Sterling Selling and Fulfillment Foundation

System Management and Administration Guide

Release 9.1.0.34

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Note
Before using this information and the product it supports, read the information in "Notices" on page 65.

Contents

Chapter 1. Introduction

Understanding the Sterling Selling and Fulfillment FoundationSterling Application Platform System Components

IBM® Sterling Selling and Fulfillment FoundationSterling Application Platform includes many different components. On a day-to-day basis, components need to be monitored to ensure that Sterling Selling and Fulfillment FoundationSterling Application Platform is running properly and efficiently.

Application Hosts

Application hosts are the physical machines on which one or more Sterling Selling and Fulfillment FoundationSterling Application Platform server processes are run. The application servers must constantly be running to give all client users access to the Application ConsoleConsole and Applications ManagerConfigurator.

Hosts

The physical machine that runs the application server(s) is known as the host.

Application Servers

Application servers are the processes that handle requests from various places to provide the real-time access to the features and application logic within Sterling Selling and Fulfillment FoundationSterling Application Platform. The most common type of requests that an application server handles are the requests originating from clients using the Application ConsoleConsole. The application servers are always deployed using an industrial-strength server application such as Oracle WeblogicOracle WebLogic.

It is important to ensure that the application servers are constantly running and are performing well to ensure all requests are being fulfilled quickly. If the servers are not running properly, the application slows down, and the users of the Application ConsoleConsole find it very difficult to perform their tasks. Multiple application server processes can be run (on the same or different host machines) if the volume of requests is high. It is important to run the right number of application servers based on the volume of requests in your installation.

Clients

Clients are processes that connect to the application servers to fulfill a request. Most commonly, clients are connections originating from the users accessing the Application ConsoleConsole.

Application Programming Interface (APIs)

APIs are integration points that provide access to the rich business logic and features available in Sterling Selling and Fulfillment FoundationSterling Application Platform to external systems. APIs are used extensively in Sterling Selling and Fulfillment FoundationSterling Application Platform for operations such as creating an order, adjusting inventory levels, and retrieving details of a shipment. The Application ConsoleConsole also calls APIs to retrieve data and perform updates.

User Exits

Some APIs call user exits, which allow you to extend or override key business algorithms with Sterling Selling and Fulfillment FoundationSterling Application Platform.

Services (Custom APIs)

The Service Definition Framework allows you to create custom APIs that are called through integration points or through the Application ConsoleConsole.

Agents and Integration Servers

Agents and integration servers are processes that run in the background to perform various tasks.

Time-Triggered Transactions and Agent Servers

A time-triggered transaction is a program that performs a variety of individual functions, automatically and at specific time intervals. It is not triggered by conditions, events, or user input. There are three types of time-triggered transactions:

- Business process transactions - responsible for processing day-to-day transactions.
- Monitors - watch and send alerts for processing delays and exceptions.
- Purges - clear out data that may be discarded after having been processed.

The process that runs the time-triggered transactions is known as an agent server. Agents pick up the appropriate "pending tasks" for the agent and process them one at a time.

An agent server can run multiple time-triggered transactions. Additionally, each time-triggered transaction can run with one or more threads. It is also possible to run multiple instances of the same agent server.

The correct configuration depends on the volume of transactions in your system.

Integration Servers

An Integration Server is a process that manages asynchronous services, such as messages to and from external systems.

Integration servers allow Sterling Selling and Fulfillment FoundationSterling Application Platform to collaborate with different systems, organizations, and businesses—all through a standard, uniform interface to all systems.

Integration Servers are configured through the means of the Service Definition Framework.

An integration service definition contains one or more sub-services each of which are their own asynchronous service. Each of these sub-services can be run with one or more threads. When an integration server is launched, it processes the messages for the asynchronous component in the service definition. Additionally, multiple instances of an integration server can be run at the same time.

JMS Queues

External message queueing software can be used for Sterling Selling and Fulfillment FoundationSterling Application Platform to communicate with external systems. Sterling Selling and Fulfillment FoundationSterling Application Platform supports the following JMS message queue software:

- Oracle WeblogicOracle WebLogic JMS
- IBM WebSphere® MQ
- JBoss Messaging
- IBM WebSphere Default Messaging

JMS queues can be configured and used within the Sterling Selling and Fulfillment FoundationSterling Application Platform Service Definition Framework.

Database

Sterling Selling and Fulfillment FoundationSterling Application Platform always works with a single database instance. A single database instance enables the various components of Sterling Selling and Fulfillment FoundationSterling Application Platform to work together seamlessly. It is extremely critical to ensure the single database instance is working properly at all times. There are many powerful tools that can help you monitor your database. Therefore, Sterling Selling and Fulfillment FoundationSterling Application Platform does not provide any additional database administration or monitoring tools as part of the System ManagementSystem Management Console.

Chapter 2. System Management Console Tasks

System Management Tasks Overview

You can perform the following tasks in the System Management Console:

- Monitoring Sterling Selling and Fulfillment FoundationSterling Application Platform
- Accessing the System Management Console
- Navigating in the System Management Console
- Restricting Access to the System Management Actions
- Resolving Problems with Application Server Response Time
- Resolving Application Server Down Alerts
- Resolving Problems with API Response Time
- Resolving Problems with Agent Server Pending Tasks
- Resolving Problems with JMS Queue Number of Messages
- Tracing a Component
- Stopping a Component Trace
- Viewing Application Server Cache Information
- Clearing Database Cache for an Application Server
- Disabling Cache or Changing Database Cache Limits for an Application Server
- Viewing Application Server Properties
- Shutdown, Suspend, or Resume an Agent or Integration Server Instance
- Starting an Agent Server
- Starting an Integration Server
- Scheduling an Agent
- Increasing Threads on an Agent or Integration Server Instance
- Viewing Properties for an Agent or Integration Server Instance
- Changing Monitor Groupings
- Setting Notification of an Application Server Shutdown
- Setting Notification of an Agent or Integration Server Unexpected Termination
- Setting Notification of Threshold Reached or Exceeded
- Starting the Health Monitor Agent

The System Management Console allows you to monitor the application in real-time so that problems can be acted upon immediately. This section explains the basics of monitoring and how to get started.

Various statistics about each of the system components are collected behind the scenes while the application is running. These statistics are persisted into the Sterling Selling and Fulfillment FoundationSterling Application Platform database at intervals of 10 minutes. This is referred to as the "persist interval" through-out this document.

About the Health Monitor Agent

The Health Monitor Agent completes the appropriate configured services whenever an alert condition occurs.

Starting the Health Monitor Agent

About this task

To run the Health Monitor Agent, run the `startHealthMonitor.sh` script file located in your `<INSTALL_DIR>/bin` directory.

If using WebLogic JMS, MQSeries®, or JBoss JMS queues, ensure the classpath includes the WebLogic, MQSeries, or JBoss specific jars.

Monitoring Application Hosts

Application hosts must be constantly running to ensure high availability of the application. Additionally, the response time of servers should be monitored to ensure that users are getting fast responses from the Application ConsoleConsole. System Management enables you to easily monitor the status and response times of your application hosts.

Server Heartbeat

System Management tracks the status of the application servers by recording the server "heartbeat" while the server is running. If the server goes down, the heartbeat stops getting recorded. If a server with the same unique ID is brought back up, the heartbeat resumes. For more information about purging heartbeat records, see “Health Monitor Agent” on page 8.

Alert when Server Goes Down

It is possible to configure a service to be run whenever an application server goes down (intentionally or unexpectedly). This service can perform many tasks, including sending an e-mail message to a system administrator or creating an alert in a system administrator’s inbox. For more information about the data available for the service, see “Data Published for Health Monitor Alerts” on page 11.

Application Server Response Time

The response time of each HTML request is calculated for each application server. During every persist interval, the minimum, maximum, and average of all the response times is recorded.

Alert when the Response Time Threshold is Exceeded

It is possible to configure a service to be run if the average response time of an application server goes above a threshold limit for three consecutive persist intervals. This service can perform many tasks, including sending an e-mail message or creating an alert for a system administrator. For information about specifying the service to run when the threshold is exceeded, see the information about configuring the health monitor rules in the *Sterling Selling and Fulfillment Foundation: Application Platform Configuration GuidePlatform Configuration Guide*. For more information about the data available for the service, see “Data Published for Health Monitor Alerts” on page 11.

Assigning a Name to a Server

About this task

To monitor your application servers, you must give each server a unique name so that System Management can uniquely identify each server. To give a unique name

to an application server, add the following command line parameter to the java command within the server start up script:

```
-DSCI.Server.Name=<unique name>
```

Even if multiple server processes are run on the same machine, it is mandatory to give each server process a unique name. Therefore, it may be necessary to create separate start up scripts even when starting multiple instances of the server on the same machine.

Configure the Default Value for the Application Server Response Time Threshold:
About this task

To configure the default threshold value for application server response time:

Procedure

Use the `<INSTALL_DIR>/properties/customer_overrides.properties` file to set the following property:

```
yantra.hm.appserver.threshold=<value>
```

Results

A specific threshold can be set for specific application servers as well. For information about changing the threshold of a specific application server, see "Application Server Details Screen" on page 30.

Monitoring APIs

To ensure that the through-put of the application is at optimal levels, the APIs must be executing with good response times. API response times can also affect the Application ConsoleConsole users because the Application Consoles retrieve and update all information using APIs.

API Response Time

The response time is calculated every time an API is called. During every persist interval, the minimum, maximum, and average response times of all the calls are recorded.

Alert when the Response Time Threshold is Exceeded

It is possible to configure a service to be run if the average response time of an API goes above a threshold limit for three consecutive persist intervals. This service can perform many tasks, including sending an e-mail message or creating an alert for a system administrator. For more information about the data available for the service, see "Data Published for Health Monitor Alerts" on page 11 "Data Published for Health Monitor Alerts" on page 11.

Changing the Threshold for a Specific API

There are a large number of APIs within Sterling Selling and Fulfillment FoundationSterling Application Platform that can do a great number of different things. Therefore, it is likely that finer control over the API response time

thresholds is required. It is possible to set a specific threshold value for a specific API as well. For more information about setting a specific API threshold, see "API Details Screen" on page 32.

Setting the appropriate API thresholds is not an exact science. Experimentation is required to find the correct threshold for each API to ensure that alerts are only sent when absolutely necessary. Keep in mind that some APIs may run with variable sizes of data that have a direct correlation to the response time of that API. For example, the createOrder API should have a much larger response time for an order with 100 order lines compared to a createOrder API call for an order with 1 order line.

Other API Statistics

The System ManagementSystem Management Console records the number of invocations for each API that happened during each persist interval.

Additionally, some of the most important APIs record statistics that are specific to that API. For example, the createOrder API records the number of orders created and number of order lines created during each persist interval.

User Exit Statistics

If an API has user exits that have been implemented, then statistics for each user exit call are recorded at each persist interval. The statistics collected for each user exit call are minimum, maximum, and average response time as well as the number of invocations.

It is not possible to set a threshold or configure a service to be run based on the response time of a user exit. However, the calculated API response time is inclusive of the user exits called within it. Therefore, if a user exit suddenly starts to respond slowly, the API response time also increases.

Configure the Default Value for API Response Time Threshold

About this task

To configure the default threshold value for API response time:

Procedure

Use the `<INSTALL_DIR>/properties/customer_overrides.properties` file to set the following property:

```
yantra.hm.api.threshold=<value>
```

Monitoring Agents and Integration Servers

To maximize the throughput of the application, the agents should be monitored to ensure that they are able to process all of the pending tasks within an acceptable time frame. If an agent is not able to process its tasks fast enough, the pending jobs accumulate and cause a bottleneck in the system.

Health Monitor Agent

The health monitor agent provides the following abilities:

- Shut down the entire health monitor agent
- Allowing cache changes

- Viewing server properties
- Changing logging parameters
- Sub-service visibility

A few of the statistics provided by the health monitor agent are:
- Processing Rate
- Number of heartbeats purged
- Number of snapshots purged
- Application server down alerts
- Server unavailable alerts
- Threshold reached alerts
- Heartbeats monitored

The YFS_SNAPSHOT table stores the statistical details of pending tasks of transactions collected by the agent servers. The parameter CollectPendingJobs in time-triggered agents controls whether records are inserted in the table. The health monitor deletes the records from this table after the default purge interval of 30 days.

The heartbeat records in the YFS_HEARTBEAT table are also purged by the health monitor agent with a default purge interval of 30 days.

The health monitor schedules a purge once every 24 hours to purge the snapshot and heartbeat records that are older than 30 days. To change this purge interval from 30 days to suit your needs, use the <INSTALL_DIR>/properties/customer_overrides.properties file to set the following property:

```
yantra.hm.purge.interval=<value>
```

Server Heartbeat

System Management tracks the status of the agent and integration servers by recording the server "heartbeat" while the server is running. If the server goes down, the heartbeat stops getting recorded. If a server with the same name is brought back up, the heartbeat resumes. For more information about purging heartbeat records, see “Health Monitor Agent” on page 8.

