Oracle® Scheduler

Implementation Guide

Release 11*i* (11.5.6)

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1 Introduction

In this chapter you will find an overview of the products in the Field Service suite as well as an overview of the Oracle Scheduler application. An overview of the new functionality included in this release is also given.

Please address the following topics for details:

- Oracle Field Service Suite Overview
- Oracle Scheduler Overview
- New in this Release

1.1 Oracle Field Service Suite Overview

The Oracle Field Service suite supports an automated process used by service organizations to manage their field service operations. It assists in the entire service process from taking the customer call to fixing and reporting on the problem at a customer site.

The Oracle Field Service suite offers a range of products to meet your organization's business needs. The following table lists all the products in the suite.

Suite Product	Description
Customer Care	Not really a product of the Field Service suite but the Service Request form is delivered along with the Field Service application to take the customers call for service and create a service request.

Suite Product	Description
CRM Foundation	The products in CRM Foundation are essential to use Field Service. They are used to create tasks, territories, define resources, and help in the assignment of tasks to resources. CRM Foundation comes with Field Service.
Oracle Field Service	The Oracle Field Service application assists in assigning tasks to service representatives, creating and dispatching daily schedules, monitoring progress, and reporting on material, expense, and labor transactions.
Scheduler	Scheduler enables optimization of scheduling capabilities of tasks to qualified resources. It takes into account driving time, distance, part availability and creates part reservations.
Spares Management	Spares Management is used to provide additional logistics and planning features to manage a service parts inventory in a multi-location environment.
CRM Gateway for Mobile Devices	The CRM Gateway for Mobile Devices consists of a mobile client and a central application. It provides data transport between the Oracle CRM enterprise database and the Oracle mobile client database.
Field Service/Laptop	This is a remote application typically installed at a service representative's laptop to receive his daily schedule and report on progress, material, expense, and labor.
Field Service/Palm™ Devices	This is a remote application for a handheld device so a service representative can receive his daily schedule and report on progress, material, expense, and labor.
Field Service/Wireless	This is a remote application for a WAP enabled device so a service representative can receive his daily schedule and report on progress, expense, and labor.

1.2 Oracle Scheduler Overview

The objective of Oracle Scheduler is to provide state of the art scheduling and optimization capabilities of tasks and trips specifically for field service business needs. Oracle Scheduler offers intelligent scheduling or scheduling with the window to promise as scheduling methods. It largely depends on your business scope which method is preferred. For both methods this will be done by applying pre-defined constraints including travel time and distance to qualified resources, taking into account part availability. Constraints are related to costs and allow you to define the Oracle

Scheduler algorithm, so that the resulting schedule fits your specific business needs.

Reviewed in more detail is:

- Scheduling Intelligent
- Scheduling with the Window to Promise
- Relation to the Assignment Manager
- Introduction to the Cost Mechanism
- How the Scheduler makes use of the Geographic Component

1.2.1 Scheduling Intelligent

This option for scheduling is mostly used in a business to business organization. The scheduling intelligent method enables you to perform an automated and manual process of assigning tasks, based upon pre-defined constraints, to qualified service representatives. These constraints are defined as costs and are set up to meet your organizations business needs. Intelligent scheduling allows assigning of single and multiple tasks. The result of scheduling intelligent is the creation of a trip of sequenced tasks for each service representative. You can optimize a service representatives trip later in the process or reassign a task, before dispatching the schedule to the service representative.

The following graphic visualizes how Oracle Scheduler schedules using the Intelligent option.

1.2.2 Scheduling with the Window to Promise

This option for scheduling is mostly used in a business to consumer market. The Window to Promise is designed to directly offer your customer a date and timeslot. A timeslot is the period in which a service representative is visiting the customer to perform a service task. To a customer this is the most important to know. The options presented to you to offer to the customer are a combination of selecting a qualified resource based upon pre-defined constraints and the time slots that are pre-defined to offer to a customer. These constraints are defined as costs and are set up to meet your organizations business needs. The outcome of scheduling with the Window to Promise is a task and resource assigned to a time slot. The time slot is reserved for a customer. One timeslot can be reserved for multiple customers. You can optimize a service representatives trip later in the process before committing the schedule to the current situation or reassign a task to see if it is more economic to reschedule it. Scheduling with the window to promise does not allow for an automated process of scheduling and can only be done for one task at a time.

