Siebel System Administration Guide

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1 What's New in This Release

What's New in Siebel System Administration Guide, Version 7.8, Rev. A

Table 2 lists changes described in this version of the documentation to support release 7.8 of the software.

Table 1. What's New in Siebel System Administration Guide, Version 7.8, Rev. A

Topic	Description
"Optimizing the Siebel Load-Balancing Performance" on page 26	Revised and updated this section.
Specifying the Java Software Environment	Deleted this topic from Chapter 4, "Configuring the Browser for Siebel Web Clients." Siebel Business applications now run independent of JRE run-time settings in Internet Explorer.
"Named Subsystem Management Commands" on page 145	Updated incorrect command for creating a named subsystem.
"About the Siebel File System" on page 152	Added further details on Siebel File System functionality.
"Moving the Siebel File System" on page 156	Added further details on the task of moving the Siebel File System.
"Siebel Server Components" on page 174	Removed reference to System Management component Client Administration (alias ClientAdmin). This component's functionality is no longer supported.
"Generic Parameters" on page 194	Updated definition of generic parameter Locale Code (alias LocaleCode)

What's New in Siebel System Administration Guide, Version 7.8

Table 2 lists changes described in this version of the documentation to support release 7.8 of the software.

Table 2. What's New in Siebel System Administration Guide, Version 7.8

Topic	Description
"Configuring Siebel Server Load Balancing" on page 24	Added this topic, and eight subtopics, formerly documented in *Deployment Planning Guide*.
"ActiveX Controls Distributed for High Interactivity" on page 47	Added new ActiveX controls for this section.

Table 2. What's New in Siebel System Administration Guide, Version 7.8

Topic	Description
"Parameters for the Browser Health Check" on page 55	Added new browser health check configuration file parameter.
"About Advanced Parameters" on page 73	Added new section on advanced parameters.
"Troubleshooting System Alert Notification" on page 88	Added this new section to troubleshoot the alert notification process.
"List Commands" on page 131	Added Server Manager command-line interface command for listing advanced parameters.
"Component Group Definition Commands" on page 136	Added Server Manager command-line interface command for unassigning a component group.
"Siebel Server Component Groups" on page 167	Added new Siebel Server component group to appendix.
"Siebel Server Components" on page 174	Added new Siebel Server components to appendix.
Appendix B, "Structure of the eapps.cfg File"	Revised this appendix by adding parameters, moving some parameters to *Security Guide for Siebel Business Applications*, and reorganizing material.
Appendix C, "Parameters in Configuration File"	Revised this appendix by adding parameters and reorganizing material.
Appendix D, "Structure of the lbconfig.txt File"	Added this appendix. This material was formerly documented in *Deployment Planning Guide*.

2 Siebel Enterprise Server Architecture

This chapter provides an overview of the Siebel Enterprise Server architecture including introductory information on the Siebel Gateway Name Server, Siebel Enterprise Server, Siebel Servers, Siebel Server components, and the Siebel File System and File System Manager.

This chapter includes the following topics:

- "The Siebel Environment" on page 11
- "Siebel Gateway Name Server" on page 12
- "About Siebel Enterprise Server" on page 13
- "About Siebel Server" on page 14
- "About Siebel Server Components" on page 16
- "About Siebel File System and File System Manager" on page 20

The Siebel Environment

The Siebel Business Applications environment consists of the following entities, listed in Table 3.

Table 3. Siebel Application Entities

Entity	Comments
Siebel Clients	Includes Siebel Web client, Siebel Developer Web Client, Wireless Client, Mobile Web Client, handheld client, and Siebel Tools Client. For descriptions of client types, see Chapter 4, "Configuring the Browser for Siebel Web Clients."
Siebel Enterprise Server	Includes the logical grouping of Siebel Servers for a multiple server deployment (for a single Siebel Server and single Web server deployment, the Siebel Enterprise Server contains a single Siebel Server and the Siebel Gateway Name Server). The Siebel Enterprise Server, collectively with the Siebel Gateway Name Server, provides both batch mode and interactive services to and on behalf of Siebel clients.
Siebel Gateway Name Server	Includes the connection broker and name server for a single server deployment. (The name server is a separate entity for multiple server deployments.)

Table 3. Siebel Application Entities

Entity	Comments
Siebel Database Server	Includes the RDBMS client software and Siebel tables, indexes, and seed data.
Siebel File System	Stores the data and physical files used by Siebel clients and Siebel Enterprise Server.

The Siebel Enterprise Server environment represents the middle tier within the three-tiered Siebel Business Applications environment.

Siebel Gateway Name Server

The Siebel Gateway Name Server is *a logical entity, not a physical server* consisting of a Name Server.

The name server is the primary service of the Siebel Gateway Name Server, which coordinates the Siebel Enterprise Server and Siebel Servers. A single Siebel Gateway Name Server can now support multiple Siebel Enterprise Servers.

About Name Server

The Name Server provides the persistent backing of Siebel Enterprise Server configuration information, including:

- Definitions and assignments of component groups and components
- Operational parameters
- Connectivity information

As this information changes—such as during the installation or configuration of a Siebel Server—it is written to the `siebns.dat` file on the Name Server. At startup, the Siebel Server obtains its configuration information from the Name Server's `siebns.dat` file. For further information on this file, see "Backing Up the Siebel Gateway Name Server Data" on page 34.

The Name Server also serves as the dynamic registry for Siebel Server and component availability information. At startup, a Siebel Server within the Siebel Enterprise Server notifies the Name Server of its availability and stores its connectivity information—such as network addresses—in the Name Server's nonpersistent (volatile) store. Periodically, the Name Server also flushes its current state to the `siebns.dat` file.