Alert when Agent or Integration Server Terminates Unexpectedly

It is possible to configure a service to be run whenever an agent or integration server goes down unexpectedly. This service can perform many tasks, including sending an e-mail message to a system administrator or creating an alert in a system administrator's inbox. For more information about the data available for the service, see “Data Published for Health Monitor Alerts” on page 11.

Shutting down an agent or integration server through the System Management console (or pressing Ctrl+C on the command line window) does not generate an alert.

Agent Pending Tasks

The number of pending tasks of every agent is recorded during every persist interval, unless the CollectPendingJobs criteria parameter for the agent is set to N in the Agent Criteria Details.

Alert when the Pending Tasks Threshold is Exceeded

It is possible to configure a service to be run if the number of pending tasks for an agent goes above a threshold limit. This service can perform many tasks, including sending an e-mail message or creating an alert for a system administrator. For more information about the data available for the service, see "Data Published for Health Monitor Alerts" on page 11.

Other Agent Statistics

System Management records the processing rate for each agent during each persist interval.

Additionally, some of the most important agents record statistics that are specific to that agent. For example, the schedule order agent records the number of orders scheduled and number of orders backordered during each persist interval.

Integration Server Statistics

System Management records the processing rate as well as the minimum, maximum, and average response times for integration servers for each persist interval.

It is not possible to set a threshold or configure a service to be run for any of the statistics collected for integration servers.

Configure the Default Value for Pending Agent Tasks Threshold

About this task

To set the default threshold value for pending agent tasks:

Procedure

Use the `<INSTALL_DIR>/properties/customer_overrides.properties` file to set the following property:

```
yantra.hm.agent.threshold=<value>
```

Results

It is possible to set a specific threshold value for a specific agent as well.

Monitoring JMS Queues

To ensure that the integration points between Sterling Selling and Fulfillment FoundationSterling Application Platform and other systems that are using JMS messaging queues are working properly, the number of messages in the queues should be monitored. If the messages in the queue are not being processed quickly enough or not being processed at all, then something has gone wrong at the integration point. If the problem at this integration point is not resolved quickly, then more problems are sure to happen somewhere further along in the process.

Number of Messages in a JMS Queue

The number of messages for the JMS queues being monitored are recorded during every persist interval. Note that this statistic is only recorded for JMS queues that

are actually being monitored. For information about how to monitor a JMS queue, see “Monitor Group Details Screen” on page 39.

The JMS queue monitor retrieves data every 10 minutes. For information about monitoring more real-time data for your JMS queues, see the documentation provided by your JMS server software vendor.

Alert when the Number of Messages Threshold is Exceeded

It is possible to configure a service to be run if the number of messages in a JMS queue goes above a threshold limit. This service can do anything at all including sending an e-mail message or creating an alert for a system administrator. For more information about the data available for the service, see “Data Published for Health Monitor Alerts.”

There is no default value for the number of messages threshold limit. This threshold must be specified when adding a JMS queue to monitor. For more information, see “Monitor Group Details Screen” on page 39.

Data Published for Health Monitor Alerts

When alerts are generated within the health monitor agent (for threshold exceeded, application server down, agent or integration server unexpected termination), the data for the alert is published in XML format.

For threshold exceeded alerts, the XML format is:

```
<Alert ServiceName="" ServiceType="" Threshold="" Value="" Units=""/>
```

This XML contains the following attributes:

Table 1. Threshold Exceeded Alert Attributes

Attribute	Description
ServiceName	The name of the component for which the threshold has been exceeded.
ServiceType	The type of the component for which the threshold has been exceeded. This takes one of the following values: • APPSERVER • API • AGENT • JMS
Threshold	The current threshold limit set for the component.
Value	The current value of the statistic that exceeds the threshold value.
Units	The unit of measure in which the value and threshold amounts are returned in. This takes one of the following values: • Milliseconds • PendingTasks • Messages

For application server down, agent or integration server unexpected termination alerts, the XML format is:

```
<Alert ServerName="" HostName="" ServerStartTime=""/>
```

This XML contains the following attributes:

Table 2. Application Server Down & Agent or Integration Server Termination Alert Attributes

Attribute	Description
ServerName	The name of the server that caused the alert.
HostName	The application host name on which the server that caused the alert was running.
ServerStartTime	The time the server that caused the alert was started.

Monitor Groups

The System Management console gives visibility to all of the statistics mentioned in this document. Each application server, API, agent, integration server, and JMS queue can be viewed and monitored within the console.

Because there are so many different components to monitor, they can be organized into meaningful monitor groups. Sterling Selling and Fulfillment FoundationSterling Application Platform provides default groupings based on similar business logic. For example, all order related APIs and agents are grouped into the "Order" monitor group. These default groupings can be changed to accommodate any other desired organization. For example, you might choose to group all heavily used agents together. For more information about monitor groups, see “System Management Console Screen” on page 25.

Access the System Management Console

About this task

It is recommended that you increase the memory available to the Java plug-in for every computer that runs the System Management Console. To increase the memory available, open the Java plug-in settings from the Windows control panel. Specify the following Java runtime parameters: `-Xms128M -Xmx128m`.

If both the Applications ManagerConfigurator and the System Management Console are opened at the same time, and if a dialogue window is opened in either application, the other stops responding to user input until that dialogue window is closed. This is due to a bug in the Java platform.

To access the System Management console:

Procedure

1. Point your browser to `http://<hostname>:<portname>/smcfs<application_name>/console/start.jsp`

   where,

   - `hostname` is the computer name or IP address of the computer where Sterling Selling and Fulfillment FoundationSterling Application Platform is installed.
   - `portnumber` is the listening port of the computer where Sterling Selling and Fulfillment FoundationSterling Application Platform is installed.

     The browser displays the Sign In window.
2. Enter your login ID and password and click **Sign In**. The Application ConsoleConsole Home Page is displayed.
3. From the menu bar, choose System > System Management Console.

System Management Console Screens

The screens within the System Management Console display the current state of various components within the entire Sterling Selling and Fulfillment FoundationSterling Application Platform. There are three main types of screens:

- Main View of Sterling Selling and Fulfillment FoundationSterling Application Platform - The main screen that always remains open and displays the overall status of Sterling Selling and Fulfillment FoundationSterling Application Platform.
- Monitor Group Summary Tree and Graphs - The second level of screens that display the overview of all of the monitor groups for a particular component type such as API groups or agent groups. This screen also displays individual statistics graphs for each of the components in the selected monitor group.
- Monitor Component Details - The third level of screens that display the monitoring details of a single component such as a single API or single agent.

Any combination of the summary tree and graphs or monitor component details screens can be opened at the same time. By opening the appropriate screens, it is possible to focus your attention on specific components if the need arises.

How the System Management Console Displays Alerts and Warnings for Components

Components that are currently (based on the latest information retrieved during the last refresh) in a problematic state are highlighted in red (alert) throughout the console. The cause of the problematic state depends on the type of component. For example, an API group turns red when a single API inside that group has an average response time over the average response time threshold set for that API.

Additionally, components that are near a problematic state are highlighted in yellow (warning). Again, the cause for the warning state depends on the type of component. For example, an API turns yellow when the average response time is within 80% of the threshold value.

Restricting Access to the System Management Actions

It is possible to restrict access to certain actions available in the System Management Console. Permission can be revoked for the following actions within the System Management Console:

- Shutdown, suspend, and resume agent or integration servers
- Clear cache
- Disable cache and change cache limits
- Change threads for an agent or integration server
- Enable and disable trace
- Change monitor thresholds

These permissions are maintained with the user group configuration under the System entity in the Application Platform module. For more information about maintaining user groups, see the *Sterling Selling and Fulfillment Foundation: Application Platform Configuration GuidePlatform Configuration Guide*.

Resolving Problems with Application Server Response Time

If an application server's response time is too high, the users of the Application Consoles have difficulty performing their tasks because of the long delay in screen loads and updates.

If this happens, investigate the potential causes described in this section.

Resolving Application Server Response Time Problems - Application Server Cache Level

About this task

An application server may respond slowly if it is using too much cache memory. An application server's cache level can be viewed (and cleared if necessary) on the Application Server Details Screen.

To view the current cache memory used for an application server:

Procedure

1. Locate the application host running the application server for which you want to view cache information on the System Management Console Screen. Single-click the icon. The Application Hosts Summary Screen displays.
2. Locate the summary graph for the application server. A progress bar appears to the right of the progress bar indicating the amount of cache memory used by that application server. The label next to the progress bar indicates the amount of memory (in kilobytes).

Results

To clear the cache memory for an application server, left-click the summary graph. The Application Server Details Screen displays. Click **Clear Cache**.

Resolving Application Server Response Time Problems - Client Load Too High

About this task

If many Application Consoles users are accessing the application at the same time, there may not be enough application servers running to process all of the requests in a timely manner.

You can get a general idea of the load each application server is handling on the Application Server Details Screen. This screen displays the number of requests being handled by an application over the last 4 hours.

To view the requests handled by an application server:

Procedure

1. Locate the application host running the application server for which you want to the requests on the System Management Console Screen. Left-click the icon. The Application Hosts Summary Screen displays.
2. Locate the summary graph for the application server for which you want to view table level cache information. Left-click the graph. The Application Server Details Screen displays.

3. Select the "# Of Requests" option under the graph.

Results

If the application servers are processing too many requests, you can run more application servers and load balance them to increase the capacity that can be handled. For more information about load balancing, see the *Sterling Selling and Fulfillment Foundation: Performance Management Guide*.

Resolving Application Server Response Time Problems - JSPs Not Precompiled

An application server may initially respond slowly if the JSP files used in the Application ConsoleConsole are not precompiled. The first time any user navigates to a screen, the JSP(s) used for the screen are compiled. This compilation process can be time-consuming. Therefore, It is strongly recommended that all JSPs are precompiled during EAR creation. For more information about precompilation, see the *Sterling Selling and Fulfillment Foundation: Performance Management Guide*.

Resolving Application Server Response Time Problems - Frequent JVM Full Garbage Collection

JVM full garbage collection is a costly operation that can slow down the application server if it is performed frequently. Garbage collection is automatically started when the JVM is using most of its allocated memory. Use the -verbose:gc parameter on the java command line to see how frequently full garbage collections are occurring.

Resolving Application Server Down Alerts

When an application server goes down unexpectedly, it should be brought back up immediately to ensure that users of the Application Consoles are not impacted.

If an application server goes down frequently, review the application server's log files to investigate possible causes.

Resolving Problems with API Response Time

To ensure that the throughput of the application is at optimal levels, the APIs must be executing with good response times. API response times can also affect Application ConsoleConsole users because the Application Consoles retrieve and update all information using APIs.

If an API's response time goes above it's threshold, investigate the possible causes described in this section.

Resolving API Response Time Problems - Slow Response Time for a User Exit

About this task

If the API has implemented user exits, then it may be the response time of the user exit that is slow. You can view the response time of the user exit invocations for the last 4 hours from the API Details Screen in the System Management console.

To view the response time of an API's implemented user exits:

Procedure

1. Locate the API group that contains the API on the System Management Console Screen. Left-click the group. The API Groups Summary Screen displays.
2. Locate the summary graph for the API. Left-click the graph. The API Details Screen displays.
3. In the Implemented User Exit panel, select the option that corresponds to the user exit for which you want to view the response time. The graph displays the minimum, maximum, and average response times of that user exit for the last 4 hours.

Results

If the user exit responds slowly, investigate how that user exit was implemented. Trace the user exit for more information. For more information about tracing a component, see "Tracing a Component" on page 18.

Resolving API Response Time Problems - Slow Response Time for One JVM

About this task

An API may be invoked on multiple JVMs. If one JVM has slowed down considerably, the response time of all APIs run in that JVM increases. Therefore, an API's response time may exceed the threshold due to one JVM responding slowly. View the response time by JVM for an API on the API Details Screen screen in the System Management console.

To view the response time by JVM:

Procedure

1. Locate the API group that contains the API on the Access the System Management Console. Left-click the group. The API Groups Summary Screen displays.
2. Locate the summary graph for the API. Left-click the graph. The API Details Screen displays.
3. The Response Time By JVM panel displays a list of JVMs and the corresponding response times for that API on each JVM.

Results

If the response time is slow on only one JVM, this suggests that the problem lies in that JVM (not with the API in general). View more information about the JVM by selecting it in the list and clicking **View Details**.

Resolving Problems with Agent Server Pending Tasks

To maximize the throughput of the application, the agents must be able to process all of the pending tasks within an acceptable time frame. If an agent is not able to process its tasks fast enough, the pending jobs accumulate and cause a bottleneck in the system.

