Service.
2. In the Business Services list, locate the Persistent Customer Dashboard business service.
3. In the Object Explorer, expand the Business Service tree, and then click Business Service User Prop.

4 In the Business Service User Props list, add a user property using values from the following table.

| Property | Description |
|---|---|
| Name | Enter a name for this business service user property that represents the customer dashboard field. Use the following format:<br>`Field integer`<br>where:<br>*integer* is a number.<br>For example:<br>`Field 1` |
| Value | You must use the following format:<br>*name of the business component list.position*<br>where:<br>*position* is the position of the business component field in the business component list.<br>Consider the following examples from Table 75 on page 626:<br>■ Assume you must reference the Last Name field of the Contact business component. Because this field is the first field that is included in the Value property for the List 1 business component list, you use the following format:<br>`List 1.1`<br>■ Assume you must reference the First Name field of the Contact business component. Because this field is the second field that is included in the Value property for the List 1 business component list, you use the following format:<br>`List 1.2` |

## Configuring a Customer Dashboard Field to Display Data According to Context

You can display data from fields from more than one business component in a single customer dashboard field. To do this, you define multiple values in the Value property of a business service user property for the Persistent Customer Dashboard business service.

The Customer Dashboard business service searches through the list of user properties, starting with Field, and looks for fields that are mapped to the Customer Dashboard from the current business component.

**NOTE:** If you create a new Customer Dashboard field, then make sure to include a member from every business component list. If you do not do this, then the Customer Dashboard might retain data from the previous business component when Siebel CRM updates the dashboard.

### *To configure a customer dashboard field to display data according to context*

1. In Siebel Tools, in the Object Explorer, click Business Service.
2. In the Business Services list, locate the Persistent Customer Dashboard business service.
3. In the Object Explorer, expand the Business Service tree, and then click Business Service User Prop.
4. In the Business Service User Props list, add a user property using values from the following table.

| Property | Description |
|---|---|
| Name | Enter a name for this business service user property that represents the customer dashboard field. For example:<br><br>`Field 1` |
| Value | Reference each field from each business component list. You must use the following format:<br><br>*`name of the business component list.position;name of the business component list.position`*<br><br>where:<br><br>*position* is the position of the business component field in the business component list.<br><br>For example, using the business component lists described in Table 75 on page 626, assume you must display the following information:<br><br>■ If the Customer Dashboard is in the Contacts context, then the Field 1 customer dashboard field must display the Last Name of the contact.<br><br>■ If the Customer Dashboard is in the Opportunities context, then the Field 1 customer dashboard field must display the Opportunity Name.<br><br>You use the following code to implement this example:<br><br>`List 1.1;List 2.1`<br><br>List 1.1 represents the first field of List 1. List 2.1 represents the first field of List 2. |

#### Example of Configuring a Customer Dashboard Field to Display Data According to Context

Assume the Contact business component is active. The Persistent Customer Dashboard business service does the following:

- Locates business service user properties with Field in the Name property.
- If a Field business service user property references the Contact business component, then Siebel CRM displays data from the business component field.
- If a Field business service user property does not reference the Contact business component, then Siebel CRM does nothing and the Customer Dashboard field remains empty.

- If a Field business service user property references the Opportunity business component, and if the Opportunity business component is active, then Siebel CRM displays data from the Opportunity business component field.

# Modifying the Appearance and Layout of the Customer Dashboard

This topic describes how to modify the appearance and layout of the Customer Dashboard. It includes the following topics:



## Creating a Label for a Customer Dashboard Field

This task is a step in the "Process of Configuring the Customer Dashboard" on page 623.

The field labels that Siebel CRM displays in the Customer Dashboard change depending on the data that Siebel CRM displays in the Customer Dashboard. For example:

- If Siebel CRM displays contact information, then the labels are Customer Name, Work Phone #, Email Address, and so forth.
- If Siebel CRM displays opportunity information, then the labels are Opportunity Name, Account, Sales Stage, and so forth.

If no data is available for the Customer Dashboard, then Siebel CRM displays labels for the default business component. The default business component is defined in the Persistent Customer Dashboard business service. The Contacts business component is predefined as the default business component.

The Siebel Repository File contains placeholder controls, such as Label 1, Label 2, and so forth. It also contains predefined business service user properties, also named Label 1, Label 2, and so forth. These business service user properties map the placeholder labels to fields in the Customer Dashboard.

If you add a field to the Customer Dashboard, then you must define the label that replaces the placeholder label in the Siebel client. To create the label, you create an applet control for each business component field that you must display. The naming format for the applet control identifies it as a Label and identifies the business component and field that determine when Siebel CRM displays it.

### *To create a label for a customer dashboard field*

1. In Siebel Tools, in the Object Explorer, click Applet.
2. In the Applets list, query the Name property for Persistent Customer Dashboard Applet.
3. In the Object Explorer, expand the Applet tree, and then click Control.
4. In the Controls list, create a new control using values from the following table.

| Property | Description |
|---|---|
| Name | Enter a name. Use the following format:<br>`Label` *`business component name.business component field name`*<br>For example, to reference the SR Number field of the Service Request business component, you enter the following:<br>`Label ServiceRequest.SR Number` |
| Caption | Define the label text that Siebel CRM must display in the Customer Dashboard.<br>For example, to display the text SR Number to the left of the customer dashboard field, you enter the following:<br>`SR Number` |

5. Repeat Step 4 for each label that you must display in the Customer Dashboard.
6. Compile and then test your changes.

## Formatting a Customer Dashboard Phone Number Field

You can configure the Customer Dashboard to recognize different telephone extensions. You use the Phone Number Prefix business service user property to define the parameters that associate a telephone switch extension to a complete phone number.

### *To format a Customer Dashboard phone number field*

1. In Siebel Tools, in the Object Explorer, display the business service user prop object type, which is a child of the business service object type.

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.
2. In the Object Explorer, click Business Service.
3. In the Business Services list, locate the Persistent Customer Dashboard business service.
4. In the Object Explorer, expand the Business Service tree, and then click Business Service User Prop.

5 In the Business Service User Props list, add a user property using values from the following table.

| Property | Description |
|---|---|
| Name | Enter a name for this business service user property that represents the phone number prefix. You must use the following format:<br>`Phone Number Prefix integer or letter`<br>For example:<br>`Phone Number Prefix 1` |
| Value | Define the parameters for the phone number prefix. You must use the following format:<br>*extension digits*;*remove digits*;*prefix*<br>where:<br>■ *extension digits* is number of digits in the extension.<br>■ *remove digits* is the number of digits to remove from the front of the extension.<br>■ *prefix* is the prefix to append to the beginning of the number.<br>For example:<br>`5;1;650555`<br>Assume the general number for your organization is 650-555-0000. A user dials the 24565 extension. In this example, Siebel CRM does the following:<br>■ Specifies that the extension is 5 digits in length.<br>■ Removes the first digit of the extension, which is the number 2.<br>■ Adds the 650555 prefix to the remaining part of the extension, which is 4565.<br>The resulting phone number is 650-555-4565. |

6 Compile and then test your changes.

## Modifying the Go To List in the Customer Dashboard

The Go To list in the Customer Dashboard allows the user to navigate to other views that are related to the current record. The list of views changes depending on the data currently displayed in the Customer Dashboard. In the Siebel client, the Persistent Customer Dashboard business service does the following:

1 To locate records that begin with View in the Name property, searches the list of user properties.

2 Locates the display name for the associated view.

3 Adds the name to the Go To list.

Table 76 describes some predefined business service user properties. Each business service user property represent a view that Siebel CRM displays in the Go To list. For example, View 1 specifies that if the Customer Dashboard contains data from the Contact business component, then Siebel CRM displays the All Activities view in the GoTo View list. If the user chooses the All Activities view from the Go To list, then Siebel CRM displays only records for the current Contact ID in the view.

Table 76. Example Predefined Business Service User Properties That Represent Views in the Go To List

| Name | Value |
|---|---|
| View 1 | Contact; All Activity List View; Activity List Applet With Navigation; Contact Id |
| View 2 | Contact; Contact Activity Plan; Contact Form Applet |
| View 3 | Contact; Agreement List View; Agreement List Applet No Parent; Contact Person Id |

### *To modify the Go To list in the Customer Dashboard*

1 In Siebel Tools, in the Object Explorer, display the business service user prop object type, which is a child of the business service object type.

For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2 In the Object Explorer, click Business Service.

3 In the Business Services list, locate the Persistent Customer Dashboard business service.

4 In the Object Explorer, expand the Business Service tree, and then click Business Service User Prop.

5 To add a view to the Go To list, in the Business Service User Props list, add a user property using values from the following table.

| Property | Description |
|---|---|
| Name | Enter a name for this business service user property that represents a view that Siebel CRM displays in the Go To list. You must use the following format:<br><br>`View integer`<br><br>For example:<br><br>`View 1` |
| Value | Create a view that Siebel CRM displays in the Go To list. You must use the following format:<br><br>*business component name*; *view name*; *name of the primary applet on the view*; *name of the foreign key field*<br><br>For example:<br><br>`Contact; All Activity List View; Activity List Applet With Navigation; Contact Id`<br><br>The name for each of these items must match exactly the name that is defined in the Siebel Repository File. The foreign key field is conditional. For more information, see "Referencing a Foreign Key Field from the Go To List" on page 633. |

6 (Optional) Configure a label for the view.

For more information, see "Configuring the Label for the View in the Go To List" on page 634.

7 To modify a view or remove a view from the Go To list, do the following:

a Locate the view in the Business Service User Props list.

b Modify or delete the record, as required.

8 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Referencing a Foreign Key Field from the Go To List

If a view in the Go To list references a business component other than the current business component that provides data to the Customer Dashboard, then you must reference the name of the foreign key field.

For example, if the Customer Dashboard currently displays data from the Contact business component, and if the All Activities view is listed in the GoTo list, then you must define the Contact Id field as the foreign key field. The Contact Id field is the foreign key field in the Action business component that references the Contacts business component. This foreign key field allows Siebel CRM to query all activities that are related to the contact that Siebel CRM currently displays in the Customer Dashboard.

## Configuring the Label for the View in the Go To List

You can configure Siebel CRM to display a text label that represents the view that you configure. Siebel CRM displays this label in the GoTo list.

### *To configure the label for the view in the Go To list*

1. In Siebel Tools, in the Object Explorer, click Applet.
2. In the Applets list, query the Name property for Persistent Customer Dashboard Applet.
3. In the Object Explorer, expand the Applet tree, and then click Control.
4. In the Controls list, create a new control using values from the following table.

| Property | Description |
|---|---|
| Name | Enter a name. Use the following format:<br>`Label` *`name of the user property`*<br>where:<br>*name of the user property* is the name of the business service user property that defines the view that Siebel CRM displays in the Go To list.<br>For example, to reference the business service user property that references the All Activity List View in Step 5 on page 633, you enter the following:<br>`Label View 1` |
| Caption | Define the label text that Siebel CRM must display as the list item in the Go To list.<br>For example, to display the text Activities for This Contact, enter the following:<br>`Acitivites for This Contact` |

5. Repeat Step 4 for each label that you must display in the Go To list.
6. Compile and then test your changes.

# Changing the Background Color and Border of the Customer Dashboard

You can change the background color and border of the Customer Dashboard.

### *To change the background color and border of the Customer Dashboard*

1. Locate the main.css file in the following directory of your Siebel installation:

   PUBLIC*Language_Code*\FILES\

2. Open the main.css file with a text editor, such as Notepad.
3. Locate, and then modify the values for the following parameters, as necessary:

   ```
   /*---------------------*/

   /*Dashboard Definitions*/

   /*---------------------*/

   .dashbrdBorder {background-color:#999999;}

   .dashbrdBack {background-color:#f0f0f0;}
   ```

   The dashbrdBorder and dashbrdBack parameters use standard HTML color values. In this example, the #999999 value is medium grey and the #f0f0f0 value is light grey.

# Changing the Size and Location of the Customer Dashboard

You can change the size and location of the Customer Dashboard. For example, you can configure the Customer Dashboard to occupy any of the following regions:

- The bottom of the view that Siebel CRM currently displays.
- An entire horizontal region of the Siebel client.
- A percentage of the content frame.

Note that Siebel CRM locates the Customer Dashboard outside of the Content Frame. You cannot move the Customer Dashboard into the Content Frame.

### *To change the size and location of the Customer Dashboard*

1. (Optional) Modify the following Siebel web template files:
   - CCFrameContent_V.swt
   - CCFrameContent_VD.swt
   - CCFrameContent_VSD.swt
   - CCFrameContent_VDT.swt

- CCFrameContent_VSDT.swt
- CCAppletDashboard.swt

For more information, see Chapter 8, "About Siebel Web Templates and Siebel Tags."

2 (Optional) Change the size of the frame in which Siebel CRM displays the Customer Dashboard:

a In Siebel Tools, in the Object Explorer, display the business service user prop object type, which is a child of the business service object type.

For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

b In the Object Explorer, click Business Service.

c In the Business Services list, locate the Persistent Customer Dashboard business service.

d In the Object Explorer, expand the Business Service tree, and then click Business Service User Prop.

e In the Business Service User Props list, query the Name property for DashboardFrameSize.

The DashboardFrameSize business service user property controls the size of the frame in which Siebel CRM displays the Customer Dashboard.

f Set the Value property using values from the following table.

| Property | Description |
|---|---|
| Value | You must use the following format:<br>*height in pixels, width in pixels*<br>The default value is 55,*. This default sets the height of the frame to 55 pixels and the width to the width of the entire window.<br>If the height that the DashboardFrameSize user property specifies is smaller than the height that the Siebel Web template specifies, then Siebel CRM truncates the Customer Dashboard. |

3 Compile and test your changes.

Make sure the Customer Dashboard frame, content frame, and search center frame work together properly. For more information, see "Positioning the Customer Dashboard Frame to Accommodate Other User Interface Elements" on page 636.