Enterprise components (including the Server Manager) query the Name Server for Siebel Server availability and connectivity information. When a Siebel Server shuts down, this information is cleared from the Name Server.

In a Windows environment, the Name Server runs as a Windows service. In a UNIX environment, the Name Server runs as a daemon process. The system process associated with the Siebel Gateway Name Server is `siebsvc.exe`. Each running Siebel Server has a corresponding Siebel Gateway Name Server system process.

A single Name Server can potentially serve several databases in an environment (such as multiple development and test environments). For purposes of mitigating dependencies and improving recoverability, you should keep the Siebel production environment separate from other Siebel environments (development or test) by using a separate Name Server.

If you decide to maintain multiple development or test environments on one Name Server, make sure that you use a distinct Siebel Enterprise Server for each table owner (or database for SQL server platforms).

NOTE: Do not maintain the development, test, and production environments on the same Name Server.

You can specify and create a new Siebel Enterprise Server when you install the first Siebel Server for a table owner or database.

NOTE: In a Windows environment, there can be only one Name Server installed per machine.

Impact of Failure

When the Name Server goes down, service to active user connections is not immediately interrupted. All Siebel Server components and object managers currently running continue to do so. However, no new Siebel Server components can be started or added. Server administration functions become limited.

High-Availability Solution for Name Server

Siebel Business Applications supports a number of server clustering technologies that are platform-specific to achieve high availability for the Name Server. For information on server clustering, see the *Deployment Planning Guide*.

Resource Requirements for Name Server

The Name Server requires very few system resources. Follow the hardware recommendations listed in *System Requirements and Supported Platforms* on Siebel SupportWeb.

About Siebel Enterprise Server

The Siebel Enterprise Server is a logical grouping of Siebel Servers that supports a group of users accessing a common Siebel Database Server. The Siebel Enterprise Server can be configured, managed, and monitored as a single logical group, allowing the Siebel administrator to start, stop, monitor, or set parameters for Siebel Servers within a Siebel Enterprise Server.

You can set some Siebel Server parameters at the Siebel Enterprise Server level, and these parameters apply to every Siebel Server and component operating within that Siebel Enterprise Server; other parameters can be adjusted at the Siebel Server or component level to support fine-tuning. If a parameter is set at the server level, then the server-specific value overrides the Siebel Enterprise Server setting for the parameter on that server.

Each Siebel Server belonging to a Siebel Enterprise Server should connect to the same schema in the same database server.

The Siebel Enterprise Server itself has no processes and, therefore, cannot have a state.

For information on configuring the Siebel Enterprise Server, see "Configuring the Siebel Enterprise Server" on page 78.

NOTE: Make sure server hardware and software requirements meet minimum standards. For more information, see *System Requirements and Supported Platforms* on Siebel SupportWeb.

About Siebel Server

The Siebel Server is the middle-tier platform that supports both back-end and interactive processes for every Siebel client. These processes are components within the Siebel Server architecture and support functions such as:

- Mobile Web client synchronization
- Operation of business logic for Siebel Web clients, as well as connectivity and access to the Siebel Database Server and Siebel File System
- Integration with legacy or third-party data
- Automatic assignment of new accounts, opportunities, service requests, and other records
- Workflow management

The Siebel Server supports both multiprocess and multithreaded components, and can operate components in background, batch, and interactive modes. See "About Siebel Server Components" on page 16 for details on Siebel Server components. Many of the Siebel Server components can operate on multiple Siebel Servers simultaneously to support an increased number of users or larger batch workloads.

About Siebel Server System Service

The Siebel Server runs as a system service that monitors and controls the state of every Siebel Server component operating on that Siebel Server. Each Siebel Server is an instantiation of the Siebel Server System Service within the current Siebel Enterprise Server. The Siebel Server runs as a Windows service in a Windows environment and a daemon process in a UNIX environment. The system process associated with the Siebel Server is `siebsvc.exe` on Windows and `siebsvc` on UNIX. Each running Siebel Server has a corresponding Siebel Server system process. For information on administering the Siebel Server System Service, see "Administering the Siebel Server System Service" on page 63.

During startup, the Siebel Server System Service performs the following sequential steps:

- Retrieves configuration information from the Siebel Gateway Name Server. For information on the Siebel Gateway Name Server, see "Siebel Gateway Name Server" on page 12.

- Creates a shared memory file located in the Administration subdirectory of the Siebel Server root directory on Windows and the Sys subdirectory on UNIX. By default, this file has the name *Enterprise_Server_Name.Siebel_Server_Name.shm.*

  The total shared memory consists of a fixed amount for the Siebel Server itself, a block for each server component running on the server, and a block for each task.

  Prior to creating the .shm file, the shared memory for the Siebel application executables is built up in the RAM of the machine using the information retrieved from the Siebel Gateway Name Server; this process can use significant amounts of memory. After the creation of the .shm file, the Siebel Server System Service releases this memory.

  The Siebel Server System Service deletes this file when it shuts down.

  NOTE: If the Siebel Server System Service is improperly shut down, the.shm file may not be deleted by the Siebel Server System Service. In this case, delete (or rename) this file before restarting the Siebel Server System Service. (If this file is not visible, it may be a hidden file.)

- Siebel Connection Broker (alias SCBroker) server component opens a TCP port to accept inbound application object manager (AOM) requests. If there are multiple instances of SCBroker on this Siebel Server, all instances listen on the same port.
- Opens TCP ports dynamically for non-AOM components as necessary, such as Workflow Process Manager.
- Forks single-threaded and multithreaded processes for background mode components enabled on the Siebel Server. The previously created ports are inherited to these processes. See "About Server Component Processes (Shells)" on page 18 for details on these processes.
- As server component processes start, each process updates the shared memory table with component availability and status information. SCBroker and SRBroker use this information for load balancing and routing purposes.
- Archives log files by moving the current log folder to the log archive folder.