If the pending jobs threshold for an agent is exceeded, investigate the potential causes described in this section.

Agent Server Is Not Running

An obvious reason the pending jobs of an agent are increasing is that the agent may not be running. Ensure that the agents are scheduled to run at the appropriate times of the day.

Agent Server Needs More Threads

If an agent is not able to process the tasks quickly enough, you can increase the number of threads used by the agent to increase the processing rate. The thread count can be increased in the Agent and Integration Server Instance Detail Screen.

To increase the number of threads used by an agent, follow the steps in "Temporarily Increasing Threads on an Agent or Integration Server Instance" on page 22.

Errors are Generated

An agent may not be performing to its full potential if it is generating errors. The most recent errors generated by an agent can be viewed in the Agent and Integration Server Detail Screen.

Viewing the Most Recent Errors for an Agent

About this task

To view the most recent errors for an agent:

Procedure

1. On the System Management Console Screen, locate the agent or integration server group that contains the agent for which you want to view the most recent errors. Left-click on the group icon. The Agent and Integration Server Summary Screen screen displays.
2. Locate the summary graph that corresponds to the agent for which you want to view the most recent errors. Left-click on the graph. The Agent and Integration Server Detail Screen screen displays.
3. The Most Recent Errors panel displays the errors for the agent. Take note of the time the errors occurred. If they occurred recently, review the logs to determine the cause of the errors and try to remedy them.

Resolving Problems with JMS Queue Number of Messages

To ensure that the integration points between Sterling Selling and Fulfillment FoundationSterling Application Platform and other systems that are using JMS messaging queues are working properly, monitor the number of messages in the queues. If the messages in the queue are not being processed quickly enough or not being processed at all, then there is a problem at the integration point. Resolve this problem as quickly as possible to avoid additional problems further along in the process.

If the threshold for number of messages is exceeded, investigate the potential causes described in this section.

Message Consumer Process is not Running

If the messages in the queue are building up, it is possible the process that consumes the messages is not running. Ensure that the message consuming process is scheduled to run at appropriate times.

Processing Rate is Low for Message Consumer Process

Another potential reason for messages in the queue building up, is that the process that consumes the messages is not processing them quickly enough.

If the process that consumes the messages is an agent, you can investigate the possible causes in "Resolving Problems with Agent Server Pending Tasks" on page 16 to resolve the problem.

If the process that consumes the message is one external to Sterling Selling and Fulfillment FoundationSterling Application Platform, then you should investigate that process.

Tracing a Component

About this task

Tracing is a valuable tool that can be used to investigate various problems while a component is running. When trace is turned on for a component, additional messages are output that help you to determine the problem.

Procedure

To trace a component, go to the Traced Components List Screen available from the main menu of the System Management Console Screen under Tools > Trace Components.

Stopping a Component Trace

Procedure

1. To stop tracing a component, go to the Traced Components List Screen available from the main menu of the System Management Console Screen under Tools > Trace Components.
2. For more information about stopping trace on a component, see "Traced Components List Screen" on page 41.

Enabling an Agent Trace

About this task

To trace an agent, you need to follow the sequence given below:

Procedure

1. Start your application server.
2. Start the agent server that you wish to trace.
3. To start the trace, go to the Traced Components List Screen available from the main menu of the System Management Console Screen under Tools > Trace Components and select Agents.
4. Save and close the trace component list.

5. Trigger the agent.

Results

If the trace component is added before starting the agent server, no trace is found in the log file.

Viewing Application Server Cache Information

About this task

There are two levels of cache information available for an application server:

- Global memory used for cache, available in the Application Hosts Summary Screen
- Table level cache information, available in the Table Level Cache List Screen

To access either the global or table level cache information for an application server:

Procedure

1. On the application host, click the icon for the application server. The Application Hosts Summary screen is displayed.
2. Find the summary graph for the chosen application server. The progress bar to the right of the summary graph shows the global cache memory used. The label shows the amount of memory used in kilobytes.
3. To view table level cache information for this application server, select the icon for the summary graph. The Application Server Details screen is displayed.
4. Click Table Level Cache to display the Table Level Cache List screen.

Clearing Database Cache for an Application Server

About this task

To clear the database cache for the application:

Procedure

1. Locate the application host running the application server for which you want to clear the cache on the System Management Console Screen. Left-click the icon. The Application Hosts Summary Screen displays.
2. Locate the summary graph for the application server for which you want to clear the cache. Left-click the icon. The Application Server Details Screen displays.
3. Click **Clear Cache**. The cache is cleared only for the application server instance that you are currently viewing. To clear the cache across all servers, refer to Table 7 on page 28.

Disabling Cache or Changing Database Cache Limits for an Application Server

About this task

It is possible to disable cache entirely or change the number of cache limit for a specific database table in the Table Level Cache List Screen screen.

To disable cache or change the cache limit on a database table for an application server:

Procedure

1. Locate the application host running the application server for which you want to disable or change cache limits on the System Management Console Screen. Left-click the icon. The Application Hosts Summary Screen displays.
2. Locate the summary graph for the application server for which you want to disable or change cache limits. Left-click the icon. The Application Server Details Screen displays.
3. Click **Table Level Cache**. The Table Level Cache List Screen displays.

Viewing Application Server Properties

About this task

To view the properties of an active application server (as specified in the `yfs.properties, yfs.properties_<module_id>_ext, dbclassCache.properties, and dbclassCache.properties_<module_id>_ext` files):

Procedure

1. Locate the application host running the application server for which you want to view the properties of on the System Management Console Screen. Left-click the icon. The Application Hosts Summary Screen displays.
2. Locate the summary graph for the application server for which you want to view the properties of. Left-click the icon. The Application Server Details Screen displays.
3. Click **Server Properties**. The Server Properties screen displays a complete list of all properties and their corresponding values. These properties cannot be modified from within the System Management console. Any modification to these properties must be made in the `<INSTALL_DIR>/properties/customer_overrides.properties` file. After making any modifications to this file you must reboot your application server. For additional information about overriding properties using the `customer_overrides.properties file`, see the *Sterling Selling and Fulfillment Foundation: Properties Guide*.

Shutdown, Suspend, or Resume an Agent or Integration Server Instance

About this task

Actively running agents and integration servers can be shutdown, suspended, or resumed from the Live Agent or Integration Servers Screen.

Note: The suspend and resume actions are not supported for the health monitor or any of its sub-services.

To shutdown, suspend, or resume an agent or integration server:

Procedure

1. From the System Management Console Screen select Tools > View Live Agents or Integration Servers. The Live Agent or Integration Servers Screen displays.

2. Locate the agent or integration server and click the button for the action you want to perform (shutdown, suspend, or resume). You can select multiple agents, integration servers or a combination of both to perform an action for more than one agent or integration server.

Starting an Agent Server

About this task

The agentserver utility starts processes that execute the transactions generated by the time-triggered transactions (agents). Start an agent server, using the directions below that apply to your operating system and specify the Agent Server you supplied in the Applications ManagerConfigurator for the time-triggered transaction.

If multiple agents are started at the same time, there is a small possibility that the two servers can register with the same ID. This causes issues downstream when you try to shut down the server. Wait a few minutes in between starting each server.

To start an agent server:

- If you are using UNIX, run the `<INSTALL_DIR>/bin/agentserver.sh` script.

  For example:

  ```
  agentserver.sh <agent_server_name>
  ```

- If you are using Windows, run the `<INSTALL_DIR>\bin\agentserver.cmd` script.

  For example:

  ```
  agentserver.cmd <agent_server_name>
  ```

Starting an Integration Server

About this task

To start an instance of a Sterling Selling and Fulfillment FoundationSterling Application Platform Integration Server:

- If you are using UNIX, run the `<INSTALL_DIR>/bin/startIntegrationServer.sh` command.
- If you are using Windows, run the `<INSTALL_DIR>\bin\startIntegrationServer.cmd` command.

You cannot start the Sterling Selling and Fulfillment FoundationSterling Application Platform Integration Server for services using the HTTP or EJB transport mechanisms.

Vendor-Specific Tips

- WebLogic JMS

  The following message appears after the WebLogic JMS transaction timeout period has elapsed:

  ```
  <date/time stamp> [Thread-??] ERROR
  services.jms.JMSConsumer -Could not
  successfully process message
  weblogic.jms.common.
  TransactionRolledBackException:
  ```

  Ignore the message. No transactions are rolled back.

- WebSphere MQ JMS

  On WebSphere MQ messaging servers, if the following message is displayed at startup:

  ```
  unable to load message catalog - mqji
  ```

  Add the following to the classpath for the MQ client and Integration adapter in addition to the WebSphere MQ JAR files:

  ```
  <MQ_JAVA_INSTALL_PATH>/lib
  ```

Scheduling an Agent

The triggeragent utility is used for scheduling agents (time-triggered transactions).

You can use any application scheduler provided by your operating system to schedule time-triggered transactions. For example, in a UNIX environment, you can use the CRON command, where <criteriaID> is defined for each time-triggered transaction in the Applications ManagerConfigurator.

```
triggeragent.sh <criteriaID>
```

You can also run any time-triggered transaction on a one-time basis using this command.

Schedule the `triggeragent.sh` script, located in the `<INSTALL_DIR>/bin/` directory, to trigger a time-triggered transaction to begin processing.

Temporarily Increasing Threads on an Agent or Integration Server Instance

About this task

Changing the number of threads being used by an actively running agent or integration server instance can be done from the Agent and Integration Server Instance Detail Screen screen. The changes made on this screen are temporary and are lost if the agent is restarted. To change the threads on an active agent:

Procedure

1. On the System Management Console Screen, locate the agent or integration server group that contains the agent or integration server for which you want to change the threads. Left-click on the group icon. The Agent and Integration Server Summary Screen displays.
2. Locate the summary graph that corresponds to the agent or integration server for which you want to change the threads. Single-click on the graph. The Agent and Integration Server Detail Screen displays.
3. Locate the server that is running the agent or integration server in the Servers Running this Agent or Integration Server panel. Select the server and choose View Details. The Agent and Integration Server Instance Detail Screen displays.

Results

To permanently change the threads used when an agent or integration server is started, you must modify the configuration of that agent or integration server. For more information about configuring the initial threads of an agent or integration server, see the *Sterling Selling and Fulfillment Foundation: Application Platform Configuration GuidePlatform Configuration Guide*.

Note: You cannot change the thread levels for the health monitor.

Viewing Properties for an Agent or Integration Server Instance

About this task

You can view the properties of an actively running agent or integration server from the Agent and Integration Server Instance Detail Screen in the System Management console.

Procedure

1. On the System Management Console Screen, locate the agent or integration server group that contains the agent or integration server for which you want to view the properties. Left-click on the group icon. The Agent and Integration Server Summary Screen displays.
2. Locate the summary graph that corresponds to the agent or integration server for which you want to view the properties. Single-click on the graph. The Agent and Integration Server Detail Screen displays.
3. Locate the server that is running the agent or integration server in the Servers Running this Agent or Integration Server panel. Select the server and choose View Details. The Agent and Integration Server Instance Detail Screen displays.

Changing Monitor Groupings

About this task

To change the components that have been grouped into a monitor group:

Procedure

1. Locate the monitor group you want to change on the System Management Console Screen.
2. Right-click the icon, and select Modify Monitor Group. The Monitor Group Details Screen displays.

Chapter 3. System Management Console Screens Reference

System Management Console Screens Overview

System Management Console screens and their fields are described in this section.

System Management Console Screen

The main view of the System Management Console displays an overall status of Sterling Selling and Fulfillment FoundationSterling Application Platform.

Each of the three main types of screens refresh with the latest information every 5 minutes. All other screens within the console do NOT refresh with the latest information.

Table 3. System Management Console

Actions		**Description**
The following actions are accessible from the Tools menu.		
Create Monitoring Group	This action takes you to the Monitor Group Details Screen where you can create a new monitor group for an API, Agent, Integration Server, or JMS Queue.	
Trace Components	This action takes you to the Traced Components List Screen where you can view and add traces.	
View Live Agent or Integration Servers	This action takes you to the Live Agent or Integration Servers Screen where you can view and control agent or integration servers.	
Status Bar The status bar displays in the bottom right corner of the main application window. The status bar contains icons that represent various information about the entire system. It is recommended that you keep the status bar visible at all times so that any problems in the application are immediately visible when the icons change.		
Icons	Icon Name	Description
	**User**	The tool tip of this icon displays information about the user that is logged into the System Management Console.
	**Locale**	The tool tip of this icon displays information about the active locale.