## Positioning the Customer Dashboard Frame to Accommodate Other User Interface Elements

If you move the frame in which Siebel CRM displays the Customer Dashboard to the left or right of the content frame, then you must modify the sizing to accommodate the Search Center when it is open. It is recommended that you do not move the Customer Dashboard to the right of the content frame because this positioning breaks the connection between a query that the user issues in the Search Center and the query result that Siebel CRM displays in the main content area.

# Options to Update the Customer Dashboard

This topic describes optional configurations you can define to update the Customer Dashboard. It includes the following topics:



## Overview of Updating the Customer Dashboard

You can configure Siebel CRM to use any of the following ways to update information into the Customer Dashboard:

- **Selected Record.** The user can choose a record in a view, and then click the Update button in the Customer Dashboard. Siebel CRM then updates the Customer Dashboard with data from the primary business component that the view references. It updates fields in the dashboard with data from the business component record.
- **SmartScript answer.** Siebel CRM automatically enters the answer to a question from a SmartScript into the Customer Dashboard.
- **Communications event.** If the user accepts an incoming call, then Siebel CRM automatically enters contact information from the caller into the Customer Dashboard.
- **Search Center results.** If Siebel CRM cannot automatically identify the customer from an inbound call, then the user can search for the contact in the Search Center, and then click the Set Dashboard icon. Siebel CRM then enters the search results into the Customer Dashboard.

# Configuring a Button to Update the Customer Dashboard

The Customer Dashboard includes application programming interfaces (APIs) to pull information from or push information to the Customer Dashboard through Siebel Visual Basic script or Siebel eScript script. Because the Customer Dashboard resides in a separate frame, it requires a user interface event to update customer dashboard fields. To generate a user event, you must add a button to an applet that uses a script to call the Update Dashboard command.

### *To configure a button to update the Customer Dashboard*

1. In Siebel Tools, in the Object Explorer, click Applet.
2. In the Applets list, locate the applet you must modify.

3 In the Object Explorer, expand the Applet tree, and then click Control.

4 In the Controls list, add a button as an applet control and set properties using values from the following table.

| Property | Value |
|---|---|
| Target View Frame | Dashboard |

5 Define the script for the new button.

Your script must do the following:

- Call the Update Dashboard command. For more information, see "Using Siebel Visual Basic or Siebel eScript to Update Information in the Customer Dashboard" on page 642.
- Use the InvokeMethod function and pass a set of name-value pairs. The following are examples of name-value pairs:
  - Source Name: 'Base View'
  - BusComp Name: 'Contact'
  - RowId: 'srowid'

6 Compile and test your changes.

For more information, see *Using Siebel Tools*.

### Updating the Customer Dashboard With Data from a Virtual Business Component

An update to the Customer Dashboard requires a row ID. However, a virtual business component uses a virtual row ID. Therefore, to display information from a virtual business component in the customer dashboard, you must script the UpdateDashboard function.

### Customer Dashboard Allows Only One Update for Each User Interface Event

The Customer Dashboard allows only one user interface update for each user interface event. For example, if you add a button to a view, then one click of that button is one user interface event. For that event, Siebel CRM can execute only one user interface update, such as updating the Customer Dashboard. The code behind a single button cannot include two user interface updates, such as updating the Customer Dashboard, and then displaying a new view in the main frame of the Siebel application.

## Configuring Communication Events to Update the Customer Dashboard

You can use communication events to update the Customer Dashboard. The following are examples of communication events:

- Inbound email message
- Voice call
- Web collaboration work item

The Multichannel Def A communication event is predefined to update the Customer Dashboard with contact information for certain communication events. To meet your display requirements, you can also configure any communication event for any business component.

The API between communication events and the Customer Dashboard is a member function UpdatefromCTI of the Persistent Customer Dashboard business service. Siebel CRM predefines the CTI administration views to call the UpdateDashboard business service method when a significant event occurs, and to pass variables as arguments. Example variables include the phone number and number of calls in queue.

To update the Customer Dashboard during a communications command or event, you must call the method to update the Customer Dashboard and pass the following parameters:

- Business component name
- Name of the business component field
- Value that you require from this communication event

For example, the parameters listed in Table 77 instruct the Customer Dashboard to derive data from contact information for the contact whose Work Phone # matches the ANI (automatic number identification) of the inbound call.

Table 77. Customer Dashboard Parameters for Communications Events

| Parameter | Example Value |
|---|---|
| ServiceMethod | Persistent Customer Dashboard.Update Dashboard from CTI |
| ServiceParam.Field | Work Phone # |
| ServiceParam.Value | {ANI} |
| ServiceParam.BuscompName | Contact |

## Calling the Customer Dashboard Business Service from the Communications Event Log

You can call the Customer Dashboard business service from the communications event log.

### *To call the Customer Dashboard business service from the communications event log*

1. In the Siebel client, navigate to the Administration - Communications screen, and then click the All Event Handlers link.
2. Query the Name property of the Event Handlers list for InboundCallReceived.
3. Click the Associated Event Logs tab.

4 Click the LogIncomingCallContactFound link.

5 In the Event Log Parameters list, set the parameters. For example, for contacts, you can use values from the following table.

| Name | Value |
|---|---|
| ServiceMethod | Persistent Customer Dashboard.Update Dashboard from CTI |
| ServiceParam.Field | Id |
| ServiceParam.Value | {Contact.Id} |
| WorkTrackingObj.ContactId | {Contact.Id} |

# Configuring SmartScript to Update the Customer Dashboard

You can configure the Customer Dashboard so that Siebel CRM updates the Customer Dashboard with the answer to a question that Siebel CRM derives from a SmartScript script.

### *To configure SmartScript to update the Customer Dashboard*

1 In Siebel Tools, in the Object Explorer, display the following object types:

- Applet user prop object type, which is a child of the applet object type
- Business service user prop object type, which is a child of the business service object type

For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2 Make sure the SmartScript Player is active:

a In the Object Explorer, click Applet.

b In the Applets list, locate the Smart Script Player Applet (Tree Only) applet.

c In the Object Explorer, expand the Applet tree, and then click Applet User Prop.

d In the Applet User Props list, locate the Notify Dashboard applet user property, and then verify the property described in the following table.

| Property | Value |
|---|---|
| Value | Y |

3 Map SmartScript variables to customer dashboard fields:

a In the Object Explorer, click Business Service.

b In the Business Services list, locate the Persistent Customer Dashboard business service.

c In the Object Explorer, expand the Business Service tree, and then click Business Service User Prop.

d In the Business Service User Props list, create a new record using values from the following table.

| Name | Value |
|---|---|
| SmartScript List | Fname;Lname;Phone;Interests<br><br>These values represent the variables from the SmartScript script that Siebel CRM displays in the Customer Dashboard. These values must match exactly the variable names defined in the SmartScript script. |

This mapping technique is similar to defining user properties for a business component list. For more information, see "Mapping a Business Component Field to a Customer Dashboard Field" on page 626.

4 Compile your changes, and then open the Siebel client.

5 Map SmartScript answers to the Customer Dashboard:

a In the Siebel client, navigate to the Administration - SmartScript screen, and then click the Questions link.

b In the Questions list, choose a question.

c In the More Info form, in the Save User Parameters field, enter `SmartScript List`.

This step allows Siebel CRM to save the answer as a global variable to the script. The name of the variable you enter must match exactly the name of the business service user property that you defined in Step 3.

d Click the Scripts link, and then locate the appropriate script in the Scripts list.

e In the Translation form, enter the name of the variables from each question into the Dashboard Text field. Use the following format:

`[`*`name of variable`*`] [`*`name of variable`*`]`

For example:

```
[Fname] [Lname]
```

Siebel CRM passes the values for the variables in the Dashboard Text field to the Customer Dashboard when Siebel CRM executes the SmartScript.

f Repeat Step a through Step e for each question you must configure for the Customer Dashboard.

6 Test your changes.

### Updating the Customer Dashboard from Certain Scripts That Siebel CRM Executes in SmartScript

You cannot update the Customer Dashboard from Siebel Visual Basic script or Siebel eScript script that executes in a SmartScript script. There is a one-to-one relationship between a user interface event and the ability to update a frame in Siebel CRM. Because each user interface event in a SmartScript script updates the SmartScript frame, it cannot also update the Customer Dashboard frame. If you pass parameters to the Customer Dashboard from a Siebel Visual Basic script or Siebel eScript script in a SmartScript script, then the Customer Dashboard receives the parameters but it cannot display them.

## Using Siebel Visual Basic or Siebel eScript to Update Information in the Customer Dashboard

You can use Siebel Visual Basic or Siebel eScript to update information in the Customer Dashboard or pull information from the Customer Dashboard. Because the Customer Dashboard is a business service, you must use the following command:

```
GetService("Persistent Customer  dashboard")
```

You use the following commands to pull information from the dashboard:

- GetCurrentContactId
- GetDashboardFieldValue

### Command to Get the Record Id of the Current Dashboard Record

This GetCurrentContactId command returns the record Id for the record that Siebel CRM currently displays in the Customer Dashboard. For example:

- If the record is from the Contact business component, then GetCurrentContactId returns the ContactId
- If the record is from the Account business component, then GetCurrentContactId returns the AccountId.

Do not define any input arguments.

Always define ContactId as the output argument. The Customer Dashboard uses the ContactId variable. In this situation, this variable includes the record ID of the business component whose data Siebel CRM currently displays in the Customer Dashboard.

#### Example of the GetCurrentContactId Command

The following code is an example of the GetCurrentContactId command:

```
bs.InvokeMethod("GetCurrentContactId",inpargs,outargs);

var fvalue = outargs.GetProperty("Contact Id");

// do something with the contact ID
```

## Command to Get the Value of the Current Dashboard Field

The GetDashboardFieldValue command returns the current field value of the current record in the Customer Dashboard. The input argument is the name-value pair for the Customer Dashboard field. The output argument is Field Value.

### Example of the GetDashboardFieldValue Command

The following code is an example of the GetDashboardFieldValue command:

```
inpargs.SetProperty("Field Name","Field 4");

bs.InvokeMethod("GetDashboardFieldValue",inpargs,outargs);

var fvalue = outargs.GetProperty("Field Value");

// do something with the field value
```

## Update Dashboard Command

You use the Update Dashboard command to enter a new record in the Customer Dashboard. This example uses the following name-value pairs as input arguments:

- Source Name: Base View
- Buscomp Name: Contact
- RowId: E301

### Example of the Update Dashboard Command

The following code is an example of the Update Dashboard command:

```
inpargs.SetProperty("Source Name","Base View", "Buscomp Name", "Contact", "RowId",
"E301");

bs.InvokeMethod("Update Dashboard",inpargs,outargs);
```

## Examples of Using Customer Dashboard Commands with Script

The examples in this topic use Customer Dashboard commands to do the following:

- Get the contact ID, Field 4, and Field Time of the current record in the Customer Dashboard.
- Print values of the contact ID, Field 4, and Field Time to a file.

### Example of Using Customer Dashboard Commands with Siebel eScript

The following example script is written in Siebel eScript. For more information, see *Siebel eScript Language Reference*:

```
function Script_Open ()
{
   var fn1=Clib.fopen("d:\\sabari5.txt", "wt");
```

```
   var bs = TheApplication().GetService("Persistent Customer  dashboard");
   var inpargs= TheApplication().NewPropertySet();
   var outargs = TheApplication().NewPropertySet();

   bs.InvokeMethod("GetCurrentContactId",inpargs,outargs);
   var fvalue = outargs.GetProperty("Contact Id");
   Clib.fprintf (fn1, "The current id in the dashboard = %s \n",fvalue);

   inpargs.SetProperty("Field Name","Field 4");
   bs.InvokeMethod("GetDashboardFieldValue",inpargs,outargs);
   var fvalue = outargs.GetProperty("Field Value");
   Clib.fprintf (fn1, "The Account Name in the dashboard =  %s  \n",fvalue);

   inpargs.SetProperty("Field Name","Field Time");
   bs.InvokeMethod("GetDashboardFieldValue",inpargs,outargs);
   var fvalue = outargs.GetProperty("Field Value");
   Clib.fprintf (fn1, "The current time of the agent/customer in the dashboard =
   %s  \n",fvalue);

   Clib.fclose(fn1);
return(ContinueOperation);
}
```

### Example of Using Customer Dashboard Commands with Siebel Visual Basic

The following example script is written in Siebel Visual Basic. For more information, see *Siebel VB Language Reference*:

```
Sub Script_Open

     Dim bs as Service
     Dim inpargs as PropertySet
     Dim outargs as PropertySet
     Dim fvalue as String

Open "d:\sabari.txt" for Output as #1
Set bs = TheApplication().GetService("Persistent Customer  dashboard")
     Set inpargs = TheApplication.NewPropertySet
     Set outargs  = TheApplication.NewPropertySet

     bs.InvokeMethod "GetCurrentContactId",inpargs,outargs
     fvalue = outargs.GetProperty("Contact Id")
     Write #1, "The current id in the dashboard = " & fvalue

     Inpargs.SetProperty "Field Name","Field 4"
     bs.InvokeMethod "GetDashboardFieldValue",inpargs,outargs
     fvalue = outargs.GetProperty("Field Value")
     Write #1," The Account Name in the dashboard =  "& fvalue
     Close #1

End Sub
```

# Using Personalization to Update the Customer Dashboard

The Personalization engine can personalize the Call Center application according to the agent profile and the customer profile. Siebel CRM loads the agent profile when the agent logs into Siebel CRM. Siebel CRM loads the customer profile when it enters values for customer information in the Customer Dashboard. This allows the agent to view customer information according to personalization rules that your Siebel administrator creates.

For example, you can display a different applet or view to the agent according to the customer profile. You can display a Recommended Products applet that only displays products for this customer according to products that the customer previously purchased.

To access the profile information, you create personalization rules. The following attributes allow you to access different types of information:

- **Me attribute.** Provides access to agent profile information.
- **You attribute.** Provides access to customer profile information.

The following are examples of these commands.

- GetProfileAttr("You.Last Name")
- GetProfileAttr("Me.Last Name")

For more information, see *Siebel Personalization Administration Guide*.