  NOTE: If the log folder or archive folder is locked or inaccessible, a log archive is not created.

About Siebel Server Manager

The Siebel Server Manager is the native management and administration interface for the Siebel Server and Siebel Enterprise Server.

The Siebel Server Manager allows you to configure the parameters governing the operation of each component, and determine which Siebel Servers a given component can operate. Use the Siebel Server Manager to:

- Start, stop, pause, and resume Siebel Servers, components, and tasks
- Monitor the status and collect statistics across the Siebel Enterprise Server, Siebel Servers, components, and tasks
- Manage the configuration of the Siebel Enterprise Server, Siebel Servers, components, and tasks

You can operate the Server Manager using one of two interfaces:

- Graphical user interface, or GUI, by using the Server Administration views in the Siebel application client.

  Use the Server Manager GUI for most administrative duties because it includes greater user interface functionality (including the ability to search for and sort various fields within views) and a more intuitive view into the operation of Siebel Servers than does the command-line interface.

- Command-line interface, or the srvrmgr program.

  Use the command-line interface for batch-mode processing, because it can run from batch scripts by invoking script files with administration commands that need to run on a regular basis.

The Server Manager (both the GUI and the command-line interface) connects to the Siebel Gateway Name Server, which contains availability and connectivity information for the Siebel Servers within the Siebel Enterprise Server. The Server Manager then connects with each of the Siebel Servers and starts a Server Manager component task. If you access the GUI, Server Manager creates a task on every running Siebel Server; if you access the command-line interface without specifying a specific Siebel Server, Server Manager creates a task on every running Siebel Server; and if you start the command-line interface while specifying a specific Siebel Server (using the /s flag), Server Manager creates a task on that specific Siebel Server alone, and all commands are targeted to that Siebel Server at the server level.

The Server Manager task on each Siebel Server:

- Handles administration commands from the Server Manager
- Executes requested functions
- Returns each operation's results to the Server Manager

NOTE: Each session of Server Manager creates a separate Server Manager task. Therefore, you create a new Server Manager task each time you access the Server Administration screens.

About Siebel Server Components

The various programs that operate on the Siebel Server are implemented as *components*. A component represents only a specific type of program; a component is executed or operated as a *task*, or instantiation of a component, on a specific Siebel Server. See the following sections for details on server components.

- "About Server Component Modes" on page 17
- "About Server Component Types" on page 17
- "About Server Component Groups" on page 18
- "About Server Component Processes (Shells)" on page 18

About Server Component Modes

Components can execute tasks in one of three run modes—background, batch, or interactive.

- **Background mode components.** Background mode components execute tasks to perform background operations for the Siebel Server. After a background mode component task starts, it runs until you explicitly stop the task, or until the Siebel Server itself is shut down.

  You can manually start a background mode component by using the Siebel Server Manager. Components with a Default Tasks parameter set to a value greater than zero may start automatically when the Siebel Server is started. Examples of background mode components include Transaction Router, Replication Agent, and Workflow Monitor Agent.

- **Batch mode components.** You must manually start these components by using the component job process in the Server Manager GUI or by the Server Manager command-line interface. Batch mode components end after the task has been performed. Examples of batch mode components include Database Extract and Enterprise Integration Manager.

- **Interactive mode components.** Interactive mode components start tasks automatically in response to client requests. Interactive mode component tasks execute for as long as the client maintains the session, and end when the client disconnects. Examples of interactive mode components include Synchronization Manager and Application Object Managers.

For a list of Siebel Server components and their associated run modes, see "Siebel Server Components" on page 174.

About Server Component Types

Siebel Server supports multiple component types; each type performs a specific function or job. A component type is configured with a set of parameters that determine its behavior to create an entity called a *defined component* (or simply *component*). Components are defined at the Siebel Enterprise Server level in *component groups*. Component groups are then assigned to one or more Siebel Servers within the Siebel Enterprise Server on which they can execute tasks.

When the Siebel Enterprise Server is installed, predefined components are automatically configured for each component type. These predefined components are then automatically assigned to each Siebel Server within the Siebel Enterprise Server. You can run your entire Siebel applications deployment using these predefined components, or you can modify their definitions and create new defined components to fine-tune your Siebel configuration. For a list of predefined Siebel Server components, see "Siebel Server Components" on page 174.

The defined components feature allows you to create multiple defined components for a given component type, simplifying the process of starting various types of tasks using different parameters, and managing components across multiple Siebel Servers. For example, you may create one defined component for an Object Manager running in the Siebel Sales Enterprise application in English, and another for an Object Manager running the Siebel Service Enterprise application in French. Although these defined components use the same component type, they service distinct sets of users with different functionality requirements, and are distinct entities that can be individually managed, configured, and administered. Defined components are configured in the Enterprise Component Definitions view of the Server Manager GUI.

NOTE: For the remainder of this guide, the term *component* refers to both predefined components and defined components that you may create or modify.

About Server Component Groups

Component groups are functional areas that involve logical groupings of Siebel Server components and multiple operating system processes. A component group consists of one or more components, which may be running in one or more operating system processes. Component groups act as:

- The unit of deployment on, or assignment to, a Siebel Server. In general, you include in a Siebel Server the group of components that are deployed on one or more servers.
- A unit for monitoring functionality of the interrelated components within the group (you can get a summary of the operational status at the component group status, which is determined by the individual states of the constituent components).
- A unit of control, whereby you can make available or unavailable the interrelated components in a single step, such as Siebel Remote or Workflow Management.