Table 3. System Management Console (continued)

Actions		Description
	**Trace**	This icon shows the current status of the trace feature within the System Management console. Tracing can be turned on or off by clicking on this icon. When tracing is off, the icon displays a red circle with an X. When tracing is on, the icon displays a green circle with a check mark. Trace should always be turned off unless you are trying to debug a problem within the System Management console. When trace is turned on, informative messages are output to the Appender configured in the log4jconfig.xml. When the trace is turned on, the screens in the System Management console perform much more slowly than usual.
	**All Application Hosts**	This icon represents the state of ALL application hosts. It displays the appropriate color (normal, red, yellow, or disabled) representing the worst state of all application hosts. For example, if all application servers for one host are down, the icon here is disabled. If all application servers are running, but one application server has exceeded its response time threshold, the icon displays in red. If all application servers are running and have no problems, the icon displays normally.
	**All API Groups**	This icon represents the state of ALL API groups. It displays the appropriate color (normal, red, or yellow) representing the worst state of all API groups.
	**All Agents/Integration Server Groups**	This icon represents the state of ALL agent or integration server groups. It displays the appropriate color (normal, red, or yellow) representing the worst state of all agent or integration server groups.
	**All JMS Queue Groups**	This icon represents the state of ALL JMS queue groups. It displays the appropriate color (normal, red, or yellow) representing the worst state of all JMS queue groups.

Table 4. System Management Console Screen, Clients

Clients
Between the Clients and Application Hosts sections of the screen, the arrows are labeled with information about the requests and responses from the client and servers. On the arrow pointing to the application hosts, the number of requests per second is displayed. This number represents the number of HTML requests (per second) coming from users of the Application ConsoleConsole for the last persist interval. This indicates the load on the application servers coming from the users. On the arrow pointing to the client, the average response time across all application servers is displayed. This number gives a general idea of the response time that the users of the Application ConsoleConsole are experiencing.

Table 5. System Management Console Screen, Application Hosts

	**Application Hosts**	Application Hosts For each application host (physical machine) that is running application servers, the following information displays in the Application Hosts panel. The progress bar next to the icon indicates the highest percentage of cache used by any application server running on the host. Next to the progress bar, the highest response time of any application server running on that host is displayed. The name of the application host displays under the icon. To view the Application Hosts Summary Screen, single-click (or right-click and select Details) on the application host.
Icons	Icon Name	Description
	**Normal Response time**	**Normal** - All application servers are running normally with good response times.
	**Response Time Above Threshold**	**Red** - One or more application servers are running with a response time that exceeds the set threshold.
	**Response Time Near Threshold**	**Yellow** - One or more application servers are running with a response time that is close to the set threshold.

Table 5. System Management Console Screen, Application Hosts (continued)

	**Server Down**	**Normal with Yellow** - Some of the application servers are down. This icon only appears if there are multiple application servers running on the host, and one or more application server is down while there is at least one application server that is still running.
	**All Servers Down**	**Disabled with Red** - All application servers are down.

Table 6. System Management Console Screen, API Groups

	**API Groups**	API Groups For each API monitor group, the following information displays in the API Groups panel. The API group name displays under the icon. The number of active APIs in the group is displayed in parenthesis next to the group name. An API is considered to be active if it has been called during the last persist interval. To view the API Groups Summary Screen, single-click (or right-click and select "Details") on the API group.
Icons	Icon Name	Description
	**Normal API Response Time**	**Normal** - All APIs are running normally with good response times.
	**API Response Time Above Threshold**	**Red** - One or more APIs are running with a response time that exceeds the set threshold.
	**API Response Time Near Threshold**	**Yellow** - One or more APIs are running with a response time that is close to the set threshold.

Table 7. System Management Console Screen, Database

Database System Management does not monitor the database in any way. It is recommended that you use a third-party database monitoring software in addition to the System Management Console. The Database panel displays information about the database that the application is using.	
Fields	Description
Driver Name	The name of the database driver used to connect to the database.

Table 7. System Management Console Screen, Database (continued)

Driver Version	The version of the database driver used to connect to the database.
Database Version	The complete database version information is available as a tool tip on the database icon.
Actions	Description
Clear Cache	This action clears all cache for the database, which includes the cache for all application, agent and integration servers.

Table 8. System Management Console Screen, Agent or Integration Server Groups

	**Agent/Integration Server Groups**	Agents or Integration Server Groups For each agent or integration server monitor group, the following information displays in the Agent or Integration Server Groups panel. The agent or integration server group name displays under the icon. The number of active agents and integration servers in the group is displayed in parenthesis next to the group name. An agent or integration server is considered to be active if it had any activity during the last persist interval. To view the Agent and Integration Server Summary Screen, single-click (or right-click and select Details) on the agent or integration server group.
Icons	Icon Name	Description
	**Normal Number of Pending Tasks**	**Normal** - All agents have a number of pending tasks lower than the set threshold.
	**Pending Tasks Above Threshold**	**Red** - One or more agents have a number of pending tasks that exceeds the set threshold.
	**Pending Tasks Near Threshold**	**Yellow** - One or more agents have a number of pending tasks that is close to the set threshold.

Table 9. System Management Console Screen, JMS Queue Groups

	**JMS Queue Group**	JMS Queue Groups For each JMS queue monitor group, the following information displays in the JMS Queue Groups panel. The JMS queue group name displays under the icon. To view the JMS Queue Summary Screen, single-click (or right-click and select Details) on the JMS queue group.
Icons	Icon Name	Description
	**Normal Number of Messages**	**Normal** - All queues have a number of messages lower than the set threshold.
	**Messages Above Threshold**	**Red** - One or more queues have a number of messages that exceeds the set threshold.
	**Messages Near Threshold**	**Yellow** - One or more queues have a number of messages that is close to the set threshold.

Application Hosts Summary Screen

This screen displays summary-level information about the application hosts.

On the left side of the screen, a tree displays all of the applications hosts with their corresponding application servers under each host. The icon next to each component represents its current state (good, alert, warning, or down). When a particular application host is selected, summary graphs of all application servers in that host are displayed on the right. Next to each summary graph is a progress bar that represents the amount of cache memory that is being used for that application server.

The summary graphs display the average response time of the application server over the last four hours. If the average response time of the application server is currently over the threshold, then the background of the graph is red.

Application Server Details Screen

This screen displays detailed information about the application server.

The current status (good, alert, warning, or down) of the application server is represented by the icon next to the Host field.

By default, the graph displays the minimum, maximum, and average response time (in seconds) of the HTML requests in the last 4 hours. The currently set threshold limit for application server response time displays on the graph as a horizontal red line.

To view the number of requests made to the application server over the last 4 hours, select the # of Requests option under the graph.

Table 10. Application Server Details Screen, Primary Info

Fields	Description
Host	The name of the physical host on which this server is running.
Server ID	The generated ID for the application server.
Server Name	The unique name of the server.
Actions	Description
Server Properties	Select this action to view the application server properties (as specified in the `yfs.properties` file). The Server Properties screen displays a complete list of all properties and their corresponding values. These properties cannot be modified from within the System Management console. Any modification to these properties must be made in the `<INSTALL_DIR>/properties/customer_overrides.properties` file. For additional information about overriding properties using the `customer_overrides.properties file`, see the *Sterling Selling and Fulfillment Foundation: Properties Guide*.
Change Threshold	When the Min, Max, and Average response time radio button is selected, the application server response time threshold limit displays under the graph on the Application Server Detail screen. To change the threshold, click this button, enter a new threshold value in the dialog that appears, and click Apply.

Table 11. Application Server Details Screen, Cache Info

Fields	Description
Cache Level	This field displays the current cache memory being used as a progress bar and a value (in kilobytes). The entire cache progress bar represents 100 k of memory. Therefore, if the cache bar is filled 50%, then 50 k of memory is being used. If a high amount of memory is being used for caching within a particular application server, that may affect the application server's performance.
Actions	Description
Clear Cache	This action clears all cache for a specific application server.
Table Level Cache	This action takes you to the Table Level Cache List Screen where you can view a finer level of cache information for an application server.

API Groups Summary Screen

This screen displays summary level information about the API groups.

On the left side of the screen, a tree displays all API groups with their corresponding APIs under each group. The icon next to each component represents its current state (good, alert, or warning). When a particular API group is selected, summary graphs of all APIs in that group are displayed on the right.

The summary graphs display the average response time of the API over the last four hours. If the average response time of the API is currently over the threshold, the background of the graph is red.

To view detailed information about an API, you can go to the API Details Screen using any of the following methods:

- Single-click on the API graph.
- Right-click on the API graph and select Details.
- Double-click the API within the tree.
- Right-click on the API within the tree and select Details.

API Details Screen

This screen displays detailed information about an API.

The current status (good, alert, or warning) of the API is represented by the icon next to the API Name field.

By default, the graph displays the minimum, maximum, and average response time (in seconds) over the last 4 hours. The average response time threshold appears on the graph as a horizontal red line.

To view the number of invocations for that API over the last 4 hours, select the # Of Invocations option.

Some standard Sterling Selling and Fulfillment FoundationSterling Application Platform APIs also record API-specific statistics. For example, the createOrder API records the number of orders and order lines created during each API invocation. If the API that the API Detail screen was opened for contains API-specific statistics, they appear as check boxes under the API Specific Statistics option. To view the API-specific statistics in the graph, select the API Specific Statistics option and then select the appropriate checkboxes next to the statistics you would like to see in the graph. It is possible to graph multiple statistics at the same time by checking multiple checkboxes.

Table 12. API Details Screen, Primary Info

Fields	Description
API Name	The name of the API.
Trace Status	The current trace status, or Off if the API is not currently being traced.
Actions	Description
Change Trace Status	Select this to change the tracing status of an API. Select a new trace status in the dialog, and click OK. To turn tracing off, select Off in the dialog.
Change Threshold	When the Min, Max, and Average Response Time option is selected on the API Detail screen, the currently set response time threshold appears under the graph. To change the threshold, click this button, enter a new threshold value in the dialog, and click Apply.

Table 13. API Details Screen, Response Time By JVM

Response Time By JVM The JVMs listed here are only the application server JVMs that called this API. This information can be used to determine if the API response time is consistent across all JVMs. If the response time is not consistent, there might be an issue with a specific JVM.	
Fields	Description

Table 13. API Details Screen, Response Time By JVM (continued)

Host	The host name.
Server Name	The server name.
Average	The average response time in seconds.
Minimum	The minimum response time in seconds.
Maximum	The maximum response time in seconds.
Actions	Description
View Details	To open the Application Hosts Summary Screen for a JVM in this list, select the appropriate JVM and click this button.

Table 14. API Details Screen, Implemented User Exits

Implemented User Exits	
Each implemented user exit appears as a radio button above the user exit graph. The statistics for each user exit can be viewed by changing the user exit radio button selections. By default, the user exit graph displays the minimum, maximum, and average response time (in seconds) for the user exit over the last 4 hours. The number of invocations for that user exit over the last 4 hours can also be viewed by selecting the # Of Invocations option under the user exit graph.	
Actions	Description
Change Trace Status	Select this to change the tracing status of a user exit. Select a new trace status in the dialog, and click OK. To turn tracing off, select Off in the dialog.

Agent and Integration Server Summary Screen

This screen displays a summary level of information about the agent or integration server groups.

On the left side of the screen, a tree displays all of the agent or integration server groups with their corresponding agents and integration servers under each group. The icon next to each agent represents its current state (good, alert, or warning). When a particular agent or integration server group is selected, summary graphs of all agents in that group are displayed on top portion of the right side of the screen. Summary graphs for all integration servers in that group are displayed on the bottom portion of the right side of the screen as well.

The summary graphs for the agents display the number of pending tasks for the agent over the last four hours. If the number of pending tasks for the agent is currently over the threshold, the background of the graph is red.

The summary graphs for the integration servers display the processing rate of the integration server over the last four hours.

To view detailed information about an agent, you can go to the Agent and Integration Server Detail Screen using any of the following methods:

- Single-click on the agent graph.
- Right-click on the agent graph and select Details.
- Double-click the agent within the tree.
- Right-click on the agent within the tree and select Details.

Agent and Integration Server Detail Screen

This screen displays detailed information about agents and integration servers. This screen displays differently depending on whether an agent or integration server is being viewed.

The current status (good, alert, or warning) of an agent is represented by the icon next to the Service Name field, or next to the Sub Service Name field for an integration server.

When viewing an agent, this screen displays the pending tasks for that agent over the last 4 hours by default. The pending tasks threshold appears on the graph as a horizontal red line. To troubleshoot problems with agent pending tasks, see "Resolving Problems with Agent Server Pending Tasks" on page 16.

To view the processing rate (tasks/hour) of the agent over the last 4 hours, select the Processing Rate option.

Note: Unlike other agents, in the health monitor details the default statistic is Processing Rate. This implies the graph is plotted for the Processing Rate and no data is available for the number of pending tasks.