# 28 Configuring Help

This chapter describes how to configure help. It includes the following topics:



For more information, see “Localizing Help” on page 596.

## Overview of Configuring Help

This topic includes an overview of configuring help. It includes the following topics:



To access help, the user chooses the Help application menu, and then the Contents menu item. The user can then use the Web browser functionality to navigate through the help and to print topics.The help includes an index that allows the user to enter a keyword to locate a topic.

Help includes HTML files, image files, and a cascading style sheet that controls the appearance of the help pages. A predefined Siebel application displays the start page of the help in a separate browser window if the user accesses help. The following method of the Siebel Web Engine implements this functionality:

- GotoPage for an employee application
- GotoURL for a customer application

Help uses the following start page:

- siebstarthelp.htm for an employee application
- siebcomgeneric.htm for a customer application

### Location of Help Files for an Employee or Partner Application

Internal employees of an enterprise use an employee application. Siebel Call Center and Siebel Sales are examples of an employee application. The location where you install Siebel CRM and the type of Siebel client determines the location of the help files.

## Location of Help Files in the Siebel Web Client

The Siebel Web Client runs in a typical browser on a personal computer. It does not require a Siebel business application to be installed on the client computer. The browser connects through a Web server to the Siebel Server, which executes business logic and accesses data from the Siebel Database.

In this configuration, help files reside in the following location on the Siebel Server:

*ORACLE_HOME*\public*language_code*\help

where:

- *ORACLE_HOME* is the directory where you installed the Siebel Web Server Extensions
- *language_code* is the language you chose during installation

During the installation process, Siebel CRM configures your Web server so that the *ORACLE_HOME*\public*language_code* directory becomes the following root directory for the URL:

http://*hostname*/*Siebel application name*

If the Help Identifier property of a screen references a URL in the Help Id object, then that URL is relative to the following directory:

http://*hostname*/*Siebel application name*

### Example of Locating Help Files for the Siebel Web Client

If you run Siebel Call Center on the Siebel Server, and if you request the help for the Accounts screen, then Siebel CRM displays the following page:

http://siebsrvr/callcenter/help/siebaccounts.htm

In this situation, you can place the help files in any directory that you can reference from the following directory:

http://*hostname*/*Siebel_application_name*

Assume you do the following:

1. Create a directory named customhelp in the following directory:

   *ORACLE_HOME*\public*language_code*\

2. Create a new help topic file named accountshelp.htm for the Accounts screen.
3. Configure your Web server so that Siebel CRM displays the customhelp directory to the user.

In this situation, you create Help Id objects that reference the customhelp URL. Table 78 describes the Help Id object properties:

Table 78. Example Help Id Object Properties

| Property | Value |
|---|---|
| Name | ID_SCREEN_ACCOUNTS |
| Project | Repository Help Id |
| Type | Screen |
| HTML Help URL | customhelp/accountshelp.htm |

## Location of Help Files in the Siebel Developer Web Client and Siebel Mobile Web Client

Siebel CRM delivers the Siebel Developer Web Client through a Web browser that provides direct connectivity to a database server. It requires an installed Siebel business application on the client computer. It does not require a local database, Web server, or Siebel Server. Siebel CRM still requires the Siebel Server for certain functionality, such as Assignment Manager and Replication.

The Siebel Mobile Web Client is a portable client delivered through a Web browser. It is designed for local data access. It requires installation of a Siebel business application on the client computer. It does not require connection to a server. It meets the needs of field professionals who do not possess continuous access to a network. The Siebel Mobile Web Client uses a local database on each remote computer. Periodically, the client must access the Siebel Server through a network connection to synchronize data changes between the Siebel Database and the Siebel File System.

The software installed on the client computer for the Siebel Developer Web Client and Siebel Mobile Web Client is identical except for the type of connectivity provided.

The following installation directory on the Siebel client determines the location of the help files:

*ORACLE_HOME*\public*language_code*\help

where:

- *ORACLE_HOME* is the complete path to the location where you installed Siebel CRM
- *language_code* is the language you chose during installation

For example:

D:\sea\webclient\public\enu\help

During the installation process, Siebel CRM configures the local Web server so that the *ORACLE_HOME*\public*language_code*\ directory becomes the following root directory for the URL:

http://localhost

If the Help Identifier property of a screen references a URL in the Help Id object, then that URL is relative to the following directory:

http://*localhost directory*

### Example of Locating Help Files for the Siebel Developer Web Client and Siebel Mobile Web Client

The example to configure help files for the Siebel Developer Web Client and Siebel Mobile Web Client is the same as for the Siebel Web Client except you use http://*localhost* instead of http://*hostname*/*Siebel_application_name*.

## Location of Help Files for a Customer Application

External partners, customers, and prospects of an enterprise use a customer application. Siebel eSales and Siebel eService are examples of customer applications.

The location of the help files for a customer application is the same as the location for an employee application except if the Value property of the Url Web Page Item Parameter references a URL, that URL is relative to the following URL:

http://*hostname*/*Siebel application name*.

For more information, see "Location of Help Files in the Siebel Web Client" on page 648.

The location of where you install Siebel CRM determines the location of the help files. If you run Siebel eSales on the Siebel Server, and if you request help, then Siebel CRM displays the following page:

http://siebsrvr/esales/help/comgeneric.htm

In this situation, you can place the help files in any directory that you can reference from the following directory:

http://*hostname*/*Siebel_application_name*

Assume you do the following:

1. Create a directory named customhelp in the following directory:

   *ORACLE_HOME*\public*language_code*\

2. Create a start page named myonlinehelp.htm for your help.
3. Configure your Web server so that Siebel CRM displays the customhelp directory to the user.

In this situation, you create a web page item parameter that references the customhelp URL. Table 79 describes the properties of this web page item parameter.

Table 79. Example Properties of the Web Page Item Parameter Object Type

| Property | Value |
|---|---|
| Name | Url |
| Value | customhelp/myonlinehelp.htm |

# Objects You Use to Configure Help

Figure 87 illustrates how a container web page establishes the link between an application and the help start page. For more information, see "About the Container Page" on page 151.

The Container Web Page property of the Siebel application references a web page. Each web page contains child web page items. The HelpButton web page item includes a property that identifies the start page of the help. For more information, see "How Siebel CRM References Web Pages" on page 151.

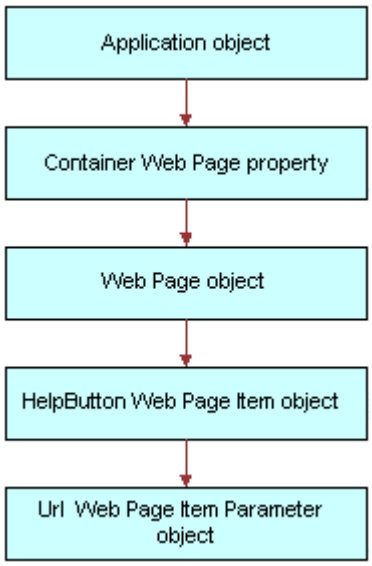



Figure 87. How a Container Web Page Establishes the Link Between an Application and the Help Start Page

## Screen and View Object Types

The screen, view, and help Id object types establish the link between a screen or a view and a help topic file. A predefined Siebel application includes references to help topics for a screen. It does not include references to help topics for a view. For more information, see "Adding Help to a View" on page 657.

The Help Identifier property of each screen and view establishes a link with the help Id object. Siebel CRM uses the following format for the Help Identifier property:

`ID_`*`type_objdefname`*

where:

- *type* is SCREEN or VIEW
- *objdefname* identifies the screen or view

### Help Id Object Type

The HTML Help URL property of the help Id object type identifies the HTML file that contains the help topics for the screen or the view. It maps the Help Identifier to a specific URL. You can use the same value for the HTML Help URL property for different help Id objects.

Siebel CRM uses the following format of the HTML Help URL property:

*help/helptopics*.htm

where:

- *help* is the folder on the Siebel Server where the HTML topic files reside
- *helptopics.htm* is the HTML file that Siebel CRM displays if the user calls help

# Configuring Help

This topic describes how to configure help. It includes the following topics:



## Example of Identifying the HTML File That Contains Help Content

This topic describes an example of how to identify the HTML file that contains help topics for the Accounts screen. You can modify the procedure described in this topic to identify the HTML file that is associated with any screen or view.

### *To identify the HTML file that contains help content*

1. In the Siebel client, navigate to the Accounts screen.
2. Choose the Help application menu, and then choose the About View menu item.

3 In the About View dialog box, note the name of the screen.

   In this example, the name of the screen is Accounts Screen.

4 In Siebel Tools, display the help Id object type.

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

5 In the Object Explorer, click Screen.

6 In the Screens list, query the Name property for Accounts Screen.

7 Note the value in the Help Identifier property.

   In this example, the value in the Help Identifier property is ID_SCREEN_ACCOUNTS.

8 In the Object Explorer, click Help Id.

9 In the Help Ids list, query the Name property for ID_SCREEN_ACCOUNTS.

10 Note the value in the HTML Help URL property.

   In this example, the value in the HTML Help URL property is `help/siebaccounts.htm`. The siebaccounts.htm file is the HTML file that contains help topics for the Accounts screen.

Siebel CRM associates some screens with generic help topics. In this situation, if you customize help, then you must use a different file name. For more information, see "Adding Generic Help Topics to a Screen" on page 656.

## Changing the Default Help Topic

Siebstarthelp.htm is the default start page for help in an employee application. If the user accesses help from a screen or view, and if the Help Identifier property is not defined for the screen or view, then Siebel CRM displays the siebstarthelp.htm file in a separate browser window.

### *To change the default help topic*

1 In Siebel Tools, in the Object Explorer, click Web Page.

2 In the Web Pages list, query the Name property for CC Help Page.

3 In the Object Explorer, expand the Web Page tree, and then click Web Page Item.

4 In the Web Page Items list, modify the Caption property of the Online Help object definition to reference your default help topic.

   For example, change the Caption property from `help/siebstarthelp.htm` to `help/index.htm`.

5 Compile and test your changes.

6 Distribute the Siebel repository file and your new default topic file.

   For example, for the Siebel Web Client, copy the index.htm file to the appropriate directory on the Siebel Server. For more information, see "Testing and Distributing Changes" on page 664.

# Changing the Start Page for Help

This topic describes how to do the following:

- Use a different start page for help.
- Add a new link that references the start page.

### *To change the start page for help*

1. In Siebel Tools, display the web page item parameter object type, which is a child of the web page object type.

   For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2. In the Object Explorer, click Application.
3. In the Applications list, locate the Siebel application you must modify.
4. Note the value in the Container Web Page property.

   For example, the Container Web Page property of the Siebel eSales Application object is CC Container Page (eSales). It references the web page. For more information, see "About the Container Page" on page 151.

5. In the Object Explorer, click Web Page.
6. In the Web Pages list, query the Name property for the value you noted in Step 4.
7. In the Object Explorer, expand the Web Page tree, and then click Web Page Item.
8. In the Web Page Items list, query the Name property for HelpButton.
9. If the query returns no results, then you can add a new link that references the start page. In the Web Page Items list, create a new record using values from the following table.

| Property | Value |
|---|---|
| Name | HelpButton |
| Type | Link |
| Caption | Help |
| Method Invoked | GotoURL |
| Item Identifier | Enter a number between 11 and 19 that another web page item in the Web Page Items list does not already use. |
| HTML Attributes | target="_blank" |

10. In the Object Explorer, expand the Web Page Item tree, and then click Web Page Item Parameter.
11. In the Web Page Item Parameters list, locate the Url web page item parameter.
12. If the Url web page item parameter does not exist, then create a new record.

13 Set the properties of the Url web page item parameter. Use values from the following table.

| Property | Value |
|---|---|
| Name | Url |
| Value | help/siebcomgeneric.htm<br><br>siebcomgeneric.htm is the default start page for the help. You can change this parameter to reference a different file. For example, index.htm. |

14 Compile and test your changes.

15 (Optional) In the HTML file you must use as a start page, add a reference to the siebhelp.css Siebel help cascading style sheet and add the necessary code to define the navigation buttons.

You can use the siebcomgeneric.htm file as an example.

16 Distribute the Siebel repository file and the new HTML file to the appropriate Siebel Server.

## Adding Help to a Screen

You can add help to a screen.

### *To add help to a screen*

1 In Siebel Tools, display the help Id object type.

For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2 In the Object Explorer, click Screen.

3 In the Screens list, locate the screen you must modify.

If the Screen object does not exist, then create it now. For example, create the My New Screen screen. For more information, see "Process of Creating a Screen" on page 284.

4 Define the Help Identifier property of the screen. For example, you can use the values from the following table.

| Property | Value |
|---|---|
| Help Identifier | ID_SCREEN_MYNEWSCREEN |

5 In the Object Explorer, click Help Id.

6 In the Help Ids list, create a new record using values from the following table.

| Property | Value |
|---|---|
| Name | Value of the Help Identifier property of the screen.<br>For example, ID_SCREEN_MYNEWSCREEN. |
| Project | Repository Help Id |
| Type | Screen |
| HTML Help URL | Name of the file that will contain the help content.<br>For example, help/mynewscreen.htm. |

7 Compile your changes.

You must compile the Repository Help Id project and the screen. In this example, you must compile the Repository Help Id project and the screen named My New Screen.

8 Create a new HTML file that contains help content for the screen.

For the name of this file, use the name you defined in the HTML Help URL property in Step 6. For example, mynewscreen.htm.

9 Test your changes.

10 Distribute the Siebel repository file and the new HTML file to the appropriate Siebel Servers and Siebel clients.

For example, for the Siebel Web Client, copy the mynewscreen.htm file to the appropriate directory on the Siebel Server. For more information, see "Testing and Distributing Changes" on page 664.

## Adding Generic Help Topics to a Screen

Siebel CRM associates some screens with generic help topics. Siebel CRM uses one of the following files for the HTML Help URL property of the help Id object:

- help/siebadmgeneric.htm for an administrative screen
- help/siebendusegeneric.htm for a user screen

For more information, see "Example of Identifying the HTML File That Contains Help Content" on page 652.