Siebel Business Applications provide a number of predefined component groups. For a list of predefined component groups, see Table 26 on page 167

You can also create your own component groups. For more information on this task, see “Creating a Custom Siebel Server Component Group” on page 97. For a list of components contained within each component group, see “Siebel Server Component Groups” on page 167.

About Server Component Processes (Shells)

The Siebel Server runs each component in its own separate process (or shell). These shells provide the interface for a component to communicate with shared memory, and use infrastructure facilities for logging, events, networking, and so on. A shell performs the following actions when it is forked off:

- Initializes the logging/networking facility.
- Determines which component to run. The component is specified as a DLL (personality DLL), which is run by the Siebel Server either as part of the input parameters or as part of a network message.
- Attaches to shared memory.

The Siebel Server forks an appropriate shell based on the component mode (interactive, batch, or background) and whether the component is object manager-based, multithreaded, or both. Table 4, Table 5, and Table 6 define the shell types created in various scenarios.

NOTE: To conserve system resources and minimize the number of processes started on the Siebel Server, disable components and component groups that you do not plan to run. For information on disabling components and component groups, see "About Enabled and Disabled Component Groups" on page 80 and "About Enabling and Disabling Siebel Server Components" on page 92.

Table 4. Interactive Mode Components

Multithreaded	Object Manager Based	Shell
False	False	siebsess
True	False	siebmtsh
True	True	siebmtshmw

Table 5. Batch Mode Components

Multithreaded	Object Manager Based	Shell (Created at Bootstrap)	Shell (Created at Runtime)
False	False	siebproc	siebsh
False	True	siebprocmw	siebshmw
True	False	siebmtsh	siebmtsh
True	True	siebmtshmw	siebmtshmw

Table 6. Background Mode Components

Object Manager Based	Shell (Created at Bootstrap)	Shell (Created at Runtime)
False	siebproc	siebsh
True	siebprocmw	siebshmw

Examples of Siebel Server shells:

- A background component that is not object manager-based is brought up in a siebproc shell. For example, Transaction Processor (alias TxnProc).
- An interactive component that is multithreaded and not object manager-based is brought up in a siebmtsh shell. For example, Server Request Broker (alias SRBroker).
- A multithreaded, object manager-based component is brought up in a siebmtshmw shell. For example, Call Center Object Manager (alias SCCObjMgr).

Parameters Controlling Number of Shells

The following parameters configure shell (process) startup for interactive, batch, and background mode components:

- Maximum MT Servers (alias MaxMTServers)
- Minimum MT Servers (alias MinMTServers)
- Maximum Tasks (alias MaxTasks)
- Default Tasks (alias DfltTasks)

See "Parameters" on page 187 and "About AOM Parameters in Server Manager" on page 162 for further information and details on configuring these parameters.

To review information on the shells forked by the Siebel Server, access the Siebel Server log file. See *System Monitoring and Diagnostics Guide for Siebel Business Applications* for details on viewing Siebel Server log files.

About Siebel File System and File System Manager

The Siebel File System consists of a shared directory that is accessible to all Siebel Servers in the Siebel Enterprise. It contains the physical files used by the Siebel clients and Siebel Servers. To gain access to files, Web clients connect to the appropriate Siebel Server to request file uploads or downloads. The Siebel Server then accesses the Siebel File System using the File System Manager (alias FSMSrvr) component. File System Manager processes these requests through interaction with the Siebel File System directory.

For information on administering the Siebel File System, see "Administering the Siebel File System" on page 151.

When using Siebel Developer Web Client for administrative tasks, you may want to connect directly to the Siebel File System without going through the File System Manager. For examples of these cases, their potential ramifications, and for client setup instructions in each case, see Chapter 4, "Configuring the Browser for Siebel Web Clients."

3 Configuring the System Architecture

This chapter provides an overview on configuring the Siebel Server and its components, modifying Siebel Server parameters, and reinstalling the Siebel Gateway Name Server and Siebel Servers if necessary.

This chapter includes the following topics:

- "Configuring the Siebel Server and Its Components" on page 21
- "Configuring System Environment Variables" on page 22
- "Configuring Siebel Server Load Balancing" on page 24
- "Backing Up the Siebel Gateway Name Server Data" on page 34
- "Restoring a Previous Enterprise Server Configuration" on page 34
- "Configuring Session Manager" on page 35
- "Reinstalling the Siebel Gateway Name Server and Siebel Server" on page 36
- "Resetting Siebel Server and AOM Configurations" on page 36

Configuring the Siebel Server and Its Components

Before starting the Siebel Server, you may want to modify Siebel Server configuration. You may need to enable component groups on the Siebel Server. In some cases, you may need to reinstall the Siebel Server. This topic describes some configurations that you may need to perform after completing the Siebel installation.

For details on configuring Siebel Servers and server components using the Server Manager GUI, see Chapter 6, "Configuring Siebel Servers." For details on configuring Siebel Servers and server components using the Server Manager command-line interface, see Chapter 8, "Using the Siebel Server Manager Command-Line Interface."

NOTE: The instructions in this chapter assume that you have successfully installed and configured your Siebel Gateway Name Server, Siebel Enterprise Server, and other Siebel Servers. For more information, see the *Siebel Installation Guide* for the operating system you are using.

Before starting the Siebel Server, you may want to add site-specific parameter values or overrides of existing values using the Server Manager GUI.

You can configure a Siebel Server by modifying the parameters at the Siebel Server, component, or task level for the given Siebel Server. Changes to parameters at the Siebel Server level are inherited at the component and task levels. Changes to parameters at the component level are inherited at the task level. For more information, see "About Siebel System Parameters" on page 72.