Some agents also record agent-specific statistics. For example, the scheduleOrder agent records the number of orders backordered and the number of orders scheduled while the agent is running. If the agent that the detail screen was opened for contains agent-specific statistics, they appear as checkboxes under the Agent Specific Stats option. To view the agent-specific statistics in the graph, select the Agent Specific Stats option and then select the appropriate checkboxes next to the statistics you would like to see in the graph. It is possible to graph multiple statistics at the same time by checking multiple check boxes. For more information about other agent statistics, see the time-triggered transaction reference in the *Sterling Selling and Fulfillment Foundation: Application Platform Configuration GuidePlatform Configuration Guide*.

When viewing an integration server, this screen displays the processing rate for that integration server over the last 4 hours by default.

To view the minimum, maximum, and average response time (in seconds) for the integration server over the last 4 hours, select the Min, Max, and Average Response Time option.

Table 15. Agent or Integration Server Detail Screen, Agent Primary Info

Agent Server Primary Info Fields	
Service Name	The agent criteria ID for the time triggered transaction.
Server Name	The server on which an instance of the agent is running (or will be run if the agent is not started). For more information about this parameter, see the *Sterling Selling and Fulfillment Foundation: Installation Guide*.
JMS Queue Name	The name of the JMS queue that contains messages to be processed by this agent.
Initial Context Factory	The class providing an Initial Context implementation for your application server to enable remote Java clients to connect. For more information about initial context factories, see the *Sterling Selling and Fulfillment Foundation: Application Platform Configuration GuidePlatform Configuration Guide*.

Table 15. Agent or Integration Server Detail Screen, Agent Primary Info (continued)

QCF Lookup	The name of the queue connection factory. This name corresponds with a JMS connection factory configured in the application server running Sterling Selling and Fulfillment FoundationSterling Application Platform.
Provider URL	The URL containing the protocol and address used to access the JMS queue.
Initial # Of Threads	When the agent is initially started, this is the number of concurrent threads this transaction should be run with. The number of threads an agent server is currently using can be changed in the Agent and Integration Server Instance Detail Screen.
Time Needed For Completion (Min.)	If the agent is processing records (the processing rate is positive and there are pending tasks left), this field displays the estimated time left (in minutes) for the agent to complete all of its pending tasks. This is an estimation that assumes that the processing rate remains constant and the number of pending tasks does not increase.
Pending Jobs Statistics Collected	A flag specifying whether the statistics of the pending jobs were collected. The default value is N. **Note:** There is no data available for pending jobs in health monitor agents. Hence, the default statistic is processing rate.
Trace Status	The current trace status for this agent is Off if the agent is not currently being traced. **Note:** The trace status is `Off` for the health monitor with a component name of anything other than `All`. For example, if `APIMonitor` is the only component in the health monitor trace, then the `Trace Status` is `Off`.
Integration Server Primary Info Fields	
Sub Service Name	The unique runtime ID specified when creating this integration service in the service builder. For more information about the service builder see the *Sterling Selling and Fulfillment Foundation: Application Platform Configuration GuidePlatform Configuration Guide*.
Server Name	The server on which an instance of the integration server is running (or will be run if the server is not started). For more information about this parameter, see the *Sterling Selling and Fulfillment Foundation: Installation Guide*.
Initial # Of Threads	When the integration server is initially started, this is the number of concurrent threads this integration server should be run with. The number of threads an integration server is currently using can be changed.
Trace Status	The current trace for this integration server, or Off if the integration server is not currently being traced.
Actions	Description
Change Trace Status	Select this to change the tracing status of an agent or integration server. Select a new trace status in the dialog, and click OK. To turn tracing off, select Off in the dialog.
Change Threshold	When viewing an agent, and the pending tasks radio button is selected, the currently set pending task threshold displays under the graph. To change the threshold, click this button, enter a new threshold value in the dialog, and click Apply.

Table 16. Agent or Integration Server Detail Screen, Servers Running on this Agent or Integration Server

Fields	Description
Host Name	The name of the physical machine where this server is running.
Server ID	The unique server ID.
# Of Threads	The number of threads used for this agent in the server.
Actions	Description
View Details	To view the details of the server, select the appropriate server in the list and click this button. This displays the Agent and Integration Server Instance Detail Screen.

Table 17. Agent or Integration Server Details Screen, Most Recent Errors

Most Recent Errors The 10 most recent errors that were generated by the agent or integration server are displayed. These errors may help you resolve and problems that you may be having with the agent or integration server	
Fields	Description
Code	The error code.
Date	The date and time the error occurred.
Description	A description of the error.

Agent and Integration Server Instance Detail Screen

This screen displays information about a server that is currently running.

Table 18. Agent or Integration Server Instance Detail Screen, Header

Fields	Description
Host Name	The name of the physical host where the server process is running.
Server ID	The unique ID for the server.
Server Name	The unique name for the server.
Server Type	The type of the server.
Status	The status of the server. The server can be Active or Suspended.
Actions	Description
Shutdown Server	Select this to shut down a server.
Suspend Server	Select this to suspend a server. This action is only available when the server is active. **Note:** This action is not available for health monitor agents.
Resume Server	Select this to resume a server. This action is only available when the server is suspended. **Note:** This action is not available for health monitor agents.
Table Level Cache	Select this to view table level cache information of a server. The Table Level Cache List Screen appears.
Clear Cache	Select this to clear the cache of a server.

Table 18. Agent or Integration Server Instance Detail Screen, Header (continued)

View Properties	Select this to view the server properties (as specified in the `yfs.properties` file). The Server Properties screen displays a complete list of all properties and their corresponding values. These properties cannot be modified from within the System Management console. Any modification to these properties must be made in the `<INSTALL_DIR>/properties/customer_overrides.properties` file. For additional information about overriding properties using the `customer_overrides.properties file`, see the *Sterling Selling and Fulfillment Foundation: Properties Guide*.

Table 19. Agent or Integration Server Instance Detail Screen, Agents or Services Being Run By This Server

Fields	Description
Service Name	The name of the service.
Status	The status of the service. The service can be Active or Suspended.
# Of Threads	The number of threads being used within the service.
Actions	Description
Suspend	To suspend a service running within a server, select the appropriate service(s) and click Suspend. This action is only available when the service is active. **Note:** This action is not available for health monitor agents.
Resume	To resume a service running within a server, select the appropriate service(s) and click Resume. This action is only available when the service is suspended. **Note:** This action is not available for health monitor agents.
Apply Thread Changes	To change the number of threads used for a service running within a server, double-click the # Of Threads cell in the table for the service you want to modify. Enter a new value in the column, and click Apply Thread Changes. The changes made to the threads on this screen are temporary. When the server is restarted, it uses the initial number of threads configured for the server. For more information about setting the initial thread count, see the *Sterling Selling and Fulfillment Foundation: Application Platform Configuration GuidePlatform Configuration Guide*. **Note:** This action is not available for health monitor agents.
Close	This action closes the screen.

One server instance can actually run multiple agents or sub-services. For example, two different agent criteria can be configured to run with the same server name. When the server with the name runs, it actually runs both agents.

JMS Queue Summary Screen

This screen displays a summary level of information about the JMS queue groups.

On the left side of the screen, a tree displays all of the JMS queue groups with their corresponding JMS queues under each group. The icon next to each component represents its current state (good, alert, or warning). When a particular JMS queue group is selected, summary graphs of all JMS queues in that group are displayed on the right.

The summary graphs display the number of messages in the JMS queue over the last four hours. If the number of message in the queue is currently over the threshold, the background of the graph is red.

To view detailed information about an JMS queue, you can go to the JMS Queue Details Screen using any of the following methods:

- Single-click on the JMS queue graph.
- Right-click on the JMS queue graph and select Details.
- Double-click the JMS queue within the tree.
- Right-click on the JMS queue within the tree and select Details.

JMS Queue Details Screen

This screen displays detailed information about the JMS queue being monitored. The fields displayed depend on the queue type.

Table 20. JMS Queue Details

WebLogic Fields	Description
Name	A unique name for the queue. This name is used to uniquely identify this queue in the System Management console. The current status (good, alert, or warning) of the queue being monitored is represented by the icon next to the Name field.
Queue Name	The WebLogic name for the queue (not the JNDI name).
Provider URL	The URL containing the protocol and address used to access the JMS queue. For example, t3://localhost:7001.
JBoss Fields	Description
Name	A unique name for the queue. This name is used to uniquely identify the queue in the System Management console. The current status (good, alert, or warning) of the queue that is monitored is represented by an icon.
Queue Name	The JNDI name for the JMS queue.
Provider URL	The URL containing the protocol and address used to access the JMS queue. For example, jnp://localhost:1099.
MQSeries Fields	Description
Name	A unique name for the queue. This name is used to uniquely identify this queue in the System Management console. The current status (good, alert, or warning) of the queue being monitored is represented by the icon next to the Name field.
Queue Name	The MQSeries name for the queue (not the JNDI name).
Queue Manager	The name of the MQ queue manager to which the queue belongs.

Table 20. JMS Queue Details (continued)

Host Name	The host name of the MQSeries server where the specified queue manager resides.
Port	The port number of the MQSeries server available for the specified queue manager.
Channel Name	The channel name available for clients to connect to the specified queue manager.
Fields	Description
Queue Depth	The graph displays the statistics collected for the number of messages (queue depth) in that JMS queue over the last 4 hours (if any).
Threshold	The currently set threshold limit also appears on the graph as a horizontal red line.
Actions	Description
Change Threshold	Under the graph, the current threshold limit is displayed. To change the threshold, click this button, enter a new threshold value in the dialog, and click Apply.

Monitor Group Details Screen

This screen is used to create a new monitor group or modify an existing one. A monitor group is a collection of system components that can be monitored in the System Management Console.

Table 21. Monitor Group Details

Fields	Description
Group Name	The name of the monitor group.
Actions	Description
Save	This action saves your changes and closes the window.
Cancel	This action closes the window without saving any changes.

Table 22. Monitor Group Details Screen, APIs Tab

API Tab From the API Tab you can add or remove APIs in a monitor group. The Available panel on the left displays APIs that can be subscribed to the monitor group. The Subscribed panel on the right displays the APIs that are currently subscribed to the monitor group.		
Icons	Name of Icon	Description
	Right Arrow	To add APIs to the group, select the appropriate APIs from the available list and click this button.
	Left Arrow	To add APIs to the group, select the appropriate APIs from the subscribed list and click this button.
Fields	Description	
API Name	The name of the API.	

Table 22. Monitor Group Details Screen, APIs Tab (continued)

Is Service	This field indicates whether the API is a custom service. If the API is a standard Sterling Selling and Fulfillment FoundationSterling Application Platform API, this column is not checked.
Actions	Description
Show Only Ungrouped APIs	By default, only APIs that are not already part of another monitor group appear in the available list. To see a list of all APIs, unselect this checkbox under the available list. This allows you to add the same API to multiple monitor groups.

Table 23. Monitor Group Details Screen, Agents Tab

Agents Tab From the Agents Tab you can add or remove agents in a monitor group. The Available panel on the left displays agents that can be subscribed to the monitor group. The Subscribed panel on the right displays the agents that are currently subscribed to the monitor group.	
Icons	Description
Right Arrow	To add agents to the group, select the appropriate agents from the available list and click this button.
Left Arrow	To add agents to the group, select the appropriate agents from the subscribed list and click this button.
Fields	Description
Agent ID	The agent identifier.
Actions	Description
Show Only Ungrouped Agents	By default, only agents that are not already part of another monitor group appear in the available list. To see a list of all agents, unselect this checkbox under the available list. This allows you to add the same agent to multiple monitor groups.

Table 24. Monitor Group Details Screen, JMS Queues Tab

JMS Queues Tab From the JMS Queues Tab you can add or remove JMS queues in a monitor group. After making changes to the JMS queues within a monitor group, the health monitor agent must be restarted for the changes to take effect.	
Fields	Description
JMS Queue Name	The name of the JMS queue.
Actions	Description
Add	Select this to add a JMS Queue to the monitor group.
Modify	Select a JMS queue from the list and select this action to modify values for the JMS queue.
Remove	Select a JMS queue from the list and select this action to remove the JMS queue from the monitor group.

If you are using Oracle WebLogicOracle WebLogic JMS, and the health monitor displays an "*The User <anonymous> does not have permission on*

weblogic.management.adminhome to perform lookup operation" error message, you must enable the Anonymous Admin Lookup in the Oracle WebLogicOracle WebLogic Console.

For example, from the Oracle WebLogicOracle WebLogic Console, choose base_domain > Security > General, and select the Anonymous Admin Lookup Enabled check box.

Traced Components List Screen

This screen displays all of the components currently being traced.

Table 25. Traced Components List

Fields	Description
Component Type	The type on component.
Component Name	The name of the component.
Trace Level	The trace level.
Actions	Description
Add	To trace a component, click this button. The Trace Component Details Screen appears.
Delete	To stop tracing one or more components, select the component(s) in the traced components list and click this button.
Close	Click to close this screen.