### *To add generic help topics to a screen*

1 Use a standard HTML editor to open one of the following files:

- help/siebadmgeneric.htm to add generic help to an administrative screen
- help/siebendusegeneric.htm to add generic help to a user screen

2 Save the file with a different name.

3 In Siebel Tools, display the help Id object type.

For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

4 In the Object Explorer, click Help Id.

5 In the Help Ids list, change the HTML Help URL property to the file name you saved in Step 2.

6 Compile and test your changes.

For more information, see *Using Siebel Tools*.

## Adding Help to a View

Adding help to a view is very similar to adding help to a screen.

### *To add help to a view*

- Complete "Adding Help to a Screen" on page 655 with the following modifications:
  - Modify or create a view instead of a screen. For more information, see "Process of Creating a View" on page 269.
  - Define the Help Identifier property of the view. For example, for the Opportunity Detail - Contacts View, use ID_VIEW_OPPORTUNITY_DETAIL_CONTACTS as the Help Identifier. If you leave the Help Identifier property empty for a view, then Siebel CRM uses the help that is defined as the default help topic for the screen.
  - Use the following properties for the Help Id object:

| Property | Value |
|---|---|
| Name | Value of the Help Identifier property of the view.<br>For example, ID_VIEW_OPPORTUNITY_DETAIL_CONTACTS. |
| Project | Repository Help Id |
| Type | Screen |
| HTML Help URL | Name of the file that will contain the help content.<br>For example, help/siebopportunities_detailcontacts.htm. |

  - Compile the Repository Help Id project and the view. In this example, you must compile the Repository Help Id project and the view named Opportunity Detail - Contacts View.

# Customizing Help Content

You can customize help content for screens. A predefined Siebel application does not include help files for views. If you must customize help for a view, then you must define help for the view, and then create a new HTML file that contains the help content. For more information, see "Adding Help to a View" on page 657.

## Customizing Help Content for a Screen

You can use any standard HTML editor to change the content of a help topic.

### *To customize help content for a screen*

1. Identify the HTML file that is associated with the screen you must customize.

   For more information, see "Example of Identifying the HTML File That Contains Help Content" on page 652.

   For example, `help/siebopportunities.htm` is the HTML file that is associated with the Opportunities screen.

2. If the file you identified in Step 1 is one following screens, then exit this task and go to "Adding Generic Help Topics to a Screen" on page 656:

   - siebendusegeneric.htm
   - siebadmgeneric.htm
   - siebstarthelp.htm

3. Open the HTML file you identified in Step 1, make your changes, and then save the file.

   For example, open siebaccounts.htm, make your changes, and then save the file.

4. Make sure you remove any redirect tags.

   For more information, see "Removing the Redirect Tag" on page 658.

5. Test your changes and distribute the updated HTML file to the appropriate Siebel Servers and Siebel clients.

   For example, for the Siebel Web Client, copy the siebopportunities.htm file to the appropriate directory on the Siebel Server. For more information, see "Testing and Distributing Changes" on page 664.

### Removing the Redirect Tag

If a redirect tag exists in the file, then you must remove the tag.

### *To remove the redirect tag*

- Delete any redirect tags that are included in the file.

  The following is an example of a redirect tag:

```
<META HTTP-EQUIV="REFRESH" CONTENT="1; URL=siebwelcome.htm">
```

## Customizing the Help Index

A *help index* is a set of links to topics that reference keywords. It allows the user to enter a keyword to locate a topic. If you customize help content, then you must update the help index entries to reflect the custom content. You can also remove access to the help index.

### *To customize the help index*

1. In a standard HTML editor, open the siebindex.htm file, make your changes, and then save the file.
2. Test your changes, and then distribute the updated siebindex.htm file to the appropriate Siebel Servers and Siebel clients.

   For example, for the Siebel Web Client, copy the updated siebindex.htm file to the appropriate directory on the Siebel Server. For more information, see "Testing and Distributing Changes" on page 664.

## Removing Access to the Help Index

You can remove access to the help index.

### *To remove access to the help index*

1. In a standard HTML editor, open one of the HTML files that is part of the help.

   Do not open the siebindex.htm file.
2. Delete the statements that reference the siebindex.htm file, and then save your changes.
3. Repeat Step 1 and Step 2 for each HTML file in the help.
4. Test your changes, and then distribute the updated HTML files to the appropriate Siebel Servers and Siebel clients.

   For example, for the Siebel Web Client, copy all the updated HTML files to the appropriate directory on the Siebel Server. For more information, see "Testing and Distributing Changes" on page 664.

# Updating and Converting Help Content

If you created custom help in Siebel CRM version 4, Siebel CRM version 5, or Siebel CRM version 6, and if the customization was mostly related to task topics, then it is recommended that you rewrite the content because the navigation in Siebel CRM changed considerably since Oracle published those releases.

The tasks in this topic use an example that assumes you changed the sa_acct.rtf source file to customize the help content for the Accounts screen. It assumes you made this change to support an earlier release of your Siebel application.

In this topic, the phrase *rich text editor* describes a text editor that supports hidden text and footnotes, such as Microsoft Word.

## Updating Help with Custom Content from an Earlier Release

You can update help with custom content from an earlier Siebel release. This technique provides the following advantages:

- Maintains format, layout, and navigation elements of the original predefined help
- Retains the links to the cascading style sheet

### *To update help with custom content from an earlier release*

1. Identify the HTML file that contains the help content.

   In this example, the siebaccounts.htm file contains help for the Accounts screen. For more information, see "Example of Identifying the HTML File That Contains Help Content" on page 652.

2. Use a rich text editor to open the *source*.rtf file.

   Assume you used the *source*.rtf file to create the help content in the previous version. In this example, open the sa_acct.rtf file.

3. Make sure you remove any redirect tags.

   For more information, see "Removing the Redirect Tag" on page 658.

4. Copy and paste content from the *source*.rtf file to the HTML file.

   In this example, copy content from the sa_acct.rtf file to the siebaccounts.htm file.

5. To format the content, apply the appropriate HTML tags.

   For a description of the cascading style sheet that Siebel CRM uses in help, see "Location of Help Files for an Employee or Partner Application" on page 647.

6. Save the HTML file.

7. Test your changes, and then distribute the updated HTML file to the appropriate Siebel Servers and Siebel clients.

   In this example, for the Siebel Web Client, replace the siebaccounts.htm file that resides on the Siebel Server with your version of the siebaccounts.htm file. For more information, see "Testing and Distributing Changes" on page 664.

## Converting Help Content to HTML

If you created custom help content in an earlier release of your Siebel application, then you can use the technique described in this topic to convert the custom help content to HTML format. You use your source topic file in rich text format as a starting point. The new help content matches exactly the custom content of the earlier release. If you use this technique, then it is recommended you use the following guidelines:

- To avoid format errors, make sure the person who customizes help is familiar with editing HTML.
- To avoid losing links to the table of contents and index, make sure the correct HTML code is inserted in the new HTML file.

### *To convert help content to HTML*

1. Complete Step 1 on page 660 through Step 3 on page 660.
2. Use a rich text editor to open the *source*.rtf file.

   Assume you used the *source*.rtf file to create the help content in the previous version. In this example, open the sa_acct.rtf file.
3. Save the file in HTML format, using the appropriate Siebel file name.

   In this example, save the sa_acct.rtf file as siebaccounts.htm.
4. Open the file you created in Step 3, and then do the following:
   a. Add a reference to the siebhelp.css Siebel help cascading style sheet.
   b. Add the necessary blocks of code to define the navigation links.

      You can copy this information from one of the predefined HTML files.
5. Clean up the HTML code to use styles defined in the style sheet.
6. Save the HTML file.
7. Test your changes and distribute the updated HTML file to the appropriate Siebel Servers and Siebel clients.

   In this example, for the Siebel Web Client, replace the siebaccounts.htm that resides on the Siebel Server with your version of siebaccounts.htm. For more information, see "Testing and Distributing Changes" on page 664.

## Converting Help Content to HTML With a Custom File Name

You can convert existing help content that is in rich text format to HTML using your own file naming format. This technique requires minimal work from your help developer. However, you must do the following:

- Update the help properties for each topic file that does not use a Siebel name.
- Make sure you enter the file names correctly in Siebel Tools.

### *To convert help content to HTML with a custom file name*

1 In a rich text editor, open the source .rtf file that you used to create the help content in the earlier release of Siebel CRM.

In this example, open the sa_acct.rtf file.

2 Save the rtf file in HTML format.

You can use a custom file name. In this example, save the sa_acct.rtf file as sa_acct.htm.

3 In Siebel Tools, do the following:

a Identify the HTML file that contains the help content.

For more information, see "Example of Identifying the HTML File That Contains Help Content" on page 652.

b Update properties of the ID_SCREEN_ACCOUNTS help Id object to reflect the correct file name. Use values from the following table.

| Property | Value |
|---|---|
| HTML Help URL | help/sa_acct.htm |

4 Compile and test your changes.

5 Distribute the Siebel repository file and the new HTML file to the appropriate Siebel Servers and Siebel clients.

For example, for the Siebel Web Client, copy the sa_acct.htm file to the appropriate directory on the Siebel Server. For more information, see "Testing and Distributing Changes" on page 664.

## Adding a Keyboard Shortcut That Opens Help

Because many users are accustomed to pressing the F1 key to access help, it is recommended that you map the F1 key to display help in your Siebel application. For more information, see "Configuring Keyboard Shortcuts for an Application or Applet" on page 307.

### *To add a keyboard shortcut that opens help*

1 In Siebel Tools, display the command object type.

For more information, see "Displaying Object Types You Use to Configure Siebel CRM" on page 196.

2 In the Object Explorer, click Command.

3 In the Commands list, query the Name property for the following command object:

```
Contents Help (SWE)
```

4 In the Object Explorer, expand the Command tree, and then click Accelerator.

5 In the Accelerators list, change the accelerators using values from the following table.

| Name Property | Display Name Property | Key Sequence Property |
|---|---|---|
| 1 | F1 | F1 |
| 2 | F1 | F1 |

6 Compile and test your changes.

7 Distribute the Siebel repository file to the appropriate Siebel Servers and Siebel clients.

## Adding Menu Items to the Help Menu

To add a menu item to the Help menu, you can use the command and menu objects. The command object for help is Contents Help (SWE). For more information, see "Configuring Menus, Toolbars, and Icons" on page 497.

## Delivering Help Through WinHelp

If your users use Microsoft Windows, then you can use your current compiled Microsoft Windows help as the help for your Siebel application. However, it is recommended that you do not use this technique because of the following disadvantages:

- Each time the user calls help,Siebel CRM displays the File Download dialog box in the Web browser. The user must interact with this dialog box to access the help. To correct this problem, your administrator must change security settings.
- If the user calls help from a screen, then Siebel CRM displays the default topic in the WinHelp file in the help window. It does not display the context-sensitive topic that Siebel CRM associates with the screen. In WinHelp, you specify the default topic for the help file in the [OPTIONS] section of the help.hpj project file. If you do not specify a default topic, then WinHelp uses the first topic of the first file that is listed in the .hpj help project file.
- The user can access the Index in the help window, but the table of contents that is normally available through the Contents tab of the Help Topics window is not available. Microsoft is aware of this problem, but because WinHelp is no longer the Microsoft preference to deliver help, Microsoft will not fix this defect.

### *To use a compiled WinHelp file*

1 Make sure you must use siebhelp.hlp, which is a WinHelp file, as the help for your Siebel application.

   To avoid the disadvantages of using WinHelp, investigate alternatives before you proceed.

2 In Siebel Tools, update the HTML Help URL property for all help Id objects to reflect the correct file name. Use values from the following table.

| Property | Value |
|---|---|
| HTML Help URL | help/siebhelp.hlp |

For more information, see "Example of Identifying the HTML File That Contains Help Content" on page 652.

3 Compile and test your changes.

4 Distribute the Siebel repository file and the Windows compiled help file to the appropriate Siebel Servers and Siebel clients.

For example, for the Siebel Web Client, distribute the Siebel repository file and copy the siebhelp.hlp file to the appropriate directory on the Siebel Server. For more information, see "Testing and Distributing Changes" on page 664.

## Testing and Distributing Changes

You must test your changes before you distribute them.

### *To test and distribute changes*

1 After you determine which HTML files you must change, make a backup copy of these files, and then copy them to your local computer.

2 Use a standard HTML authoring tool to make sure no links are broken in the existing HTML files and to verify links in the changed HTML files.

3 In a Web browser, open the HTML file you changed, and then review the content.

4 Distribute the updated files to the appropriate Siebel Servers and Siebel clients.

For example, for the Siebel Web Client, copy the updated file to the following directory on the Siebel Server:

*ORACLE_HOME*\public*language_code*\help

# A Reference Materials for Configuring Siebel Business Application

This appendix provides reference information for Siebel CRM. It includes the following topics:



## Properties of Object Types

This topic describes some of the properties that Siebel CRM frequently uses with various objects that you can configure. It includes the following topics:



For a complete list of properties of objects, see *Siebel Object Types Reference*.

# Properties of a Siebel Table

Table 80 describes properties that Siebel CRM commonly uses with a Siebel table.

Table 80. Properties That Siebel CRM Commonly Uses with a Siebel Table

| Property | Description |
|---|---|
| Name | The name of the table in the RDBMS. |
| Type | The table type. For more information, see Table 83 on page 669. |
| Base Table | The base table if the table is an extension table. If the table is a base table, then this property is empty. An extension table always identifies a base table. |
| User Name | A longer, descriptive name that helps you identify the table. |
| Comments | A text description of the table, such as the type of data that Siebel CRM stores in the table. |
| Status | The current status of a table. Indicates if Siebel CRM can use, in the most recent version of Siebel CRM, a table from a previous version of Siebel CRM. |

# Properties of a Table Column

Table 81 describes properties that Siebel CRM commonly uses with a table column.