Configuring System Environment Variables

This topic describes the task of configuring system environment variables on Windows and on UNIX. For background information on Siebel-specific environment variables, see "About System Environment Variables" on page 23.

To configure an environment variable on Windows

1. Choose Start > Settings > Control Panel > System.
2. Click the Advanced tab, then click Environment Variables.
3. In the System variables section, click New to create a new environment variable.

   For a selection of Siebel environment variables, see Table 7 on page 23.
4. Set the Variable name field to the name of a Siebel environment variable.
5. Set the Variable value field to the value for the Siebel environment variable.
6. Restart the machine for the environment variables to take effect.

To configure an environment variable on UNIX

1. Log in as the Siebel Service owner user.
2. Run the `siebenv.sh` or `siebenv.csh` script to set Siebel environment variables. For more information on these scripts, refer to the *Siebel Installation Guide: Servers, Mobile Web Clients, and Tools for UNIX*.
3. Enter the following command to set the environment variable:

   setenv *Siebel_Environment_Variable Variable_Value*

   where:

   Siebel_Environment_Variable = A Siebel-specific environment variable. For a selection of Siebel environment variables, see Table 7 on page 23.

   Variable_Value = The setting for the environment variable.

   For example:

   ```
   setenv SIEBEL_SARMLevel 1
   ```
4. Restart the machine for the environment variables to take effect.

About System Environment Variables

Environment variables are variables configured for a particular machine hosting an aspect of a Siebel deployment. These Siebel-specific environment variables configure interactions with the machine's operating system and various functions of Siebel applications. Configure environment variables through the operating system of the individual machine. See "Configuring System Environment Variables" on page 22 for details on configuring these variables.

Environment variables configure a wide-range of functionality and are covered in context-specific areas of the *Siebel Bookshelf*. See Table 7 for a partial listing of Siebel environment variables and where the variable is documented. This list is not comprehensive.

Table 7. Listing of Siebel Environment Variables

Environment Variable	Where Documented
SIEBEL_SARMLevel	*Performance Tuning Guide*
SIEBEL_SARMBufferSize	*Performance Tuning Guide*
SIEBEL_SARMPeriod	*Performance Tuning Guide*
SIEBEL_SARMMaxFiles	*Performance Tuning Guide*
SIEBEL_SARMFileSize	*Performance Tuning Guide*
SIEBEL_LOG_EVENTS	*System Monitoring and Diagnostics Guide for Siebel Business Applications*
SIEBEL_LOG_ARCHIVES	*System Monitoring and Diagnostics Guide for Siebel Business Applications*
SIEBEL_LOG_DIR	*System Monitoring and Diagnostics Guide for Siebel Business Applications*
SIEBEL_CRASH_HANDLER	*System Monitoring and Diagnostics Guide for Siebel Business Applications*
SIEBEL_OSD_LATCH	*Performance Tuning Guide*
SIEBEL_OSD_NLATCH	*Performance Tuning Guide*
TEMP	*Siebel Installation Guide* for the operating system you are using
TMP	*Siebel Installation Guide* for the operating system you are using.
SIEBEL_SESSMGR_TRACE	*System Monitoring and Diagnostics Guide for Siebel Business Applications*
SIEBEL_SISNAPI_TRACE	*System Monitoring and Diagnostics Guide for Siebel Business Applications*

Table 7. Listing of Siebel Environment Variables

Environment Variable	Where Documented
SIEBEL_STDERROUT	*System Monitoring and Diagnostics Guide for Siebel Business Applications*
SIEBEL_ASSERT_MODE	*System Monitoring and Diagnostics Guide for Siebel Business Applications*

Configuring Siebel Server Load Balancing

Load balancing distributes workload across multiple Siebel Servers. For background information on load balancing, see *Siebel Installation Guide* for the operating system you are using and *Deployment Planning Guide*.

For load balancing configuration tasks, see the following topics:

- "Manually Enabling Siebel Load Balancing" on page 24
- "Changing the Enterprise Configuration Under Siebel Load Balancing" on page 25
- "Optimizing the Siebel Load-Balancing Performance" on page 26
- "Manually Rebalancing Siebel Server Loads" on page 28
- "Revising the Third-Party HTTP Load Balancer Configuration" on page 28
- "Troubleshooting Siebel Load Balancing" on page 30

For information on the `lbconfig.txt` file, see Appendix D, "Structure of the lbconfig.txt File."

Manually Enabling Siebel Load Balancing

When you install the Siebel Web Server Extension (SWSE), the installation wizard asks if you want to enable Siebel load balancing. The installation wizard then adds Siebel load balancing information to the SWSE configuration file (`eapps.cfg`).

If you want to manually enable or disable Siebel load balancing, or you have changed the location of the load balancing configuration file (`lbconfig.txt`), you must edit the `eapps.cfg` file to reflect these changes.

To edit Siebel load balancing entries in the eapps.cfg file

1. Go to the SWSE installation directory and locate the `bin` subdirectory.
2. Using a text editor, open the SWSE configuration file, `eapps.cfg file`.

3 Locate the [ConnMgmt] section and edit the variables as shown in Table 8.

Table 8. Configuration Variables in ConnMgmt Section of eapps.cfg

Variable Name	Acceptable Values	Description
EnableVirtualHosts	True or False	■ Set to TRUE to enable Siebel load balancing. ■ Set to FALSE to disable Siebel load balancing. If configuring a third-party HTTP load balancer, this variable must be set to FALSE.
VirtualHostsFile	<pathname>	Enter the full path to the lbconfig.txt file. The default location is as follows: \siebel\eapps\admin\lbconfig.txt If you have multiple Web servers, consider placing the lbconfig.txt file on a shared drive accessible by all the Web servers.