The following graphic visualizes how Oracle Scheduler schedules using the Window to Promise option.

1.2.3 Relation to the Assignment Manager

The Assignment Manager is a component in the CRM applications suite that assists in the assigning of ownership of documents and tasks and the availability of qualified resources needed to perform a task. When the Oracle Scheduler is installed, the Assignment Manager searches for qualified resources to complete the selected field service task(s) based upon

selection criteria set within the Assignment Manager. These qualified resources are passed on to the Oracle Scheduler to make the actual assignment based upon pre-defined constraints. The Oracle Scheduler uses the Assignment Manager's graphical user interface for scheduling field service specific tasks.

For more information see *CRM Applications Foundation Concepts and Procedures*.

1.2.4 Introduction to the Cost Mechanism

When a task can be performed by more then one service representative, it's a matter of deciding which service representative can perform the task most efficiently. Costs are related to your organization's business rules for planning and allow the cost mechanism to compare the alternative options for scheduling. Costs should not be read as financial cost, but more as 'penalty points'.

Cost functions are parameterized by cost settings that are stored in the database.

1.2.5 How the Scheduler makes use of the Geographic Component

Providing field service always includes managing travel, therefore the appropriate geography is always a key consideration for the Oracle Scheduler scheduling process, in particular for geography based scheduling. The component that determines travel time in Oracle Scheduler is the Time Distance Server. The time distance server determines based upon the appropriate road network the distance between two locations and the amount of time it takes to travel. To calculate travel time and distance between two tasks each task therefore needs location information, a locus, this is derived from the address using street, city, country and/or zip code by the location finder.

1.3 New in this Release

Address the following table to see what changed this release:

	Description
1.	Scheduler UI enhancement as part of the Field Service Dispatch Center.
2.	Integration with Spares Management enabling the automatic reservation of parts when scheduling tasks.
3.	Automatic scheduling of tasks without the interaction of a dispatcher.

2 Technology, Requirements, and Performance

This chapter describes the technology stack used and gives an architectural overview of the Scheduler application. Listed are the software and hardware requirements.

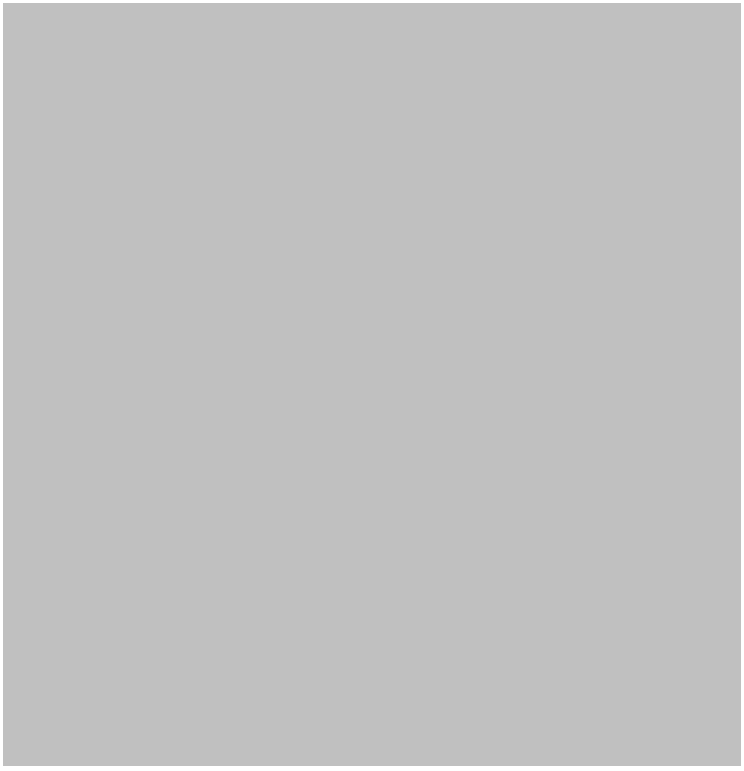
Please address the following topics for details:

- Architectural Overview
- Minimum Software Requirements
- Minimum Hardware Requirements

2.1 Architectural Overview

Scheduler is compliant with the latest technology-stack and conforms to all the standard components required on client, middle, and database tiers. For more information please refer to *Installing Oracle Applications*.