Table 81. Properties That Siebel CRM Commonly Uses with a Table Column

| Property | Description |
|---|---|
| Default | Stores a default value when Siebel CRM adds new table rows. |
| Foreign Key Table | Stores the table to which this column is a foreign key. Siebel Enterprise Integration Manager (EIM) uses this information. For more information, see "Mapping a Custom Table to an Interface Table" on page 571. |
| LOV Bounded | Stores import behavior for EIM. If LOV Bounded is TRUE, then, during import, EIM checks the values against the values contained in a list defined in the LOV Type property. In that situation, LOV data must be imported first into the S_LST_OF_VAL table, and the LOV Type property must be defined. This property is read-only for a predefined column in Siebel CRM but you can edit it for a custom extension column. |
| LOV Type | Stores the list of values domain in which the Siebel schema validates this column. Siebel CRM uses it in conjunction with the LOV Bounded property. You define a list of values domain in the Administration - Data screen, List of Values view in the Siebel client. This property is read-only for a predefined column in Siebel CRM but you can edit it for a custom extension column. |
| Name | Stores the name of the database column in the database table. |

Table 81. Properties That Siebel CRM Commonly Uses with a Table Column

| Property | Description |
|---|---|
| Nullable | Indicates if the Siebel database can or cannot store NULL in this column. If TRUE, then Siebel CRM can store NULL. |
| Physical Type | For more information, see "Physical Type Property of a Table Column" on page 667. |
| Precision | Stores the maximum number of digits in a number column. For a noninteger column, the precision is 22. For an integer column, the precision is 10. |
| Primary Key | Stores the primary key for the table. If TRUE, then this column is the primary key for the table. With minor exceptions, the ROW_ID column in a table is the primary key, and it contains a TRUE value for this property. |
| Scale | Stores the maximum number of digits after the decimal point. For a noninteger column, the scale is 7. For an integer column, the scale is 0. |
| Type | For more information, see "Type Property of a Table Column" on page 669. |
| User Key Sequence | Stores the sequence in the user key where this column fits. |

## Physical Type Property of a Table Column

Table 82 describes the physical types that Siebel CRM supports. The Physical Type property identifies the physical type of the column in the Siebel database.

Table 82. Physical Types That Siebel CRM Supports in the Physical Type Property of a Table Column

| Physical Type | Description |
|---|---|
| Character | Stores text that is fixed in length. Also used for a *Boolean column*, which is a character column that contains a length of 1. By default, you cannot use Char greater than 1.<br><br>To change the default setting in Siebel Tools, you can choose the View menu, Options, and then click the Database tab. Make sure the following option contains a check mark:<br><br>Allow to create column of type 'Character' being greater than 1<br><br>**NOTE:** If you define a Column as a Char column, and if the data that Siebel CRM stores in the column varies in length, then Siebel CRM pads the data with empty spaces in the Siebel database. It is recommend that you use the Varchar data type for all but Boolean columns that are defined as CHAR(1). |
| Character Large Object (CLOB) | For more information, see "Character Large Object (CLOB) Physical Type" on page 668. |
| Date | Stores the date only, without time. |
| Date Time | Stores combined date and time in the same column. |

Table 82. Physical Types That Siebel CRM Supports in the Physical Type Property of a Table Column

| Physical Type | Description |
|---|---|
| Long | Stores long text. You can store approximately 16 KB of data in a Long column. |
| Number | Stores any numeric data. Typical numeric columns in Siebel CRM are 22,7 for general-purpose numbers, and 10,0 for integers. For more information, see "Maximum Number of Digits for a Numeric Physical Type" on page 669. |
| Time | Stores time only, without the date. |
| UTC Date Time | Stores the date and time. Siebel CRM saves time in Greenwich Mean Time (GMT). |
| Varchar | Stores text that varies in length. Used for most alphanumeric columns in the data objects layer, including ROW_ID, foreign key, list of values, and other free form text columns. |

### Character Large Object (CLOB) Physical Type

The Character Large Object (CLOB) physical type stores a large, variable amount of text. Siebel CRM version 8.0 and higher supports this text. CLOB is similar to Long, but it can contain much more data. In an Oracle database, the maximum size is (4 GB minus 1 byte) multiplied by the value in DB_BLOCK_SIZE.

Note the following requirements:

- Because a column in a Siebel table is limited to 128 KB of data, you cannot define a column of type CLOB that is greater than 128 KB.
- Siebel CRM allows no more than three CLOB columns for each table.
- In Siebel Tools, you can only set the physical type to CLOB when you define a column. You cannot change a predefined column, such as a Long column, to a CLOB column.
- Siebel Tools displays the CLOB Physical Type as L (Long) in the Properties window.
- Because MS SQL Server does not define a CLOB type, MS SQL Server treats a CLOB as a varchar(max) or nvarchar(max) object.
- To query on a DTYPE_CLOB field, you must use at least one wildcard in the search expression. You use an asterisk (*) to express a wildcard. For example, use TEST*. Do not use an equal sign (=) in the query. For example, do not use =TEST. If you use an equal sign, then Siebel CRM generates an error.

### Maximum Number of Digits for a Numeric Physical Type

If the Physical Type property of a table column is Numeric, then the table column can contain up to 16 digits. Note the following for the numeric physical type:

- As Siebel CRM increases the number of digits it uses to the left of the decimal point, the number of usable digits to the right of the decimal point decreases by an equal amount.
- Data is limited to 16 digits without a decimal point.
- If you use a decimal point, then data is limited to 15 digits to the left of the decimal point.
- You cannot use more than 7 digits to the right of the decimal point.
- You cannot change precision or scale properties to change this support.
- Some rounding errors can occur with a 16 or 15 digit number.

## Type Property of a Table Column

The type property specifies the type of column. Siebel CRM commonly uses the following values for the Type property of a table column:

- **Data.** For more information, see "Data Columns of a Siebel Table" on page 59.
- **Extension.** For more information, see "Extension Columns of a Siebel Table" on page 59.
- **System.** For more information, see "System Columns of a Siebel Table" on page 60.
- **IFMGR**. Occurs in an interface table. The Siebel Enterprise Integration Manager uses it internally. The name of an IFMGR type follows the IFMGR:nn format. For example, IFMGR:ROW_ID.

Table 83 describes possible values for the Type property of a Siebel table.

Table 83. Values for the Type Property of a Siebel Table

| Type | Description |
|---|---|
| Data (Public) | Contains data that Siebel CRM makes available through business components. To customize a public data table, you can use an extension table and extension column. It is among the predefined set of tables. |
| Data (Private) | Similar to a public data table, except it cannot contain an extension column. |
| Data (Intersection) | Defines a many-to-many relationship between two data tables. |
| Extension | Provides more columns that you can use to store data. Contains an implicit one-to-one relationship to the parent base table, which is the table that an extension table logically extends.<br><br>A table with an implicit one-to-many relationship to a base table is also known as an extension table. However, the Type property for this type of table is Data (Public), and not Extension. |

Table 83. Values for the Type Property of a Siebel Table

| Type | Description |
|---|---|
| Interface | Siebel Enterprise Integration Manager (EIM) uses the Interface type to enter values in one or more base tables and subsequently to perform periodic batch updates between Siebel CRM and other enterprise applications. The suffix in the name of an interface table is _IF or _XMIF. |
| Database View | Reserved for Oracle internal use. |
| Dictionary | Reserved for Oracle internal use. |
| Journal | Reserved for Oracle internal use. |
| Log | Reserved for Oracle internal use. |
| Repository | Reserved for Oracle internal use. |
| Virtual Table | Reserved for Oracle internal use. |
| Warehouse Types | Reserved for Oracle internal use. |
| Extension (Siebel) | Reserved for Oracle internal use. An Extension (Siebel) table is usually an extension of the S_PARTY table. |

## Properties of an Index of a Siebel Table

Table 84 describes some of the properties that Siebel CRM commonly uses with an index.

Table 84. Properties That Siebel CRM Commonly Uses with an Index

| Property | Description |
|---|---|
| Name | Stores the name of the database index. |
| Unique | TRUE indicates that Siebel CRM does not allow multiple rows with the same value.<br><br>You must not define a custom unique index without assistance. For more information, see "Getting Help from Oracle" on page 192. |
| Type | Indicates the type of index. Siebel CRM commonly uses the following types:<br><br>■ **Primary Key.** An index that Siebel CRM indexes on the ROW_ID column.<br><br>■ **User Key.** A custom index that you define. You specify the set of index columns. It must consist of a unique combination of columns.<br><br>■ **Extension.** An extension index that Siebel Tools creates by default if you add an index. Siebel CRM specifies the set of index columns.<br><br>■ **System.** A predefined index. You must not modify a predefined index. |

## Properties of an Index Column

Table 85 describes some of the properties that Siebel CRM commonly uses with an index column.

Table 85. Properties That Siebel CRM Commonly Uses with an Index Column

| Property | Description |
|---|---|
| Column Name | Stores the name of the column on which the parent index performs an operation, such as a sort operation. |
| Sequence | An integer value that stores the order of the column in the index relative to other columns. You must define the Sequence property even if only one index column is defined for an index. |
| Sort Order | Stores the sort order of the index column. The order is one of the following:<br>■ Asc (ascending)<br>■ Desc (descending) |

## Properties of a Business Component

Table 86 describes some of the properties that Siebel CRM commonly uses with a business component.

Table 86. Properties That Siebel CRM Commonly Uses with a Business Component

| Property | Description |
|---|---|
| Class | The C++ class that defines the functionality of the business component. For more information, see "Class Property of a Business Component" on page 78. |
| Name | A name that must be unique among all business components that reside in the SRF. Siebel CRM uses the name to reference a business component. |
| No Delete<br>No Insert<br>No Update | If set to TRUE, then the user cannot perform the defined data manipulation operation. For example, if No Delete is TRUE, then the user cannot delete a record that is associated with this business component. The default value is FALSE. |
| Search Specification | A conditional expression that Siebel CRM uses to restrict the records retrieved. Defining the search specification on a business component is very similar to defining the search specification on an applet. For more information, see "Options to Filter Data Displayed in an Applet" on page 120. |

Table 86. Properties That Siebel CRM Commonly Uses with a Business Component

| Property | Description |
|---|---|
| Sort Specification | A sort specification that Siebel CRM uses to order the records returned. For more information, see "Determining How a Business Component Sorts Records" on page 248. |
| Table | The name of the SQL table from which Siebel CRM retrieves records to update the majority of fields in the business component. |

## Type Property of a Business Component Field

Table 87 describes the data types that are included in the Type property of a business component field. Siebel CRM prefaces all field data types with the following text: DTYPE_.

Table 87. Type Property of a Business Component Field

| Field Data Type | Physical Type | Maximum Length | Description |
|---|---|---|---|
| DTYPE_BOOL | Character | 1 | Describes data as Y or N. Siebel Tools often displays this type in the following ways:<br>■ TRUE or FALSE<br>■ checked or unchecked |
| DTYPE_CURRENCY | Number | 22 | Describes data as currency.<br>You can use the Windows Control Panel to control the appearance of currency values that Siebel CRM displays in a screen.<br>To define an explicit format mask in the Display Format property, you can also use the following symbols:<br>■ Dollar sign ($). Specifies the position for the currency symbol.<br>■ Trailing period (.). Specifies the default precision for the currency.<br>■ All valid symbols described for DTYPE_NUMBER. |
| DTYPE_DATE | Date | 7 | Describes data as a date. When Siebel CRM returns the date, it ignores other information, such as time. For more information, see "Formats for the Date Physical Type" on page 674. |

Table 87. Type Property of a Business Component Field

| Field Data Type | Physical Type | Maximum Length | Description |
|---|---|---|---|
| DTYPE_DATETIME | Date Time | 7 | Describes data as a date and time. You can use the Windows Control Panel to set the appearance of time and date values. You can also use a combination of DTYPE_DATE and DTYPE_TIME to configure an explicit date format.<br><br>Alternatively, you can use one of the following properties. Each of these properties use the format configured in the Windows Control Panel:<br><br>■ **Date.** Displays only the date portion of the value.<br><br>■ **Time.** Displays only the time portion of the value.<br><br>■ **TimeNoSec.** Displays only the hour and minute portion of the value. |
| DTYPE_UTCDATETIME | UTC Date Time | 30 | Describes data as date information, with a date and a time component, which Siebel CRM stores in the Siebel database in UTC time. UTC is the equivalent of Greenwich Mean Time without any adjustments for daylight savings time.<br><br>A field of this type must correspond to a database column of type *U.* The default time zone that is configured in the user preferences determines how Siebel CRM converts the display value for this field to or from UTC time. |
| DTYPE_ID | Varchar | 15 | Describes data as the primary key that Siebel CRM automatically generates.<br><br>A field mapped to an extension column with a physical type of Varchar(15) automatically defaults to a DTYPE_ID data type. |
| DTYPE_INTEGER | Number | 22* | Describes data as a whole number ranging in value from negative 2147483648 to 2147483647. |
| DTYPE_NOTE | Long | 16 KB | Describes data as a long string that is less than or equal to 16 KB, or 16383 bytes. If the length is not explicitly defined, then the default is 16 KB. If used with the Pop-up Edit property in a control or list column, then the DTYPE_NOTE data type indicates to the Siebel client to use a multiline edit box.<br><br>The user cannot query on a DTYPE_NOTE field. |

Table 87. Type Property of a Business Component Field

| Field Data Type | Physical Type | Maximum Length | Description |
|---|---|---|---|
| DTYPE_NUMBER | Number | 22 | Describes data as a number. For more information, see "Formats for a DTYPE_NUMBER Business Component Field" on page 675. |
| DTYPE_PHONE | Number | 40 | Describes data as a phone number. Siebel CRM ignores the DisplayFormat property for DTYPE_PHONE values. |
| DTYPE_TEXT | Varchar | 2 KB | Describes data as a string that is less than or equal to 4000 bytes. The default value is 255. Siebel CRM ignores the DisplayFormat property for DTYPE_TEXT values. |
| DTYPE_TIME | Time | 7 | Describes data as a time.<br><br>When Siebel CRM retrieves the time, it ignores other information. You can set the appearance of time values through the Windows Control Panel, or you can use the following symbols to specify an explicit time:<br><br>■ **HH.** Hour according to a 24-hour clock without a leading zero.<br>■ **H.** Hour according to a 24-hour clock with a leading zero.<br>■ **hh.** Hour according to a 12-hour clock without a leading zero.<br>■ **h.** Hour according to a 12-hour clock with a leading zero.<br>■ **mm.** Minute without a leading zero.<br>■ **m.** Minute with a leading zero.<br>■ **ss.** Second without a leading zero.<br>■ **s.** Second with a leading zero.<br>■ **Colon (:).** The position of the time separator. You specify the character in the Windows Control Panel. |

## Formats for the Date Physical Type

You can use the Windows Control Panel to control the appearance of date values that Siebel CRM displays in a screen.