4 Save the file.

5 Restart the Web server.

Repeat these steps for all Web servers on which the Siebel Web Server Extension is installed.

Changing the Enterprise Configuration Under Siebel Load Balancing

The most common configuration changes that affect load balancing performance are as follows:

- Adding or removing Siebel Servers
- Enabling or disabling Application Object Managers (AOMs)

These changes require that you edit the load balancing configuration file (lbconfig.txt).

Adding or Removing Siebel Servers

If you add or remove Siebel Servers that are being load-balanced, you must revise the load balancing configuration file (lbconfig.txt) to add or remove the servers from the VirtualServer definition. After you revise the file, restart the Web server.

Do this for all Web servers on which the Siebel Web Server Extension (SWSE) is installed. You do not need to revise the SWSE configuration file (eapps.cfg).

Use one of the following methods to revise the file:

- The recommended method for revising the `lbconfig.txt` file is to regenerate it.
- If you have optimized the file, consider editing the file instead. This preserves your existing settings.

Enabling or Disabling Application Object Managers (AOMs)

If you enable or disable a load-balanced Application Object Manager, you must edit the load balancing configuration file (`lbconfig.txt`) if either of the following is true:

- You are enabling an AOM on a Siebel Server that is not included in the VirtualServer definition in `lbconfig.txt`. Edit the definition to add the server.
- You are disabling an AOM on a server, and the AOM is the only one being load-balanced on the server. To prevent failed connection attempts, remove the Siebel Server from the VirtualServer definition in `lbconfig.txt`.

After you save the file, restart the Web server. Do this for all Web servers on which the Siebel Web Server Extension (SWSE) is installed. You do not need to edit the SWSE configuration file (`eapps.cfg`).

Optimizing the Siebel Load-Balancing Performance

By default, Siebel load balancing maps all Siebel Servers to a single virtual server after generating the `lbconfig.txt` file. All Application Object Manager (AOM) connect strings receive the virtual server name in the Siebel Web Server Extension (SWSE) configuration file (`eapps.cfg`). This configuration allows the SWSE to distribute requests for all AOMs to all Siebel Servers.

When the SWSE sends a request for an AOM to a Siebel Server on which the AOM is not running, these requests fail. When this situation occurs, the SWSE automatically sends the failed request to another Siebel Server. Typically, users do not notice these retries unless the allowed maximum number of retries is exceeded.

The allowed maximum number of retries is five. Therefore, if there are more than five load-balanced Siebel Servers on which an AOM is not running, you should consider optimizing the load balancing configuration file. This configuration prevents users from experiencing failed attempts to start applications.

You optimize `lbconfig.txt` by adding additional virtual server definitions that define the groups of Siebel Servers on which particular AOMs run. You then edit the AOM connection strings in the SWSE configuration file (`eapps.cfg`) to include the virtual server specific to that AOM.

For example, you have two Siebel Servers, Sieb1 and Sieb2. They run the AOMs shown in Table 9.

Table 9. AOMs Running on the Siebel Servers

Sieb1	Sieb2
Call Center	Call Center

Table 9. AOMs Running on the Siebel Servers

Sieb1	Sieb2
Sales	Sales
eChannel	Marketing

To minimize retries, delete the existing definition, VirtualServer, in `lbconfig.txt` and define four virtual servers as follows:

```
#Section one -- Session Manager Rules:

CallCenterVirtualServer=1:sieb1:2321;2:sieb2:2321;

SalesVirtualServer=1:sieb1:2321;2:sieb2:2321;

eChannelVirtualServer=1:sieb1:2321;

MarketingVirtualServer=2:sieb2:2321;
```

Then edit the connect strings in the SWSE configuration file (`eapps.cfg`) as follows:

`Call Center:` `ConnectString = siebel.TCPIP.none.none://CallCenterVirtualServer/siebel/sscObjMgr_enu`

`Sales``: ConnectString = siebel.TCPIP.none.none://SalesVirtualServer/siebel/sseObjMgr_enu`

`eChannel``: ConnectString = siebel.TCPIP.none.none://eChannelVirtualServer/siebel/eChannelObjMgr_enu`

`Marketing``: ConnectString = siebel.TCPIP.none.none://MarketingVirtualServer/siebel/smeObjMgr_enu`

NOTE: If you optimize `lbconfig.txt` by creating multiple virtual server definitions, you lose these changes if you generate the file again. To prevent this situation, save the file under another name before generating it. Then copy your additional virtual server definitions to the new file.

To optimize the load balancing configuration file

1. Start Siebel Server Manager and enter the following command to obtain Siebel Server IDs.

   `list server show SBL_SRVR_NAME, SV_SRVRID`

   Write down the Siebel Server IDs of the servers you want to add to virtual server definitions.

2. Open the `lbconfig.txt` file with a text editor.

   Its default location is `\siebel\eapps\admin`.

3. In Section One, add additional virtual server definitions. Save the file.

4. Open the SWSE configuration file, `eapps.cfg` with a text editor.

   Its default location is in *`SWSE_install`*`\admin`, where *`SWSE_install`* is the installation directory for the Siebel Web Server Extension.

5 Change the virtual server name in the desired Application Object Manager connect strings. Save the file.

6 Restart the Web server.

Manually Rebalancing Siebel Server Loads

Server loads can become unevenly distributed for several reasons:

- You have just added a new Siebel Server to the network. It will have a low workload compared to other Siebel Servers.
- You have just enabled an Application Object Manager (AOM) on a Siebel Server. It will have a lower workload than other AOMs on different Siebel Servers.
- There was a server configuration or request routing problem that prevented even distribution of workloads. When this problem is corrected, one or more Siebel Servers will have low workloads.