Component Tracing - Concepts

Tracing a component is useful when you want more information about a component while the application is running. Typically, tracing is only required when trying to investigate a problem with a component that is either not running properly or is performing with slow response time.

When trace is turned on for a component, additional messages are output to the appropriate places. Where the additional messages are output depends on the logging configuration. For more information about logging, see the *Sterling Selling and Fulfillment Foundation: Installation Guide*.

Trace Component Details Screen

This screen is used to start tracing a component.

Table 26. Trace Component Details

Fields	Description

Table 26. Trace Component Details (continued)

Component Type	Select the type of component you want to trace from one of the following: **API** - Trace a standard Sterling Selling and Fulfillment FoundationSterling Application Platform API. **User Exit** - Trace an implemented user exit. **Service** - Trace a service created using the service builder. **Agent** - Trace an agent. **Application Console** - Trace the user interface layer of the Application ConsoleConsole. **Web UI framework Console** - Trace the web user interface framework Console. **Health Monitor** - Trace a health monitor. **Transaction Tracing** - Trace a transaction. When the transaction tracing is enabled in the System Management Console, it allows to set the trace level for a specific invocation of an API or service, by passing the `"TransactionTracingLevel"` XML attribute in the root element of the API or the service input. No trace level are required to be specified in the System Management Console for transaction tracing. Specify the trace level in the`"TransactionTracingLevel"` XML attribute provided in the root element of the API or the service input. The trace level is effective only for the transaction boundary of the API or service being invoked. **Note:** Once transaction tracing is enabled in the System Management Console, the trace level provided in the API or service input overrides the trace level set for the API or service or trace level set for the user who invokes the API or service. **Note:** If an invalid or blank value is provided for `"TransactionTracingLevel"`, the system ignores it. **User Tracing** - Trace a specific user. User tracing allows the system to specify a trace level for a specific user. After a trace level is configured for a user in the System Management Console, all the API or service invocations made by the user, are traced as per the trace level set for the specific user. The user ID for which tracing is being enabled must be specified as the component name. **Note:** The trace level set for the user overrides the individual trace levels set for the APIs or services which are invoked by the user.

Table 26. Trace Component Details (continued)

Component Name	Once a component type has been selected, the available components for that type appear in the Component Name field. Select the component you want to trace from this field. For example, health monitor agent has the following traceable components: • JNDICleanup • HealthMonitorPurge • AgentMonitor • APIMonitor • AppServerMonitor • JMSMonitor • HeartbeatMonitor • All
Tracel Level	Select the appropriate trace level. The trace level determines what kind of additional information is output. The trace level can be one of the following: **Timer** - Additional information about the time it took to complete various events. This is useful when trying to resolve performance problems to see what parts of a particular component are taking the longest to complete. **SQLDebug** - Additional information about the SQL database statements that are run within the component. This is useful to find out what database statements are actually called. This information can be used to resolve performance problems or to tune your database for optimal performance. For more information about performance tuning, see the *Sterling Selling and Fulfillment Foundation: Performance Management Guide*. **Debug** - Some additional miscellaneous information about the component. This information may be useful when trying to debug why a component is not running as expected. **Verbose** - All available additional information about the component. This trace level outputs the additional information for all other trace levels in addition to any other miscellaneous information that may be available. Select this trace level to get the most information possible for a component. Warning: Tracing a component negatively impacts the performance of that component due to the additional information that needs to be output. It is not recommended to keep a trace on for any components for an extended period of time.
Actions	Description
Apply	Click to start tracing the component.
Cancel	Click to close the window without saving.

Table Level Cache List Screen

Any modifications made in this screen are temporary. If the applicable server is restarted, the changes made in this screen are lost. If you need to permanently enable, disable, or change the cache limit for a specific database table, then you must override the `dbclassCache.properties` settings by adding the required entries in the `<INSTALL_DIR>/properties/customer_overrides.properties` file.

This screen enables viewing and modifying cache information at a table level for a particular server (application server, agent server, or integration server). For additional information about viewing application server cache information, refer to "Viewing Application Server Cache Information" on page 19. When you perform a modifying action in this screen, such as enable, disable, clear, or modify limit, the cache is modified only for the individual server that you are currently viewing.

Table 27. Table Level Cache List

Field	Description
Class	The name of the class corresponding to one database table.
Enabled	The check box within this field is checked when caching is enabled for this database table.
Cache Limit	The maximum number of objects that are cached for this database table.
Logical Reads	The number of reads that were successfully retrieved from the cache.
Physical Reads	The number of reads that were not retrieved from the cache.
Hit Ratio	The hit ratio indicates how well the caching is working for this database table. Ideally, the cache ratio should be close to 1. If the cache ratio is close to 0, then the objects being cache are not being accessed frequently. This number is calculated by taking the total number of logical reads and dividing it by the total number of all reads (logical and physical).
# Of Selects	The number of select clauses being cached.
# Of Lists	The number of list clauses being cached.
Cache Clear Count	The number of times cache was cleared for this table. Frequent cache clears could reflect some problem with the access being made to this table.
Objects Cached	The total number of objects currently in the cache.
Action	Description
Enable Cache	To enable caching on a specific database table, select the appropriate database class and click this button. This action is only enabled when caching is disabled for the selected table.
Disable Cache	To disable caching on a specific database table, select the appropriate database class and click this button. This action is only enabled when caching is enabled for the selected table.
Clear Cache	To clear the cache memory for a specific database table, select the appropriate database class and click this button.
Modify Cache Limit	To modify the cache limit for a specific database table, select the appropriate database class and click this button. Enter the new cache limit in the dialog and click OK.
Close	Click to close the window.

Live Agent or Integration Servers Screen

This screen displays all agent and integration servers that are currently running.

Table 28. Live Agent or Integration Servers

Fields	Description
Server ID	The unique ID for the server.
Server Name	The unique name for the server.
Status	The status of the server. The status can be active, suspended, or shutdown in progress.
Actions	Description
Shutdown Server	To shutdown an agent or integration server on the Live Agent or Integration Servers screen, select the appropriate server in the list and click this button. It is possible to select multiple servers in the list to shutdown more than one at a time.
Suspend Server	To suspend a server, select the appropriate server in the list and click this button. This action is only available for servers that are active. **Note:** This action is not available for health monitor agents.
Resume Server	To resume a server, select the appropriate server in the list and click this button. This action is only available for servers that are suspended. **Note:** This action is not available for health monitor agents.
Close	Click to close the window.

Chapter 4. System Administration Tasks

System Administration Console Overview

This topic explains how to perform specific tasks in the System Administration Console.

Any valid user configured on the Application can log into the System Administration Console. The user has to be associated with the SMA_Admin menu group in order to access the System Administration Console screens. The SMA_Admin menu group is a new Menu added for this UI. This menu has a drop down for Colony Management UI and System Management Console.

System Administration Console screens are permission controlled. The user group associated with the user should have all required permissions to access the System Administration Console screens or actions.

To launch the System Administration Console, type the following URL:

```
http://<IP_Address>:<Port_No>/sma/sma/console/login.jsp
```

Managing Database Pools Overview

The System Administration Console contains menu items and UI screens for managing Database Pools. Using the System Administration Console screens, you can search for existing database pools, modify database pools, and delete database pools. You can also add new database pools.

Use the Database Pool Management branch of the System Administration Console for the tasks described in this section.

Searching for Database Pools

About this task

To search for database pools, navigate to System > Database Pool Management. The Database Pool Management Search screen appears.

Table 29. Search DB Pool Window

Field	Description
Search DB Pool	
Pool Id	From the drop-down list, select the search criteria and in the text box enter the value for the database pool Id.
Search	Click this button to view the database pool details.
Reset	Click this button to clear the database pool details.
DB Pool List	
Pool Id	The identification number of the database pool.
URL	The URL to connect to the database pool.
User	The user name associated with the database pool.
Create DB Pool	Click this button to create a new database pool.
DB Pool Details	Click this button to view and/or edit database pool details.

Table 29. Search DB Pool Window (continued)

Field	Description
Delete DB Pool	Click this button to delete an existing database pool.

Adding a Database Pool

About this task

To add a new Database Pool:

Procedure

In the DB Pool List panel, choose **Add DBPool**. The Manage DB Pool pop-up window displays.

Table 30. Manage DB Pool Window

Field	Description
Manage DB Pool	
Pool Id	Enter a unique identifier for the new Database Pool.
Save	Click on this button to save the details of the new database pool.
Reset	Click this button to clear the database pool details.
Pool Param List	
Name	The name of the parameter associated with the given database pool. By default, the following parameters are added to the Pool Param List whenever you create a new database pool: • user—Enter the username to connect to the database pool. • password—Enter the username to connect to the database pool. • url—Enter the JDBC URL to connect to the database pool. The JDBC URL should be in this format: jdbc:{DBType}://{HostName}:{Port}/{schema}?{prop} • driver—Enter the JDBC driver name for the database pool.
Value	The value of the parameter.
Add Param	Click on this button to add a new parameter to associate with the database pool.
Delete Param	Click on this button to delete the selected parameter from the Pool Param List.

Note: If you are using JDBC data sources, you must first create the JDBC data source and then create a pool with the same name.

Adding Effectivity Date Parameters for Database Pool Configuration

About this task

You can add the effectivity date and password parameters for a database pool. Using the effectivity dates, you can restrict the use of database pool configuration within a set of specified date ranges. Along with the effectivity dates, you can define the corresponding passwords that will take effect for database pool

configurations. You can define the <Name> <Value> pair for effectivity date and password parameter for database pool configuration in the following way:

Procedure

1. In the Name column add effective.1 and from the Value column select the date and time from the drop down window (for example, 2009-07-16T15:00:00).

   If you only select the effective date without selecting the timestamp, the system defaults the timestamp to the current timestamp.

2. Similarly, in the Name column add password.1 and in the Value column add the required value (for example, mypassword).

   In this case, the password mypassword defined in the password.1 parameter will become effective on July 16th 2009 at 3PM as defined in the effective.1 parameter.

   The effective.n and password.n parameter names are case sensitive. Also, if the current database password is invalid as per the effective date, then database connection is established using previous valid password.

   You can define multiple number of effective date and password parameters for a given database pool configuration as shown in the figure below:

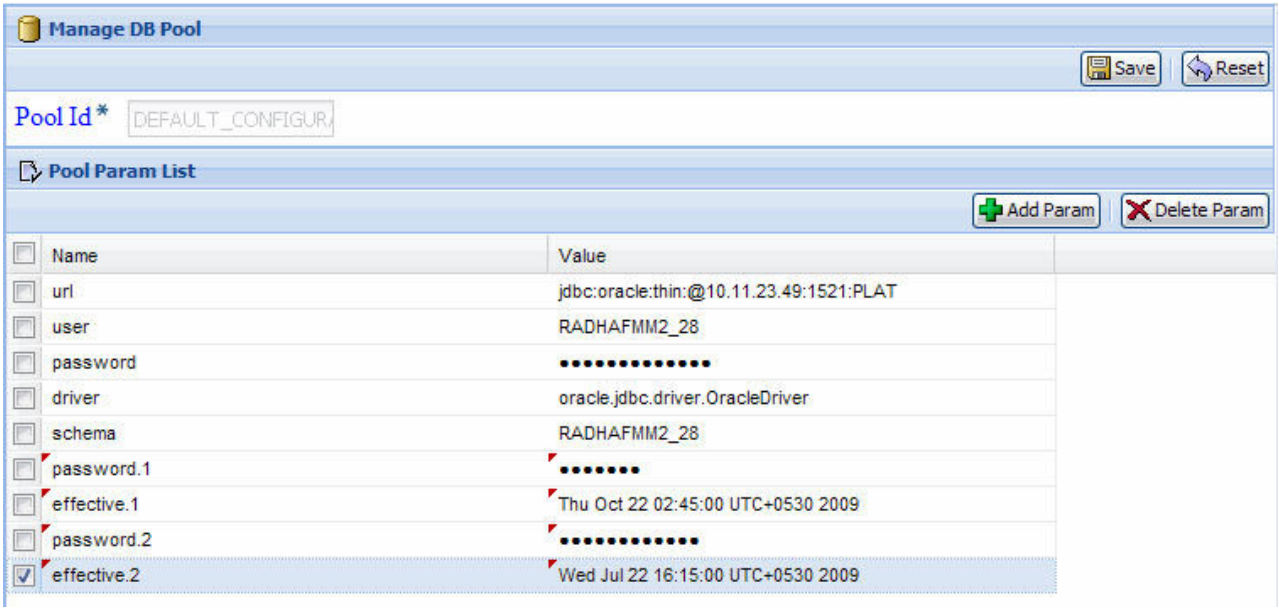

Figure 1. Effectivity Date and Password Parameters

In Figure 1, the example attributes effective.1 and effective.2 contain arbitrary numbers that do not represent a sequence. Sterling Selling and Fulfillment Foundation does not enforce the use of any number or sequence in these attributes. However, the date that you enter for an associated value is tied to the password for that attribute. For example, in Figure 1, password.2 (associated with effective.2) takes effect on Wednesday, July 22, and password.1 (associated with effective.1) takes effect on Thursday, October 22.