To define an explicit date format, you can also use the following symbols:

- **YY.** Two-digit year without a leading zero.
- **Y.** Two-digit year with a leading zero.
- **YYYY.** Four-digit year without a leading zero.
- **YYY.** Four-digit year with a leading zero.
- **MM.** Month without a leading zero.
- **M.** Month with a leading zero.
- **DD.** Day without a leading zero.

For more information, see "How Siebel CRM Handles Certain Date Formats" on page 677.

## Formats for a DTYPE_NUMBER Business Component Field

You can use the Windows Control Panel to control the appearance of numeric values, or you can use the following symbols to specify an explicit format mask:

- **Zero (0).** Specifies the position of a mandatory digit.
- **Pound sign (#).** Specifies the position of an optional digit.
- **Comma (,).** Specifies the position of the thousands separator. You specify the character in the Windows Control Panel.
- **Period (.).** Specifies the position of the decimal separator. You specify the character in the Windows Control Panel.
- **Trailing period (.).** Specifies default display precision.
- **Plus sign (+).** Specifies the position and appearance of the positive value indicator.
- **Minus sign (-).** Specifies the position and appearance of the negative value indicator.

There are restrictions regarding the number of digits you can use with a business component field whose Type property is DTYPE_NUMBER. For more information, see "Maximum Number of Digits for a Numeric Physical Type" on page 669.

# Display Format Property of a Control or List Column

Table 86 describes values for the Display Format property of a control or list column.

Table 88. Values for the Display Format Property of a Control or List Column

| Property | Description |
|---|---|
| DTYPE_NUMBER | Can include the following values:<br>■ 0 (zero)<br>■ # (pound sign)<br>■ + (plus sign)<br>■ - (minus sign)<br>■ , (comma)<br>■ . (period)<br>If empty, then to determine the appearance of numeric values, Siebel CRM uses the Regional Settings section of the Windows Control Panel. |
| DTYPE_CURRENCY | Uses the same symbols as with the DTYPE_NUMBER property, in addition to the dollar sign.<br>To control how Siebel CRM displays currency, in the Siebel client, you navigate to the Application Administration screen, choose the Currencies view, and then modify the Scale field. |
| DTYPE_DATETIME | Stores one of the following values in the Display Format property:<br>■ Date<br>■ DateTime<br>■ DateTimeNoSec<br>■ TimeNoSec |
| DTYPE_DATE | Uses a combination of the following values:<br>■ MM/DD/YY<br>where:<br>■ *MM* is the month<br>■ *DD* is the day<br>■ *YY* is the year<br>If empty, then to determine the appearance of date values, Siebel CRM uses the Regional Settings section of the Windows Control Panel. For more information, see "How Siebel CRM Handles Certain Date Formats" on page 677. |

Table 88. Values for the Display Format Property of a Control or List Column

| Property | Description |
|---|---|
| DTYPE_TIME | You can use one of the following formats:<br>■ Specify TimeNoSec.<br>■ Specify a format mask using a combination of the following values:<br>■ HH:hh:mm:ss<br>where:<br>■ *HH* is the hours<br>■ *hh* is the hours<br>■ *mm* is the minutes<br>■ *ss* is the seconds<br>If empty, then to determine the appearance of time values, Siebel CRM uses the Regional Settings section of the Windows Control Panel. |
| DTYPE_PHONE | If empty, then to determine the appearance of phone values, Siebel CRM uses the Regional Settings section of the Windows Control Panel. |

## How Siebel CRM Handles Certain Date Formats

If you set DDD, DD/MM/YYYY as the display format on a date list column, then Siebel CRM displays the date with the expected format but you cannot update the date. If you attempt to update the date, then Siebel CRM displays an error that is similar to the following:

```
Can't convert formatted string to its internal representation. Please check if your
data is in correct format.
```

The same situation occurs if you use the DDD/MM/YYYY format.

# Properties of a Screen View

Table 89 describes some of the properties that Siebel CRM commonly uses with a screen view.

Table 89. Properties That Siebel CRM Commonly Uses with a Screen View

| Property | Description |
|---|---|
| Category Default View | Defines the default view for a screen view as an Aggregate Category or Detail Category.<br><br>It is recommended that you define the Category Default View property. If this property is empty, then Siebel CRM lists views alphabetically.<br><br>If the category for the screen view is Aggregate View or Detail View, then the Category Default View property is read-only. |
| Category Name | Name of the Aggregate Category or Detail Category. This property must be unique in each screen.<br><br>If the category for the screen view is Aggregate View or Detail View, then the Category Name property is read-only. |
| Display in Page | If Siebel CRM must display the screen view in the page, then you must set the Display in Page property to TRUE.<br><br>If the category for the screen view is Aggregate Category or Detail Category, then you must set the Display in Page property to TRUE.<br><br>If no views in the category are included, then Siebel CRM does not automatically display the screen view. |
| Display in Site Map | If Siebel CRM must display the screen view on the Site Map, then the Display in Site Map property must be TRUE. |
| Menu Text | Text that Siebel CRM displays in the Site Map. To modify the text style that Siebel CRM renders in the Site Map, you can use HTML tags in the Menu Text property. For more information, see “Changing the Text Style of a Control or List Column in an Applet” on page 347. |
| Name | Calculated field. |
| Parent Category | If the Type property is Aggregate Category, then the Parent Category property is empty because there is no parent.<br><br>If the Type property is Aggregate View, then the Parent Category property might or might not be empty.<br><br>If the Type property is Detail View or Detail Category, then the Parent Category property must contain a value. |

Table 89. Properties That Siebel CRM Commonly Uses with a Screen View

| Property | Description |
|---|---|
| Type | Can be one of the following values:<br>■ Aggregate Category<br>■ Aggregate View<br>■ Detail Category<br>■ Detail View<br>For more information, see "About Screen Views" on page 135. |
| View | If the Type property of the screen view is Aggregate View or Detail View, then you must define the view property. The View property associates the view with the screen view. The View property is read only for Aggregate Category and Detail Category. |

## Properties of an Application

Table 90 describes properties of the application object type.

Table 90. Properties of the Application Object Type

| Property | Description |
|---|---|
| Acknowledgement Web Page | The Web page that Siebel CRM displays after the user successfully logs in. If a login occurs after a timeout, then Siebel CRM displays the view that the user attempted to access when the timeout occurred. |
| Acknowledgement Web View | The view that Siebel CRM displays after the user successfully logs in, except in the following situations:<br>■ **Timeout.** If the user logs in after a timeout, then Siebel CRM displays the view that the user attempted to access when the timeout occurred.<br>■ **Explicit login required.** Assume the following occurs:<br>  ■ An anonymous user logs in to a standard interactivity application, such as Siebel eService.<br>  ■ The Explicit Login property is set to TRUE for the view that the user attempts to access.<br>  ■ The user successfully enters the login credentials.<br>  In this situation, Siebel CRM displays the view that the user was attempting to access. It does not display the view defined in the Acknowledgement Web View property. |

Table 90. Properties of the Application Object Type

| Property | Description |
|---|---|
| Container Web Page | A Web page that defines the structure of the Siebel application. This page can contain the common user interface components, such as screen bars, view bars, logos, and so forth. You can use this page to define the HTML Frame definition document for the Siebel application. Siebel CRM displays all views and, as an option, all pages in the context of the container page. For more information, see "About the Container Page" on page 151. |
| Error Web Page | The page Siebel CRM displays if an error occurs in the Siebel application. |
| Login Web Page | The page Siebel CRM displays as the login page. |
| Logoff Acknowledgement Web Page | The page Siebel CRM displays when the user logs out of the Siebel application. |
| Sort Web Page | The page Siebel CRM uses to create a dialog to perform an advanced sort on list applet columns. |

# Properties of Objects You Use with a Menu or Toolbar

This topic describes some of the properties of objects that you use with a menu or toolbar.

## Properties of a Command

Table 91 describes some of the properties that Siebel CRM commonly uses with a command.

Table 91. Properties That Siebel CRM Commonly Uses with a Command

| Property | Description |
|---|---|
| Business Service | Specifies the business service that handles the method. The service is browser or server depending on the Target property. Note the following:<br>■ If the Business Service property is empty, then Siebel CRM targets the browser or server infrastructure rather than a specific service.<br>■ If the Business Service property is not empty, then the business service that is defined must handle CanInvokeMethod and InvokeMethod for the method that is defined in the Method property. |
| HTML Bitmap | Specifies that the Command object uses a bitmap. |
| HTML Popup Dimensions | If the Show Popup property contains a check mark, then the HTML Popup Dimensions property specifies the dimensions of the pop-up window, in pixels. For example, you can specify a popup with a dimension of 640x480. Do include the *x* between the dimensions. Do not include spaces. |

Table 91. Properties That Siebel CRM Commonly Uses with a Command

| Property | Description |
|---|---|
| Method | Specifies the name of the method that Siebel CRM calls if the user chooses the menu item or clicks the toolbar icon. This is a required property. For more information, see "About the Method, Business Service, and Target Properties of the Command Object" on page 499. |
| Method Argument | Provides the means to pass an argument to the method defined in the Method property. For example, assume a command item opens a new window and navigates to a URL in that window. This command can use the Method Argument property to define the GotoURL method in the Method property and the URL to navigate to. |
| Show Popup | Note the following:<br>■ If the Show Popup property contains a check mark, then Siebel CRM opens a new browser window before it calls the method.<br>■ If the Show Popup property does not contain a check mark, then Siebel CRM does not open a new browser window before it calls the method. |
| Target | Specifies the entity that handles the method that the command calls. The following options are available:<br>■ **Browser.** Specifies the method handler as a JavaScript service on the browser or the JavaScript application, depending on if a service is defined or not defined in the Business Service property.<br>■ **Server.** Specifies the method handler and object manager service on the Siebel Server or the object manager infrastructure, depending on if a service is defined or not defined in the Business Service property.<br>The object manager infrastructure is the Siebel Web Engine UDF loader or the model.<br>■ **Browser Applet.** Used with high interactivity. For more information, see "About Standard Interactivity and High Interactivity" on page 36.<br>For more information, see "About the Method, Business Service, and Target Properties of the Command Object" on page 499. |
| Tooltip Text | The tooltip text that Siebel CRM displays if the user positions the cursor over a toolbar icon. For a predefined method, leave the Tooltip Text property empty. If the Tooltip Text property is empty, then the method dynamically supplies the text, and language localization takes place as a part of this process. If you define the method, then you must enter literal text. If you define literal text, then Siebel CRM does not use language localization for this tooltip text. For more information, see Chapter 26, "Localizing Siebel Business Applications." |

## Properties of a Toolbar

Table 92 describes some of the properties that Siebel CRM commonly uses with a toolbar.

Table 92. Properties That Siebel CRM Commonly Uses with a Toolbar

| Property | Description |
|---|---|
| Class | Note the following:<br>■ For an HTML toolbar, leave the Class property empty.<br>■ For a Java toolbar, enter the name of the Java class that implements the toolbar. |
| Display Name | Siebel CRM uses this property for the History button and to display or hide toolbars by name. |
| Name | Referenced by other object definitions and by the swe:toolbar tag in the *name* clause. |

## Properties of a Menu Item

Table 93 describes some of the properties that Siebel CRM commonly uses with a menu item.

Table 93. Properties That Siebel CRM Commonly Uses with a Menu Item

| Property | Description |
|---|---|
| Caption | The text that Siebel CRM displays in the menu or menu item. |
| Command | Name of the Command object definition that provides the method and target for the menu item. |
| Name | Uniquely identifies the menu or menu item. |
| Position | Determines the order of menu items and the parent-child relationships. For example, a menu item with a Position of 150 is a parent to menu items with Position values of 150.10, 150.20, and so forth. Note the following:<br>■ If the parent menu item is active, then Siebel CRM displays the child menu items.<br>■ If the parent menu item is not active, then Siebel CRM does not display the child menu items. |

## Properties of a Toolbar Item

Table 94 describes some of the properties that Siebel CRM commonly uses with a toolbar item.

Table 94. Properties That Siebel CRM Commonly Uses with a Toolbar Item

| Property | Description |
|---|---|
| Command | Name of the Command object definition that provides the bitmap, method, and target for the toolbar item. To instruct Siebel CRM to insert a separator between icons, you can define one or more hyphens instead of the name of a Command object. |
| HTML Type | Identifies the type of control that Siebel CRM displays in the toolbar in the browser. You can specify one of the following types:<br>■ ComboBox<br>■ Button<br>■ Edit<br>■ Label<br>■ Hyperlink<br>■ MiniButton<br>■ Timer |
| Name | Name of the toolbar item. Siebel Tools uses this property for internal use only. The Name property must be unique in the toolbar. |
| Position | Determines the order of toolbar items and the parent-child relationships. For example, a Toolbar item with a Position of 150 is a parent to Toolbar items with Position values of 150.10, 150.20, and so forth. Note the following:<br>■ If the parent toolbar item is active, then Siebel CRM displays the child toolbar items.<br>■ If the parent toolbar item is not active, then Siebel CRM does not display the child toolbar items. |

## Properties of an Applet Method Menu Item

Table 95 describes some of the properties that Siebel CRM commonly uses with an applet method menu item.