Siebel load balancing distributes workloads based on logins. Users must terminate existing sessions and log in to new sessions to cause workloads to be redistributed. For example, you have a 1000 concurrent user sessions running on three Siebel Servers. You then add a fourth Siebel Server. Until all the users end their sessions and log in again, the load will not be evenly distributed between all four servers.

Whenever possible, let normal user login behavior rebalance Siebel Server workloads. Manually intervene only when absolutely necessary. Use one of the following methods to manually rebalance server workloads:

- Stop SCBroker on a Siebel Server. This directs workload away from that server. This does not impact existing user sessions. However, SISNAPI session reconnect does not work for this server. If the SISNAPI connection times out, and user requests are coming through a Web server other than the one used for log in, the session will be lost.
- Modify the Siebel load balancing configuration file (`lbconfig.txt`) to remove a Siebel Server. Then restart the Web server. This removes the Siebel Server from load balancing and directs its workload to other servers. If you have only one Web server, this terminates all user sessions. If you have multiple Web servers, users making a session request may experience session termination. Use this method only as a last resort.

Revising the Third-Party HTTP Load Balancer Configuration

You must revise the third-party HTTP load balancer configuration or edit the Siebel Web Server Extension file (`eapps.cfg`) if you do either of the following:

- Add or remove a Siebel Server that is load-balanced.
- Enable or disable an Application Object Manager that is load-balanced.

Prerequisites

- Verify that all the Siebel Servers you want to load-balance are running.

- Verify that the Application Object Managers (AOMs) you want to load-balance are running. Disable any AOMs you do not want to load balance.
- Obtain the virtual IP (VIP) address and port number for the load balancer.
- Review the layout of the load balancing configuration file.

Several of the steps in the following procedures are about manually modifying the configuration of the load balancer. If a script is available that automatically imports server configurations, run this script instead.

To add or remove a Siebel Server

1. Run the SWSE configuration wizard.

   See the *Siebel Installation Guide* for the operating system you are using.

   This updates the Siebel Web Server Extension configuration file (`eapps.cfg`) to reflect the new or removed server.

2. Create a new load balancing configuration file (`lbconfig.txt`).

   This updates the URL mappings in the file to reflect the new or removed server.

3. Use a text editor to view the load balancing configuration file (`lbconfig.txt`).

   Use the file to obtain URLs for editing rules in the steps below.

4. Start the load balancer configuration software.
5. Update the resource group definitions to reflect the added or removed server.
6. Revise the component and round-robin rules to reflect the added or removed Application Object Manager (AOM) running on the server.
7. If adding a server, create a server rule. If deleting a server, delete the server rule.
8. Save the configuration.

To add or remove an Application Object Manager on a Siebel Server

1. Run the SWSE configuration wizard.

   See the *Siebel Installation Guide* for the operating system you are using.

   This updates the Siebel Web Server Extension configuration file (`eapps.cfg`) to reflect the new or removed (disabled) Application Object Manager.

2. Use a text editor to view the load balancing configuration file (`lbconfig.txt`).

   Use the file to obtain URLs for editing rules in the steps below.

3. Start the load balancer configuration software.
4. Revise the component and round-robin rules to reflect the added or removed Application Object Manager (AOM).

5 If adding a new AOM with a new VIP, edit the object manager connect string for the AOM in the Siebel Web Server Extension configuration file (`eapps.cfg`).

   The default location of the configuration file is `\bin\eapps.cfg` in the Siebel Web Server Extension installation directory.

6 Save the configuration.

No changes are required to the server rules that manage reconnection requests in the load balancer.

Troubleshooting Siebel Load Balancing

This topic provides guidelines for resolving problems with Siebel load balancing. To resolve a problem, look for it in the list of Symptoms/Error messages in Table 10.

Some problem solutions in the table require changing the function of server components.

Table 10. Resolving Siebel Load Balancing Problems

Symptom / Error Message	Diagnostic Steps / Cause	Solution
Users do not get a login page. Browser may display "Server Busy Error."	1 Verify IP access to Siebel Servers.	See "Verifying IP Access to Siebel Servers" on page 33.
	2 Verify TCP port access on Siebel Servers.	See "Verifying Load Balancing Port Access for Siebel Servers" on page 33.
	3 Verify that the SWSE is configured correctly.	The SWSE configuration file (`eapps.cfg`) is located in *`SWSE_install_dir`*`\bin`. Open the file and check the following: ■ EnableVirtualHosts=True ■ VirtualHostFile is set to the full path to the load balancing configuration file (`lbconfig.txt`). The default location for this file is as follows: `\siebel\eapps\admin` ■ For each load-balanced Application Object Manager, verify that the virtual server specified in the connect string matches the one in `lbconfig.txt`.

Table 10. Resolving Siebel Load Balancing Problems

Symptom / Error Message	Diagnostic Steps / Cause	Solution
	4 Verify that Siebel load balancing is configured correctly.	The default location for the Siebel load balancing configuration file (`lbconfig.txt`) is `\siebel\eapps\admin` Typically, this file is generated automatically. If you have edited the virtual server definition, do the following: ■ Verify that the syntax of the virtual server definition is correct. ■ For each Siebel Server in a virtual server definition, verify that the server ID (sid) is correct.
	5 Check if a Siebel Server has been reinstalled or reconfigured.	If so, the Siebel load balancing configuration file (`lbconfig.txt`) must be edited or regenerated.

	6 Increase the SWSE logging level.	To turn on detailed SWSE logging, set the following environment variables:
		`SIEBEL_SESSMGR_TRACE=1`
		`SIEBEL_LOG_EVENTS=ALL`
		Then restart the Web server.
		If this logging level does not reveal the problem, set
		`SIEBEL_SISNAPI_TRACE=1.`
		This greatly increases the logging level for SISNAPI message handling.