3. After adding colonies, you must generate tables and views. For information about generating tables, refer to the *Sterling Selling and Fulfillment Foundation: Multi-Tenant Enterprise Guide*. For information about running DBverify and adding views, refer to the *Sterling Selling and Fulfillment Foundation: Installation Guide*.

Modifying a Database Pool

About this task

To modify a Database Pool:

Procedure

In the DB Pool List panel, select the database pool whose details you want to modify from the list of database pools and then choose **DB Pool Details**.

Results

The Database Pool Details window displays.

Table 31. Manage DB Pool Window

Field	Description
Manage DB Pool	
Pool Id	Enter a unique identifier for the new Database Pool.
Save	Click on this button to save the details of the database pool.
Reset	Click this button to clear the database pool details.
Pool List	
Name	The name of the parameter associated with the given database pool.
Value	The value of the parameter.
Add Param	Click on this button to add a new parameter to associate with the database pool.
Delete Param	Click on this button to delete the selected parameter from the Pool Param List.

Deleting a Database Pool

About this task

To delete a Database Pool:

Procedure

In the DB Pool List panel, select the database pool that you want to delete from the list of database pools and then choose **Delete DB Pool**.

Managing Properties

About this task

You can create, modify, delete and add overrides for a base property using the **System -** > **Property Management** option. For details on how to manage properties, refer to the *Property Management Guide for Users.*

Colony Management Overview

From the Colony Management Search screen, you can search for, add, or delete a colony. In addition, you can modify, add, or delete a colony pool.

Colony ID
The identification number of the colony.

Prefix The prefix number associated with the colony.

Version
The version number associated with the colony.

Create Colony
Click this button to create a new Colony.

Colony Details
Click this button to view and/or edit Colony details.

Delete Colony
Click this button to delete an existing Colony.

Searching for Colonies

About this task

To search for colonies, navigate to System > Colony Management. The Colony Management Search screen appears.

Table 32. Search Colony Window

Field	Description
Search Colony	
Colony Id	From the drop-down list, select the search criteria and in the text box enter the value for the Colony Id.
Pool Id	From the drop-down list, select the Pool Id in which you want to search for the colonies.
Prefix	From the drop-down list, select the search criteria and in the text box enter the value for the prefix based on which you want to search for the colonies.
Table Type	From the drop-down list, select the table type based on which you want to search for the colonies. Valid values are: CONFIGURATION, METADATA, TRANSACTION, and STATISTICS.
Version	From the drop-down list, select the search criteria and in the text box enter the value for the version based on which you want to search for the colonies.
Search	Click this button to view the colony details.
Reset	Click this button to clear the colony details.
Colony List	
Colony ID	The identification number of the colony.
Prefix	The prefix number associated with the colony.

Table 32. Search Colony Window (continued)

Field	Description
Version	The version number associated with the colony.
Create Colony	Click this button to create a new Colony.
Colony Details	Click this button to view and/or edit Colony details.
Delete Colony	Click this button to delete an existing Colony.

Adding a Colony

About this task

To add a new Colony:

Procedure

In the Colony List panel, choose **Create Colony**. The Create Colony pop-up window displays.

Results

Field **Description**

Colony Id
Enter a unique identifier for the new Colony.

Prefix Enter the prefix number that you want to associate with the new Colony.

Save Click on this button to save the details of the new colony.

Cancel
Click on this button to cancel the create colony operation.

Colony Window

Modifying Colony Pools Associated with a Colony

About this task

To modify the Colony Pools associated with a Colony:

Procedure

In the Colony List panel, select the colony whose details you want to modify from the list of colonies and then choose **Colony Details**. The Colony Details window displays.

Results

Table 33. Colony Details Window

Field	Description
Colony Details	
Colony Id	Displays the identifier of the Colony that you are modifying.

Table 33. Colony Details Window (continued)

Field	Description
Prefix	Displays the prefix number associated with the Colony.
Version	Displays the version number associated with the Colony.
Colony Pool List	
Colony Pool Id	The identification number of the database pool to which this Colony belongs to.
Table Type	The table type to which this Colony and Database pool belongs to.
Add Colony Pool	Click this button to add a new Colony Pool for the Colony.
Delete Colony Pool	Click this button to delete the selected Colony Pool from the Colony.

Adding a Colony Pool
About this task

To add a new Colony Pool:

Procedure

In the Colony Pool List panel, choose **Add Colony Pool**. The Add Colony Pool pop-up window displays.

Results

Table 34. Colony Pool Window

Field	Description
Pool Id	From the drop-down list, select the pool id that you want to associate with the selected Colony.
Table Type	From the drop-down list, select the table type that you want to associate with the selected Colony and Database Pool. Valid values are: CONFIGURATION, METADATA, TRANSACTION, and STATISTICS.

Deleting a Colony Pool
About this task

To delete a Colony Pool:

Procedure

In the Colony Pool List panel, select the colony pool id that you want to delete from the list of colony pool id's and then choose **Delete Colony Pool**.

Delete a Colony

About this task

To delete a Colony:

Procedure

In the Colony List panel, select the colony that you want to delete from the list of colonies and then choose **Delete Colony**.

System Management Administration Console Localization Overview

The System Management Administration Console is based on the Web UI Framework. To customize the theme and locale displayed in the SMA, see the information about localizing the Web UI Framework in the *Sterling Selling and Fulfillment Foundation: Localization Guide*.

Table 35. System Management Administration Localizable Components

Category	Component	Applicable/ Localizable	For more details, refer to the
Framework Localization		Yes	Sterling Selling and Fulfillment Foundation: Localizing the Web UI Framework Guide
Locale Specific Formats			
	Date/Time	No	
	Numeric Group Separator	No	
	Numeric Decimal Separator	Yes	Sterling Selling and Fulfillment Foundation: Localizing the Web UI Framework Guide
	E-mail	No	
	Phone Number	No	
	Credit Card Number	No	
	Currency	No	
	Unit of measure for dimensions, volume, and weight	No	
	Time Zones	Yes	*Sterling Selling and Fulfillment Foundation: Localization Guide*
Literals and Data			

Table 35. System Management Administration Localizable Components (continued)

Category	Component	Applicable/ Localizable	For more details, refer to the
	Resource Bundle	Yes	Sterling Selling and Fulfillment Foundation: Localizing the Web UI Framework Guide and "Localize Resource Bundles"
	Factory Setup	Yes	*Sterling Selling and Fulfillment Foundation: Localization Guide* and "Localize Factory Setup" on page 60
	Master Data - Item related	No	
UI Branding			
	Structure of Panel Components	No	
	Localizing Themes/Cascading Style Sheets(CSS)	Yes	"Localizing Themes" on page 59
	Localizing Icons	Yes	"Localizing Icons" on page 59

Localize Resource Bundles

The user interface components in the System Management Administration Console use resource bundles that contain all the static literals displayed throughout the application. After a third-party performs translation in multiple languages, a folder corresponding to each of the locale, and comprising the corresponding bundle files, is generated. For example, if a locale has been created for Japan in Japanese language, a folder called `ja\JP` is generated. In addition, the literals that are used in customized screens and have their own resource bundles, are also considered during the localization process.

A resource bundle is a file that comprises resource bundle keys and corresponding values. The values pertaining to these resource bundle keys are also translated as part of localization. Each field in the user interface has a key associated with it. To display the translated literal for a field in the user interface, the localized value of the key associated with the field is fetched from the bundle file.

Use the following files to localize the System Management Administration Console:

- bundle-index

  You can use this file to localize the following:

  – Error and warning messages displayed on the user interface
  – Descriptions pertaining to labels, panels, and headings in the user interface
  – Dynamic data within a literal. For example, the user interface may have to display a literal that informs a user that an input value cannot exceed a

certain number of characters, and that the number of characters is dynamic. In this case, if the maximum character length for a description is set at 428 characters, 428 is the value of the parameter. The corresponding bundle entry is defined as "b_MaxCharLengthExceeded":"The value cannot exceed {0} characters".

- smabundle.properties

  You can use the smabundle.properties file to localize entities such as menu entries, related tasks, and advanced search criteria. The smabundle.properties file is located in the <INSTALL_DIR>/resources/ folder.

  The resource bundles can be categorized as server-side bundles and client-side bundles. The server-side bundles pertain to the data that is localized at the application server, and are stored in the smabundle.properties file. For example, the options displayed in the menu are localized by the server-side bundles. The client-side bundles pertain to the data that is localized at the client-side. The client-side resource bundles are stored in bundle-index file. For example, the labels on the user interface are localized by the client-side resource bundles.

Localizing the Bundle-Index File:
About this task

To localize the bundle-index file:

Procedure

1. If you are customizing the System Management Administration Console, you must generate the bundle-index file.

   Therefore, run the following script in <INSTALL_DIR>/bin to extract the literals from the bundle javascript files to the bundle-index file:

   For Windows:

   ```
   sci_ant.cmd -f jsUtil.xml bundle.index
   -Dsourcedir=<INSTALL_DIR>/repository/eardata/sma/war -Dindexdir=<INSTALL_DIR>/
   repository/eardata/sma/localization_index
   ```

   where -Dindexdir is the output directory.

   For Linux/UNIX:

   ```
   ./sci_ant.sh -f jsUtil.xml bundle.index -Dsourcedir=<INSTALL_DIR>/repository/
   eardata/sma/war -Dindexdir=<INSTALL_DIR>/repository/eardata/sma/localization
   _index
   ```

   where -Dindexdir is the output directory.

   A new folder, localization_index, containing the bundle-index file is created in the -Dindexdir directory.

   For more information about the generated files, refer to the *Sterling Selling and Fulfillment Foundation: Localizing the Web UI Framework*.

2. Copy bundle-index to the bundle-index_<language>_<country> file pertaining to the locale.

   For example, if you want to localize the application for France in French language, copy bundle-index to the bundle-index_fr_FR file.

3. Edit the bundle-index_<language>_<country> file with the translations, and save the file.

   The bundle-index file is localized. After this, perform the post-localization steps on the client side.

   For more information about the post-localization steps, refer to the topic, Post-localization Tasks.

Note: Ensure that you run the script in the bundle.index mode for the Web UI Framework files.

For more information about the bundle collector utility, refer to the *Sterling Selling and Fulfillment Foundation: Localizing the Web UI Framework*.

Localizing the smabundle.properties File:
About this task

To localize the smabundle.properties file:

Procedure

1. If you are customizing the System Management Administration Console, save the extended resource bundles as

   <INSTALL_DIR>/resources/extn/
   <Extn_SMA_Bundle>_<language>_<country>.properties where
   <Extn_SMA_Bundle> is the bundle file containing the extended resource bundles for System Management Administration Console.
2. Copy the smabundle.properties file to the

   smabundle_<language>_<country>.properties file pertaining to the locale.

   For example, if you want to localize the application for France in French language, copy smabundle.properties to the smabundle_fr_FR.properties file.
3. Edit the smabundle_<language>_<country>.properties file with the translations, and save the file.

   The smabundle.properties file is localized. After this, perform the post-localization steps on the server side. For more information about the post-localization steps, refer to the topic, Post-localization Tasks.

Localizing New bundle js Entries:
About this task

This topic describes the steps required to update your localized bundle js files with the new entries that have been added in the English bundle js files after localization of the application is completed.

To update the bundle js files after installing the changes in the English bundle js files:

Procedure

1. Run the jsUtil tool to generate a fresh bundle-index file to obtain the newly added English bundle entries.

   Navigate to the <INSTALL_DIR>/bin folder and run the following command:

   For Windows:

   ```
   sci_ant.cmd -f jsUtil.xml bundle.index
   -Dsourcedir=<INSTALL_DIR>/repository/eardata/sma/war
   -Dindexdir=<INSTALL_DIR>/repository/eardata/sma/localization_index
   ```

   For Linux/UNIX:

   ```
   ./sci_ant.sh -f jsUtil.xml bundle.index
   -Dsourcedir=<INSTALL_DIR>/repository/eardata/sma/war
   -Dindexdir=<INSTALL_DIR>/repository/eardata/sma/localization_index
   ```

   where <INSTALL_DIR> is the directory in which System Management Administration Console is installed.

   The bundle-index file is generated in the localization_index directory.