Table 95. Properties that Siebel CRM Commonly Uses with an Applet Method Menu Item

| Property | Description |
|---|---|
| Command | Name of the command that provides the bitmap, method, and target for the applet method menu item.<br><br>Use Browser as the target of the Command object for a menu item that Siebel CRM displays on an applet menu. |
| Menu Text | The text that Siebel CRM displays in the menu item. |
| Position | The sequence of the menu item in the list of menu items. |
| Suppress Menu Item | If the Suppress Menu Item property contains a check mark, then Siebel CRM removes the class-level menu item of the defined name from the applet menu in the applet where this property is defined. |

## Properties of a Class Method Menu Item

Table 96 describes some of the properties that Siebel CRM commonly uses with a class method menu item.

Table 96. Properties That Siebel CRM Commonly Uses with a Class Method Menu Item

| Property | Description |
|---|---|
| Business Service | Note the following:<br><br>■ If defined, then this property identifies the business service on which to call the method.<br><br>■ If not defined, then Siebel CRM calls the method in the applet class on the browser or server, as defined in the Target property. If not handled, then Siebel CRM performs a subsequent retargeting. |
| Menu Text | The text that Siebel CRM displays in the menu item. |
| Method | The method that Siebel CRM calls if the user chooses the item. |
| Position | The sequence of the menu item in the list of menu items. |

Table 96. Properties That Siebel CRM Commonly Uses with a Class Method Menu Item

| Property | Description |
|---|---|
| Suppress Menu Item | If the Suppress Menu Item property contains a check mark, then Siebel CRM removes the applet menu items of the defined name from the applet menu in all applets that Siebel CRM derives from this class and subclasses. |
| Target | Specifies the entity that handles the method that is defined in the Method property. The following options are available:<br>■ **Browser.** Specifies that the method handler is a JavaScript service on the browser, or the JavaScript applet class on the browser, depending on if a service is defined or not defined in the Business Service property. The JavaScript applet class is the JavaScript business component class.<br>■ **Server.** Specifies that the method handler is an object manager service on the Siebel Server or the applet and business component and their superclasses, depending on if a service is defined or not defined in the Business Service property. |

# Types of Applet Controls and List Columns

This topic describes some of the applet controls and list columns that Siebel CRM commonly uses. For more information, see *Siebel Object Types Reference*.

Table 97 describes some of the applet controls and list columns that Siebel CRM commonly uses, as defined in the HTML Type property of the control or list column.

Table 97. Applet Controls and List Columns That Siebel CRM Commonly Uses

| HTML Type Property | Description |
|---|---|
| ActiveX | Allows you to place an ActiveX control in an applet. Siebel Tools does not support the placement of a frameless ActiveX control or list column.<br>You cannot use a calendar ActiveX control or list column in a form applet. Instead, use a pop-up calendar control in the Siebel client. For more information, see “Creating a Pop-Up Control in an Applet” on page 336. |
| Button | Displays in an applet as a button with three dimensions. It initiates an action if clicked. You rarely use the button control or list column. You more commonly use the minibutton. For more information, see “MiniButton Control and MiniButton List Column” on page 116 and “Calling a Method from a Button in an Applet” on page 346. |

Table 97. Applet Controls and List Columns That Siebel CRM Commonly Uses

| HTML Type Property | Description |
|---|---|
| CheckBox | Represents a TRUE or FALSE situation:<br>■ If the user clicks an empty check box, then Siebel CRM displays a check mark in the check box.<br>■ If the user clicks a check box that is checked, then Siebel CRM removes the check mark.<br>To view an example of a check box control, open a Siebel application, such as Call Center. Navigate to the Service Request list, drilldown on the SR # column, and then choose the More Info tab. In the Categorization section, locate the Alert Me check box. |
| ComboBox | Defines one of the following special-purpose lists:<br>■ In a chart applet, it defines the Show and By combo boxes.<br>■ In a calendar applet, it defines the user name combo box.<br>■ In a pick applet, it defines the Find combo box.<br>The ComboBox control includes a field with a button that displays with a down arrow. If the user clicks this button, then Siebel CRM displays a list. If the user chooses an item from this list, then Siebel CRM replaces the previous value in the box. A list provides the list of values.<br>A combo box displays and behaves almost identically to a static list, except the user interacts with a combo box control or list column rather than a text control or list column. For more information, see "About Static Lists" on page 437. |
| DrillDownTitle | Includes a drilldown on the title of an applet. If the user clicks the title, then Siebel CRM displays the target view. Applets on the home page use this control. To view an example of a DrillDownTitle control in a Siebel application, such as Call Center, navigate to the Home screen, and then note the My Activities title. |
| Field | Displays text in a rectangular box. Includes a native HTML type of Text. For more information, see "Text Control and Text List Column" on page 117. |
| FieldLabel | Displays a field label for a list applet. |
| File | Allows the user to attach a file. |
| Hidden | Not visible in the Web page but you can access it through a script. |

Table 97. Applet Controls and List Columns That Siebel CRM Commonly Uses

| HTML Type Property | Description |
|---|---|
| FormSection | A label that helps to group related fields in an applet. The FormSection label expands to fit the region where it is placed. To set it apart, Siebel CRM displays the label against the FormSection color that is defined in the cascading style sheet.<br><br>To view an example of a check box control in a Siebel application, such as Call Center, you can navigate to the Service Request list, drilldown on the SR # column, and then choose the More Info tab. Siebel CRM establishes the Categorization section through a FormSection control.<br><br>**NOTE:** If a form applet does not use a grid, then the FormSection control cannot expand to fit in the layout editor. However, the FormSection control does render correctly in the Siebel client. |
| ImageButton | A minibutton that references an image. For more information, see "MiniButton Control and MiniButton List Column" on page 116. |
| InkData | For tablet PC computers. Do not use in a list applet. |
| JavaApplet | Siebel CRM does not support specialized applet classes for a custom configuration. |
| Label | Provides a visual aid. It is not tied to a business component field, it does not display data, and it does not provide any data entry capability. If you must place a text label in a form applet, then use a label control.<br><br>**NOTE:** If a caption includes any HTML reserved character, then you must encode the HTML with &, <, >, ", and so forth. Example HTML reserved characters include the ampersand (&), less than symbol (<), greater than symbol (>), period (.), and so forth. |
| Link | Creates an HTML link that calls a method when activated. Siebel CRM uses it with a control or list column on which an InvokeMethod is defined, which can include a method that comes predefined with Siebel CRM.<br><br>To view an example of a link control, open a Siebel application, such as Call Center. Navigate to the Home screen, and then note the My Activities link that calls the GoToView method. |
| Mailto | Siebel CRM displays the value of this control or list column as a link. If the user clicks this control or list column, then Siebel CRM opens the default email program for the user, and then enters the value of this control or list column into the email address. |
| Password | Allows the user to enter a password. Siebel CRM uses asterisks (*) to mask characters that the user enters in this control or list column. |
| PositionOnRow | Displays the currently chosen record in a list. |

Table 97. Applet Controls and List Columns That Siebel CRM Commonly Uses

| HTML Type Property | Description |
|---|---|
| RTC | The following RTC (Rich Text Component) controls define the dimensions and font qualities of a container that includes a rich text component:<br>■ **RTCEmbedded.** An embedded text editor. Siebel CRM supports the following HTML tags:<br>■ Bold < STRONG><br>■ italic <EM><br>■ Underline <U><br>■ Ordered list <OL><br>■ Unordered list <UL><br>■ List items <LI><br>■ <P><br>■ <FONT><br>■ <BLOCKQUOTE ><br>■ **RTCEmbeddedLinkField.** Displays graphics and links in the RTCEmbedded object.<br>■ **RTCPopup.** Displays graphics and links in a popup object.<br>■ **RTC_IO.** Display graphics and links in an IO object.<br>You cannot use an RTC control in a list applet, list, or a multi-value group applet. |
| RadioButton | Displays a radio button. |
| RecNavNxt | Displays the next set of records. |
| RecNavPrv | Displays the previous set of records. |
| SSNxt | Displays the next question in a SmartScript. |
| SSPrv | Displays the previous question in a SmartScript. |
| TextArea | Allows the user to enter text in multiple lines. The HTML Height property of the control or list column determines the number of rows of text Siebel CRM displays in the text area.<br>To view an example of a TextArea control in a Siebel application, open a Siebel application, such as Call Center. Navigate to the Opportunities list, and then note the Sales Objective TextArea control in the opportunity form.<br>For more information, see "Text Control and Text List Column" on page 117. |
| URL | Displays as a link. If the user clicks this control, then Siebel CRM opens the specified URL. |

# Objects You Use with Enterprise Integration Manager

This topic describes properties of objects that Siebel CRM uses with EIM. For more information, see *Siebel Enterprise Integration Manager Administration Guide*.

## Properties of the EIM Interface Table

Table 98 describes properties of the EIM interface table.

Table 98. Properties of the EIM Interface Table

| Property | Value |
|---|---|
| Target Table | Chosen by the developer |
| EIM Delete Proc Column | T_DELETED_ROW_ID |
| EIM Export Proc Column | T_EXPORTED_ROW_ID |
| EIM Merge Proc Column | T_MERGED_ROW_ID |

## System Columns of the EIM Interface Table

Table 99 lists system columns of the EIM interface table.

Table 99. System Columns of the EIM InterfaceTable

| Name | Physical Type | Length | Type | EIM Processing Column |
|---|---|---|---|---|
| CONFLICT_ID | Varchar | 15 | System | FALSE |
| CREATED | Date Time | 7 | System | FALSE |
| CREATED_BY | Varchar | 15 | System | FALSE |
| IF_ROW_BATCH_NUM | Number | 22 | System | FALSE |
| IF_ROW_MERGE_ID | Varchar | 15 | System | FALSE |
| IF_ROW_STAT | Varchar | 30 | System | FALSE |
| IF_ROW_STAT_NUM | Number | 22 | System | FALSE |
| LAST_UPD | Date Time | 7 | System | FALSE |
| LAST_UPD_BY | Varchar | 15 | System | FALSE |
| MODIFICATION_NUM | Number | 22 | System | FALSE |
| ROW_ID | Varchar | 15 | System | FALSE |

## EIM Interface Table Columns to Facilitate EIM Processing

Table 100 describes the generic EIM interface table columns to facilitate EIM processing for each EIM table interface. You cannot change the values of these columns.

Table 100. EIM Interface Table Columns to Facilitate EIM Processing

| Name | Physical Type | Length | Type | User Name | EIM Processing Column |
|---|---|---|---|---|---|
| T_DELETED_ROW_ID | Varchar | 15 | Data (Private) | Deleted ROW_ID from base table | TRUE |
| T_EXPORTED_ROW_ID | Varchar | 15 | Data (Private) | Exported ROW_ID from target table | TRUE |
| T_MERGED_ROW_ID | Varchar | 15 | Data (Private) | Merged into ROW_ID from target table | TRUE |

## EIM Interface Table Columns for Processing a Mapping to a Defined Table

Table 101 describes EIM interface table columns for processing a mapping to a defined table.

Table 101. EIM Interface Table Columns for Processing a Mapping to a Defined Table

| Column | Value |
|---|---|
| Name | Derived from the name of the target table using the following format:<br>*T_PART ONE_PROCESS SUFFIX*<br>where:<br>*PART ONE* is the EIM Table Mapping Name without the CX_ prefix |
| Physical Type | Depends on the process to which the column is related. |
| Length | Depends on the process to which the column is related. |
| Type | Depends on the process to which the column is related. |
| User Name | Name of the EIM Table Mapping object for which the column is being created. |
| EIM Processing Column | TRUE |

Table 102 describes an example of the columns that Siebel Tools generates and the default properties. For example, if the target table is CX_SEC_LEV, then Siebel Tools creates an EIM table mapping.

Table 102. Example of EIM Interface Table Columns for Processing a Mapping to a Defined Table

| Name | Physical Type | Length | Type | User Name | EIM Processing Column |
|---|---|---|---|---|---|
| T_SEC_LEV_EXS | Character | 1 | IFMGR: Exists | CX_SEC_LEV | TRUE |
| T_SEC_LEV_RID | Varchar | 15 | IFMGR: ROW_ID | CX_SEC_LEV | TRUE |
| T_SEC_LEV_STA | Number | 22 | IFMGR: Status | CX_SEC_LEV | TRUE |
| T_SEC_LEV_UNQ | Character | 1 | IFMGR: Unique | CX_SEC_LEV | TRUE |

## EIM Interface Table Columns for Processing a Foreign Key

Table 103 describes the columns that EIM creates for each foreign key on the target EIM table mapping.

Table 103. EIM Interface Table Columns for Processing a Foreign Key

| Column | Value |
|---|---|
| Name | Derived from the target table name and the corresponding foreign key column on the target table using the following format:<br>*PART ONE FOREIGN KEY COLUMN OF THE TARGET TABLE*<br>where:<br>*PART ONE* is the target table name with the CX_ prefix replaced with T_ |
| Type | Set to IFMGR: Fkey |
| Physical Type | Physical type of foreign key column of the target table, which is typically Varchar. |
| Length | Length of foreign key column of the target table, which is typically 15. |
| User Name | Derived using the following format:<br>*TARGET TABLE NAME* or *EIM TABLE MAPPING NAME.FOREIGN KEY COLUMN NAME* |

Table 104 describes the EIM table columns that EIM generates if the CX_SEC_LEV table contains the following foreign key column mappings:

- The OPTY_ID foreign key column mapping references the S_OPTY table

- The ACCNT_ID foreign key column mapping references the S_ORG_EXT table

Table 104. Example of EIM Interface Table Columns for Processing a Foreign Key

| Name | Physical Type | Length | Type | User Name |
|---|---|---|---|---|
| T_SEC_LEV_OPTY_ID | Varchar | 15 | IFMGR: Fkey | CX_SEC_LEV.OPTY_ID |
| T_SEC_LEV_ACCNT_ID | Varchar | 15 | IFMGR: Fkey | CX_SEC_LEV.ACCNT_ID |

## EIM Interface Table Columns for Foreign Keys

Table 105 describes the properties of EIM interface table columns for foreign keys. EIM creates a separate foreign key column for each U1 user key column on the foreign key tables.