	7 Configure a Web Server to connect directly to a Siebel Server.	Open the SWSE configuration file (`eapps.cfg`) and edit the connect string for an Application Object Manager to specify a known good Siebel Server. Restart the Web server and try to log in. If the login succeeds, then the problem is with the Siebel load balancing configuration. If the login fails, the problem is related to network connectivity.

Table 10. Resolving Siebel Load Balancing Problems

Symptom / Error Message	Diagnostic Steps / Cause	Solution
Users can connect but loads are not balanced evenly between Siebel Servers	■ Unequal loads may be caused by characteristics of users and jobs.	Because jobs are distributed in a round-robin fashion, it is normal for a snapshot of the servers to show somewhat unequal loads. This can be caused by several things, including the nature of the jobs and the rate at which users log in and log out on different servers. Over a longer period, the number of sessions handled by each server will even out.
	■ Siebel Servers do not have equal access to computing resources.	Verify that all Siebel Servers have equal access to computing resources such as CPU and memory.
	■ A Siebel Server has recently added or has been restarted.	Load balancing is based on user logins. As current sessions are terminated and new sessions started, the new Siebel Server will be included in the load sharing.
	■ A Web server cannot route requests to one or more Siebel Servers.	Check for connectivity problems between the Web servers and the Siebel Server with the low workload as described earlier in this table.
	■ A Siebel Server is rejecting an unusual number of user requests.	Check the SWSE log files for “SISNAPI Connection Refused” messages. Possible causes are: 1 SCBroker is either not running or is listening on the wrong port. 2 The requested Application Object Manager is not running or cannot run any more tasks. 3 The requested Application Object Manager has a hung task or thread. 4 The Application Object Manager cannot communicate with the database server.
	A Siebel Server has functional or configuration problems.	Enable server diagnostics. Look for problems with components. Verify basic configuration is correct.

Verifying IP Access to Siebel Servers

This task is part of "Troubleshooting Siebel Load Balancing" on page 30.

To verify IP access to Siebel Servers

1. Open the `lbconfig.txt` file.

   Its default location is `\siebel\eapps\admin`.

2. Write down the exact string used to identify the Siebel Servers in the Virtual Server definitions.

   This string will either be a host name or an IP address.

3. On the Web servers where SWSE is running, ping each Siebel Server. Use the string from the `lbconfig.txt` file.

   If the ping succeeds then there is IP access.

4. If the ping does not succeed, complete the remaining steps that follow.
5. Verify that the Siebel Servers are on the network and running.
6. Check for basic networking problems such as cabling, routers, and so on. Verify there is a physical path between the Web Servers and Siebel Servers.
7. If the Siebel Servers are part of multiple networks, verify that the Web servers and Siebel Servers have a network in common.
8. If you used the host name to do the ping, verify that the Siebel Servers are registered correctly in the DNS and that the names resolve to the correct IP address.
9. Verify that a networking device such as a router or firewall are not blocking access to the Siebel Servers.

Verifying Load Balancing Port Access for Siebel Servers

This task is part of "Troubleshooting Siebel Load Balancing" on page 30.

To verify load balancing port access

1. On the Web servers where SWSE is running, telnet to the SCBroker port (2321) on each Siebel Server.

   For example, if a Siebel Server has the host name SiebSrvr1, then use the following command:

   ```
   telnet SiebSrvr1:2321
   ```

   If the connection succeeds, there is load balancing port access. The connection will time out after 500 ms.

2. If the connection fails, "Could not open connection to server," then complete the remaining steps that follow.
3. Verify that the desired Siebel applications are running on each Siebel Server.

4 On each Siebel Server, verify that SCBroker is running and is configured to listen on port 2321.

5 Verify that the operating system is not blocking access to the SCBroker port.

6 Check that no other networking device, such as a firewall, is blocking access to the SCBroker port.

Backing Up the Siebel Gateway Name Server Data

It is recommended that you make a backup of the Siebel Gateway Name Server data—which contains configuration information from the Enterprise and Siebel Servers—prior to and after making any configuration changes, especially creating new component definitions and adding or deleting Siebel Servers. The Siebel Gateway Name Server information is stored in the siebns.dat file located in the Administration folder of the Siebel Gateway Name Server root directory. The backup procedure flushes out the latest changes from memory into the siebns.dat file and makes a backup copy. See "Backing Up a Siebel Enterprise Server" on page 91 for information on making a backup of the siebns.dat file using the Server Manager GUI. See "To back up Siebel Gateway Name Server information" on page 136 for information on making a backup of the siebns.dat file using the Server Manager command-line interface.

If the Siebel Server does not start up due to recent configurations or a corruption of the current siebns.dat file, use the following procedure with a working backup siebns.dat file. (The siebns.dat file can become corrupt for many reasons, such as inconsistent data or write errors.)

Restoring a Previous Enterprise Server Configuration

This topic describes the tasks to restore a previous enterprise server configuration by replacing the siebns.dat file. For information on the Name Server and siebns.dat file, see "About Name Server" on page 12. See also "Backing Up the Siebel Gateway Name Server Data" on page 34.

To restore a previous Siebel Enterprise Server configuration

1 Follow the shutdown procedures for the Siebel deployment. (Shutting down the Siebel Database Server is not necessary.) See "Starting and Shutting Down a Siebel Deployment" on page 59 for further information.

2 Replace the existing siebns.dat file with a working backup file.

3 Follow the startup procedures for the Siebel deployment. See "Starting and Shutting Down a Siebel Deployment" on page 59 for further information.