2. Compare the bundle-index file generated in 1 on page 57, and your localized bundle-index_<language>_<country> file to determine the newly added entries. Translate the newly added entries and add them in your localized bundle-index_<language>_<country> file.
3. Run the jsUtil tool in map mode to regenerate the localized bundle js files from the updated bundle-index_<language>_<country> file.

   Navigate to the <INSTALL_DIR>/bin folder and run the following command:

   For Windows:

   ```
   sci_ant.cmd -f jsUtil.xml bundle.map
   -Dsourcedir=<INSTALL_DIR>/repository/eardata/sma/war
   -Dindexdir=<localization directory containing the localized bundle-index file>
   -Dindexfile=<localization directory containing the localized bundle-index file>/
   <localized bundle-index file> -Dwebcontentdepth=0
   ```

   For Linux/UNIX:

   ```
   ./sci_ant.sh -f jsUtil.xml bundle.map
   -Dsourcedir=<INSTALL_DIR>/repository/eardata/sma/war
   -Dindexdir=<localization directory containing the localized bundle-index file>
   -Dindexfile=<localization directory containing the localized bundle-index file>/
   <localized bundle-index file> -Dwebcontentdepth=0
   ```

   For example, if you have localized to the French locale and the localization directory is <INSTALL_DIR>/repository/eardata/sma/localization_index, and the localized bundle-index file is bundle-index_fr_FR, you must run the following command:

   For Windows:

   ```
   sci_ant.cmd -f jsUtil.xml bundle.map
   -Dsourcedir=<INSTALL_DIR>/repository/eardata/sma/war
   -Dindexdir=<INSTALL_DIR>/repository/eardata/sma/localization_index
   -Dindexfile=<INSTALL_DIR>/repository/eardata/sma/localization_index/
   bundleindex_fr_FR -Dwebcontentdepth=0
   ```

   For Linux/UNIX:

   ```
   ./sci_ant.sh -f jsUtil.xml bundle.map
   -Dsourcedir=<INSTALL_DIR>/repository/eardata/sma/war
   -Dindexdir=<INSTALL_DIR>/repository/eardata/sma/localization_index
   -Dindexfile=<INSTALL_DIR>/repository/eardata/sma/localization_index/
   bundleindex_fr_FR -Dwebcontentdepth=0
   ```
4. Regenerate the minified localized bundle js files.

   Navigate to the <INSTALL_DIR>/bin folder and run the following command:

   For Windows:

   ```
   sci_ant.cmd -f jsUtil.xml minify-js
   -DsrcDir=<INSTALL_DIR>/repository/eardata/sma/war
   -DdestDir=<INSTALL_DIR>/repository/eardata/sma/war -Dminify=true
   -DcreateIndividualFile=false
   -DjsbDir=<INSTALL_DIR>/repository/eardata/sma/war/builder
   ```

   For Linux/UNIX:

   ```
   ./sci_ant.sh -f jsUtil.xml minify-js
   -DsrcDir=<INSTALL_DIR>/repository/eardata/sma/war
   -DdestDir=<INSTALL_DIR>/repository/eardata/sma/war -Dminify=true
   -DcreateIndividualFile=false
   -DjsbDir=<INSTALL_DIR>/repository/eardata/sma/war/builder
   ```
5. Rebuild the EAR and re-deploy the application.

   For more information about rebuilding the EAR, refer to the *Sterling Selling and Fulfillment Foundation: Installation Guide*.

Localizing Themes
About this task

The Look and Feel (which include themes, images, and icons) of the UI in the Web UI Framework is CSS file-driven.

You can add, override, or modify CSS entries by providing the locale specific CSS files. The default themes provided by System Management Administration Console are present in following css file:

`<INSTALL_DIR>/repository/eardata/sma/war/sma/css/sma.css`

To provide CSS entries for a locale:

Procedure

1. You need to place a new file with same name in the following directory:

   `<INSTALL_DIR>/repository/eardata/sma/war/localization/<locale>/sma/css/sma.css` where `<locale>` is in the format `<language_code>/<country_code>/<variant>`.

   For example,

   `<INSTALL_DIR>/repository/eardata/sma/war/localization/en/US/EST/sma/css/sma.css.`
2. Add CSS entries in the new file.

   For example to localize welcome message, add the following entry:

```
.sc-welcome-message {
background: transparent;
            margin-right: 6px;
}
```
3. Rebuild the Enterprise ARchive (EAR) file.

   For more information about rebuilding the EAR, refer to the *Sterling Selling and Fulfillment Foundation: Installation Guide*.

Localizing Icons
About this task

Icons are displayed in the user interface using the CSS entries. To localize the icons, you must override the appropriate CSS entries such that they point to the localized version of the icons.

To localize the icons for a locale:

Procedure

1. You need to place a new file with same name in the following directory:

   `<INSTALL_DIR>/repository/eardata/sma/war/localization/<locale>/sma/css/sma.css.`

   where `<locale>` is in the format `<language_code>/<country_code>/<variant>`.

   For example,

   `<INSTALL_DIR>/repository/eardata/sma/war/localization/en/US/EST/sma/css/sma.css.`
2. Add CSS entries in the new file.

   For example, to localize the create button, add the following entry:

```
.sma-create-button {
background-image: url(../console/icons/customadd.gif) !important;
background-repeat: no-repeat;
}
```

3. Copy the localized icon to the relative path specified in the background property.

   For example,

   ```
   <INSTALL_DIR>/repository/eardata/sma/war/localization/en/US/EST/sma/
   console/icons/customadd.gif
   ```

4. Rebuild the Enterprise ARchive (EAR) file.

   For more information about rebuilding the EAR, refer to the *Sterling Selling and Fulfillment Foundation: Installation Guide*.

Localize Factory Setup

Besides storing your transactional data, the database also stores configuration data, such as error codes and item descriptions of various attributes. This means that the database may have to store values in a language-specific format. If these database literals are not localized, screen literals are displayed inconsistently, with some being displayed in the localized language, and others being displayed in English.

For more information about localizing factory setup, refer to the *Sterling Selling and Fulfillment Foundation: Localization Guide*.

Post-localization Tasks

The localized resource bundles are not automatically used by the System Management Administration Console. To ensure that the localized bundles are used by the System Management Administration Console. you must re-create the Sterling Selling and Fulfillment Foundation EAR package.

The sections that follow describe the post-localization activities on the server side and client side.

Post-localization on the Server Side

About this task

After you have localized the bundles, perform the following steps on the server side:

Procedure

1. Navigate to the <INSTALL DIR>/bin folder.
2. To create the resource jar, run the following command:

   For Windows:

   ```
   deployer.cmd -t resourcejar
   ```

   For Linux/UNIX:

   ```
   deployer.sh -t resourcejar
   ```

3. Rebuild the Enterprise ARchive (EAR) file.

   For more information about rebuilding the EAR, refer to the *Sterling Selling and Fulfillment Foundation: Installation Guide*.

Post-localization on the Client Side

About this task

After you have localized the bundles, perform the following steps on the client side:

Procedure

1. Navigate to the <INSTALL_DIR>/bin folder.
2. To generate localized JavaScript source files from the localized bundle-index file, run the following command:

   For Windows:

   ```
   sci_ant.cmd -f jsUtil.xml bundle.map
   -Dsourcedir=<INSTALL_DIR>/repository/eardata/sma/war
   -Dindexdir=<INSTALL_DIR>/repository/eardata/sma/localization_index
   -Dindexfile=<INSTALL_DIR>/repository/eardata/sma/localization_index/
   <localized bundle-index file> -Dwebcontentdepth=0
   ```

   For Linux/UNIX:

   ```
   ./sci_ant.sh -f jsUtil.xml bundle.map
   -Dsourcedir=<INSTALL_DIR>/repository/eardata/sma/war
   -Dindexdir=<<INSTALL_DIR>/repository/eardata/sma/localization_index
   -Dindexfile=<INSTALL_DIR>/repository/eardata/sma/localization_index/
   <localized bundle-index file> -Dwebcontentdepth=0
   ```

   For example, if you have localized to the French locale and the localization directory is <INSTALL_DIR>/repository/eardata/sma/localization_index, and the localized bundle-index file is bundle-index_fr_FR, you must run the following command:

   For Windows:

   ```
   sci_ant.cmd -f jsUtil.xml bundle.map
   -Dsourcedir=<INSTALL_DIR>/repository/eardata/sma/war
   -Dindexdir=<INSTALL_DIR>/repository/eardata/sma/localization_index
   -Dindexfile=<INSTALL_DIR>/repository/eardata/sma/localization_index/
   bundleindex_fr_FR -Dwebcontentdepth=0
   ```

   For Linux/UNIX:

   ```
   ./sci_ant.sh -f jsUtil.xml bundle.map
   -Dsourcedir=<INSTALL_DIR>/repository/eardata/sma/war
   -Dindexdir=<INSTALL_DIR>/repository/eardata/sma/localization_index
   -Dindexfile=<INSTALL_DIR>/repository/eardata/sma/localization_index/
   bundleindex_fr_FR -Dwebcontentdepth=0
   ```

3. Run the following command:

   For Windows:

   ```
   sci_ant.cmd -f jsUtil.xml minify-js
   -DsrcDir=<INSTALL_DIR>/repository/eardata/sma/war
   -DdestDir=<INSTALL_DIR>/repository/eardata/sma/war -Dminify=true
   -DcreateIndividualFile=false
   -DjsbDir=<INSTALL_DIR>/repository/eardata/sma/war/builder
   ```

   For Linux/UNIX:

   ```
   ./sci_ant.sh -f jsUtil.xml minify-js
   -DsrcDir=<INSTALL_DIR>/repository/eardata/sma/war
   -DdestDir=<INSTALL_DIR>/repository/eardata/sma/war -Dminify=true
   -DcreateIndividualFile=false
   -DjsbDir=<INSTALL_DIR>/repository/eardata/sma/war/builder
   ```

4. Rebuild the Enterprise ARchive (EAR) file.

   For more information about rebuilding the EAR, refer to the S*elling and Fulfillment Foundation: Installation Guide*.

   Note: Ensure that you run the script in the bundle.map and minify-js modes for the Web UI Framework files.

   For more information about the bundle collector utility, refer to the *Sterling Selling and Fulfillment Foundation: Localizing the Web UI Framework*.

Note: After localizing the System Management Administration Console, you may want to verify the application.

However, because resource bundles are cached in a Web browser, it is recommended that you clear the Web cache before verifying the application.

Compiling and Minifying JavaScript Files in the System Management Admin

About this task

For compiling and minifying JavaScript Files in the System Administration console, you need to perform the following sequence of actions;

Procedure

1. Run the `jscompile` command to get possible JavaScript compilation warnings using the sci_ant.sh command from the `<Install>/bin` directory. This command works with the `jsUtil.xml` file in the same directory. This command can include the following properties:

   Note: This is an optional step and not a requirement for minification.

   - gis.install: Installation directory path.
   - srcDir: Source directory.
   - errorOnly: Indicates whether to check for all warnings and errors (false) or for errors only (true). Defaults to false.
   - format: Output format - (h) for html/(t) for text. Defaults to t. If errorOnly is set to true, only html (h) is the valid option.
   - outputFile: Output file path. If file path is not provided or file doesn't exist. all warnings will be directed to standard output.
   - warningOptions: Warning options (comma separated). Default options: [onevar, undef, forin, debug, browser, eqeqeq, newcap, evil]. For all warning options, see http://www.jslint.com/

     For example;

     ```
     ./sci_ant.sh -f jsUtil.xml jscompile -Dgis.install=<Install Dir> -DsrcDir=
     <Install Dir>/repository/eardata/sma/war/sma
     ```

   Note: If you are using `sci_ant.sh`, then `gis.install` becomes optional.
2. Combine your files into one file by minifying the files using the `sci_ant.sh` command from the `<Install>/bin` directory. This command works with the `jsUtil.xml` file in the same directory. This command can include the following properties:
   - gis.install: Installation directory path.
   - jsbDir: JSB directory path (mandatory).
   - minify: Indicates whether files should be minified (true/false). Defaults to true (minify files). Optional.
   - srcDir: Source directory. Will be used if input attribute is not specified in JSB. Optional.
   - destDir: Destination directory. Will be used if input attribute is not specified in JSB. Optional.
   - createIndividualFile: Indicates whether to create individual files (true/false). Defaults to false (do not create individual files). Optional.
   - jscompile: Indicates whether to get JavaScript warning/errors (true/false). Defaults to true (get errors).

For example;

```
./sci_ant.sh -f jsUtil.xml minify-js -Dgis.install=<Install Dir>
-DsrcDir=<Install Dir>/repository/eardata/sma/war
-DjsbDir=<Install Dir>/repository/eardata/sma/war/builder
-DdestDir=<Install Dir>/repository/eardata/sma/war
```

Note: If you are using `sci_ant.sh`, then `gis.install` becomes optional.

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