Table 105. EIM Interface Table Columns for Foreign Keys

| Column | Value |
|---|---|
| Name | Derived using the following format:<br>*PART ONE_NAME OF THE FOREIGN KEY COLUMN IN THE TARGET TABLE*<br>where:<br>*PART ONE* is the first four letters of the foreign key table name without the S_ prefix, and trimmed to remove any trailing underscore (_) characters |
| Physical Type | Physical type of the user key column on the target table, which is typically Varchar. |
| Length | Corresponds to the length of user key columns that the column references, which is typically 15. |
| Type | Data (Public) |

Table 106 describes properties of interface table columns for foreign keys using CX_SEC_LEV as an example. EIM generates the corresponding EIM columns depending on the base column type.

Table 106. Example of Interface Table Columns for Foreign Keys

| Name | Physical Type | Type |
|---|---|---|
| OPTY_BU_ID | Varchar | Data (Public) |
| OPTY_NAME | Varchar | Data (Public) |
| OPTY_PR_DEPT_OU_ID | Varchar | Data (Public) |
| ORG_BU_ID | Varchar | Data (Public) |
| ORG_NAME | Varchar | Data (Public) |
| ORG_LOC | Varchar | Data (Public) |

## EIM Interface Table Columns for Attributes on the Target Table

Table 107 describes properties of EIM interface table columns for attribute columns on the target table. The EIM interface table column includes the following qualities:

- Physical Type property is Data (Public)
- Foreign Key Table property is empty

Table 107. EIM Interface Table Column for Attributes on the Target Table

| Column | Value |
|---|---|
| Name | Derived using the following format:<br>*PREFIX_NAME OF THE CORRESPONDING COLUMN IN THE TARGET TABLE*<br>CON and ACCNT are example prefixes. |
| Physical Type | Data (Public) |
| Length | Length of corresponding column in the target table. |
| User Name | Name of corresponding column in the target table. |

Table 108 describes the interface table columns that EIM generates if you enter a prefix of SECL with the following attribute columns in the CX_SEC_LEV table:

- NAME (Varchar 100)
- DESC_TEXT (Varchar 250)
- AUTO_UPDATE (Char 1)

Table 108. Example of EIM Interface Table Columns Attributes on the Target Table

| Name | Physical Type | Length | Type | User Name |
|---|---|---|---|---|
| SECL_NAME | Varchar | 100 | Data (Public) | Security Level Name |
| SECL_DESC_TEXT | Varchar | 250 | Data (Public) | Security Level Description |
| SECL_AUTO_UPDATE | Char | 1 | Data (Public) | Auto Update Flag |

## EIM Table Mappings That Reference the Target Table

Table 109 describes examples of how EIM sets the name and destination columns to the name of the target table. The processing column properties correspond to those that EIM generates.

Table 109. Example of EIM Table Mappings That Reference the Target Table

| Column | Value |
|---|---|
| Name | CX_SEC_LEV |
| Destination Table | CS_SEC_LEV |
| EIM Exists Proc Column | T_SEC_LEV_EXS |
| EIM Row Id Proc Column | T_SEC_LEV_RID |
| EIM Status Proc Column | T_SEC_LEV_STA |
| EIM Unique Proc Column | T_SEC_LEV_UNQ |

## Attribute Mapping Properties of EIM Interface Columns That EIM Generates

Table 110 describes properties of the attribute mappings for each EIM interface column that EIM generates.

Table 110. Attribute Mapping Properties of EIM Interface Columns That EIM Generates

| Property | Value |
|---|---|
| Name | Attribute column on the target table. |
| Interface Table Data Column | Name of corresponding EIM interface table column generated. For more information, see Table 108 on page 693. |
| Base Table Attribute Column | Name of the attribute column on the target table. |

## Foreign Key Mapping Properties of Foreign Key Columns on the Target Table

Table 111 describes the properties of each foreign key mapping that EIM creates for each foreign key mapping column on the target table.

Table 111. Foreign Key Mapping Properties of Foreign Key Columns on the Target Table

| Property | Value |
|---|---|
| Name | Name of the user key column. |
| Foreign Key Column | Name of the user key column. |

Table 111. Foreign Key Mapping Properties of Foreign Key Columns on the Target Table

| Property | Value |
|---|---|
| User Key | Name of the U1 user key of the foreign key table. |
| EIM Foreign Key Proc Column | Corresponding EIM interface table column for foreign key processing derived from the following format:<br>T_*PART ONE_NAME OF THE USER KEY COLUMN*<br>where:<br>*PART ONE* is the name of the target table without the CX_ prefix |

Table 112 describes the foreign key mapping, using the CX_SEC_LEV table as an example.

Table 112. Example of Foreign Key Mapping Properties of Foreign Key Columns on the Target Table

| Name | Foreign Key Column | User Key | EIM Foreign Key Proc Column |
|---|---|---|---|
| OPTY_ID | OPTY_ID | S_OPTY_U1 | T_SEC_LEV_OPTY_ID |
| ACCNT_ID | ACCNT_ID | S_ORG_EXT_U1 | T_SEC_LEV_ACCNT_ID |

## Foreign Key Mapping Columns for Foreign Key Mappings

Table 113 describes the properties that EIM sets for each foreign key mapping column. EIM creates a separate foreign key mapping column for each user key column in the user key that is defined for the parent foreign key mapping object in Table 111 on page 694.

Table 113. Foreign Key Mapping Columns for Foreign Key Mappings

| Column | Value |
|---|---|
| Name | Name of the foreign key mapping column. |
| Interface Data Column | EIM interface table column to which EIM maps the user key column on the target table.<br>EIM generates this EIM interface table column according to the specifications in Table 105 on page 692. |
| User Key Attribute | Name of the user key column that is part of the user key defined in Table 111 on page 694. |

Table 114 describes the foreign key mapping, using the CX_SEC_LEV table as an example.

Table 114. Example of Foreign Key Mapping Columns for Foreign Key Mappings

| Name | Interface Data Column | User Key Attribute |
|---|---|---|
| OPTY_BU_ID | OPTY_BU_ID | BU_ID |
| OPTY_NAME | OPTY_NAME | NAME |
| OPTY_PR_DEPT_OU_ID | OPTY_PR_DEPT_OU_ID | PR_DEPT_OU_ID |
| ORG_BU_ID | ORG_BU_ID | BU_ID |
| ORG_NAME | ORG_NAME | NAME |
| ORG_LOC | ORG_LOC | LOC |

# Types of Tables and Columns That CIAI Query Supports

Table 115 lists the types of tables that CIAI query supports.

Table 115. Types of Tables That CIAI Query Supports

| Table Type | Supported for a CIAI Query |
|---|---|
| Data (Intersection) | Yes |
| Data (Private) | Yes |
| Data (Public) | Yes |
| Database View | No |
| Dictionary | No |
| Extension | Yes |
| Extension (Siebel) | Yes |
| External | No |
| Interface | No |
| Log | No |
| Repository | No |

Table 116 lists the types of columns that CIAI query supports.

Table 116. Types of Columns That CIAI Query Supports

| Column Type | Supported for a CIAI Query |
|---|---|
| Data (Private) | Yes |
| Data (Public) | Yes |
| Denormalized | Yes |
| Extension | Yes |
| External | No |
| IFMGR: Exists | No |
| IFMGR: FKey | No |
| IFMGR: Status | No |
| IFMGR: ROW_ID | No |
| System | No |

Table 117 lists the physical types of columns that CIAI query supports.

Table 117. Physical Types of Columns That CIAI Query Supports

| Physical Type | | |
|---|---|---|
| DB Value | Type | Supported for a CIAI Query |
| C | Char | Yes |
| D | Date | No |
| L | Long | Yes |
| L | CLOB | Yes |
| N | Number | No |
| S | Time Stamp | No |
| T | Date Time | No |
| U | UTC Date Time | No |
| V | Varchar | Yes |
| X | Text | Yes |

# Extensive Code Examples Used in This Book

This topic includes extensive code examples that are used in this book.

## Script for the Query Method when Configuring a Hierarchical List Applet

The code in this topic creates test data for the query result. To retrieve data from an external system, the query script you use must contain code that is specific to your requirements. To retrieve the desired data, you must define your own custom algorithm. For more information about using a virtual business component, see *Integration Platform Technologies: Siebel Enterprise Application Integration*. For more information about this example, see "Example of Configuring a Hierarchical List Applet to Use External Data" on page 424.

For the example in this book, use the following script for the Query of the Hierarchical List Service business service:

```
function Query( Inputs, Outputs )
{
  var row;

  row = TheApplication().NewPropertySet();

  row.SetProperty("Id", "1");
  row.SetProperty("Description", "Haus");
  row.SetProperty("Amount", "740000");
  row.SetProperty ("Parent Row Id", "");
  row.SetProperty("Has Children", "Y");
  row.SetProperty("Is Expanded", "Y");
  row.SetProperty("Outline Number", "1");
  row.SetProperty("Last Child Info", "1");
  Outputs.AddChild( row );

  row = TheApplication().NewPropertySet();
```

```
row.SetProperty("Id", "1.1");
row.SetProperty("Description", "T1");
row.SetProperty("Amount", "240000");
row.SetProperty("Parent Row Id", "1");
row.SetProperty("Has Children", "Y");
row.SetProperty("Is Expanded", "Y");
row.SetProperty("Outline Number", "1.1");
row.SetProperty("Last Child Info", "10");
Outputs.AddChild( row );

row = TheApplication().NewPropertySet();
row.SetProperty("Id", "1.1.1");
row.SetProperty("Description", "Kurant");
row.SetProperty("Amount", "200000");
row.SetProperty("Parent Row Id", "1.1");
row.SetProperty("Has Children", "N");
row.SetProperty("Is Expanded", "N");
row.SetProperty("Outline Number", "1.1.1");
row.SetProperty("Last Child Info", "100");
Outputs.AddChild( row );

row = TheApplication().NewPropertySet();
row.SetProperty("Id", "1.1.2");
row.SetProperty("Description", "Blanko");
row.SetProperty("Amount", "40000");
row.SetProperty("Parent Row Id", "1.1");
row.SetProperty("Has Children", "N");
row.SetProperty("Is Expanded", "N");
row.SetProperty("Outline Number", "1.1.2");
row.SetProperty("Last Child Info", "101");
```

```
Outputs.AddChild( row );

row = TheApplication().NewPropertySet();
row.SetProperty("Id", "1.2");
row.SetProperty("Description", "T3");
row.SetProperty("Amount", "500000");
row.SetProperty("Parent Row Id", "1");
row.SetProperty("Has Children", "Y");
row.SetProperty("Is Expanded", "N");
row.SetProperty("Outline Number", "1.2");
row.SetProperty("Last Child Info", "11");
Outputs.AddChild( row );

row = TheApplication().NewPropertySet();
row.SetProperty("Id", "1.2.1");
row.SetProperty("Description", "Kurant");
row.SetProperty("Amount", "500000");
row.SetProperty("Parent Row Id", "1.2");
row.SetProperty("Has Children", "N");
row.SetProperty("Is Expanded", "N");
row.SetProperty("Outline Number", "1.2.1");
row.SetProperty("Last Child Info", "111");
Outputs.AddChild( row );

row = TheApplication().NewPropertySet();
row.SetProperty("Id", "2");
row.SetProperty("Description", "Auto");
row.SetProperty("Amount", "13500");
row.SetProperty ("Parent Row Id", "");
row.SetProperty("Has Children", "Y");
```

```
row.SetProperty("Is Expanded", "N");
row.SetProperty("Outline Number", "2");
row.SetProperty("Last Child Info", "1");
Outputs.AddChild( row );

row = TheApplication().NewPropertySet();
row.SetProperty("Id", "2.1");
row.SetProperty("Description", "T4");
row.SetProperty("Amount", "240000");
row.SetProperty("Parent Row Id", "2");
row.SetProperty("Has Children", "Y");
row.SetProperty("Is Expanded", "N");
row.SetProperty("Outline Number", "2.1");
row.SetProperty("Last Child Info", "10");
Outputs.AddChild( row );

row = TheApplication().NewPropertySet();
row.SetProperty("Id", "2.1.1");
row.SetProperty("Description", "Blanko");
row.SetProperty("Amount", "40000");
row.SetProperty("Parent Row Id", "2.1");
row.SetProperty("Has Children", "N");
row.SetProperty("Is Expanded", "N");
row.SetProperty("Outline Number", "2.1.1");
row.SetProperty("Last Child Info", "101");
Outputs.AddChild( row );

row = TheApplication().NewPropertySet();
row.SetProperty("Id", "3");
row.SetProperty("Description", "Nieren");
```

```
row.SetProperty("Amount", "8000");
row.SetProperty ("Parent Row Id", "");
row.SetProperty("Has Children", "Y");
row.SetProperty("Is Expanded", "N");
row.SetProperty("Outline Number", "3");
row.SetProperty("Last Child Info", "1");
Outputs.AddChild( row );

row = TheApplication().NewPropertySet();
row.SetProperty("Id", "3.1");
row.SetProperty("Description", "T1");
row.SetProperty("Amount", "8000");
row.SetProperty("Parent Row Id", "3");
row.SetProperty("Has Children", "N");
row.SetProperty("Is Expanded", "N");
row.SetProperty("Outline Number", "3.1");
row.SetProperty("Last Child Info", "11");
Outputs.AddChild( row );

row = TheApplication().NewPropertySet();
row.SetProperty("Id", "3.1.1");
row.SetProperty("Description", "Kurant");
row.SetProperty("Amount", "8000");
row.SetProperty("Parent Row Id", "3.1");
row.SetProperty("Has Children", "");
row.SetProperty("Is Expanded", "N");
row.SetProperty("Outline Number", "");
row.SetProperty("Last Child Info", "");
Outputs.AddChild( row );
```

```
  return( CancelOperation );
}
```

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