Scheduler is integrated with many other Oracle Applications. The following figure visualizes this integration. All applications involved and their relation are explained in more detail in the sections following the figure.



2.1.1 Field Service

Scheduler is tightly integrated with Field Service. Use Scheduler from the Field Service Dispatch Center for task scheduling and parts reservations.

2.1.2 Service Request

Scheduler is also integrated with Service Request. Use Scheduler from the Service Request for task scheduling.

2.1.3 Assignment Manager

The Assignment Manager assists in the scheduling of tasks by finding an initial qualified service representative to resolve the task. Indirectly the following applications have a relation with Scheduler:

- Installed Base, a preferred service representative to perform the field visit can be recommended from the installed base.
- Contracts, a preferred service representative to perform the field visit can be recommended from Contracts Core, or Contracts Service.

- Territory Manager, territories with qualifiers are created to filter qualified service representatives.
- Calendar, the availability of the service representative is checked in his or her calendar.

This information is passed on to Scheduler.

2.1.4 Spares Management

The list with qualified resources retrieved from the Assignment Manager is passed on to Spares Management by Scheduler. In Spares Management a check is done on the availability and location of the parts for the task for each resource from this list. A list with feasible options and related cost is then returned to Scheduler. Scheduler applies it's pre-defined constraints including travel time and distance to this list of resources. When a task assignment is created, a reservation for the part is made. When the task is committed, an order for the part is created.

2.2 Minimum Software Requirements

Please refer to *Installing Oracle Applications* for software requirements.

2.3 Minimum Hardware Requirements

Please refer to *Installing Oracle Applications* for hardware requirements.

3 Dependency Requirements and Verification

This chapter gives an overview of the mandatory and conditional application dependencies: ERP, CRM, and 3rd-Party application that must be implemented prior to implementing Oracle Scheduler.

Please address the following topics for details:

- Mandatory Dependencies
- Conditional Dependencies
- Installation and Dependency Verification

3.1 Mandatory Dependencies

Before setting up Oracle Scheduler, you must install and fully implement these Oracle applications or components:

- Oracle Field Service
- Oracle CRM Foundation
  - Assignment Manager
  - Calendar

For information regarding the installation and implementation of these applications, see the appropriate documentation.

The tasks that are necessary to use the additional functionality included with Oracle Field Service are described in the following chapters.

3.2 Conditional Dependencies

To work effectively with Oracle Scheduler it is recommended that you install and fully implement these Oracle applications or components:

- Oracle Spares Management
- Navigation Technologies (Navtech) spatial data

For information regarding the installation and implementation of these applications, see the appropriate documentation.

The tasks that are necessary to use the additional functionality included with Oracle Field Service are described in the following chapters.

3.3 Installation and Dependency Verification

For each mandatory and conditional dependency make sure the following has been installed.

Dependency	Installation Requirement
Oracle Field Service	Version 11.5.6
Oracle CRM Foundation	Version 11.5.5
Oracle Spares Management	Version 11.5.6

The tasks that are necessary to use the additional functionality included with Oracle Scheduler are described in the following chapters.

4 Implementation Overview

This chapter describes the implementation process and gives you a recommended implementation task sequence to follow.

Please refer to the following topics:

- Process Description
- Implementation Task Sequence

4.1 Process Description

The implementation process is driven by the implementation task sequence.

4.2 Implementation Task Sequence

·Complete the following implementation steps in sequential order.

Step	Required	Step Title
1.	Yes	Confirming Implementation and Setup of Field Service
2.	Yes	Confirming Setup of Spatial Data
3.	Yes	Confirming Setup of Spares Management
4.	Yes	Setting Up Scheduler

5 Implementation Tasks

This chapter describes the implementation tasks in detail in the recommended order.

Please refer to the following implementation tasks:

- Confirming Implementation and Setup of Field Service
- Confirming Setup of Spares Management
- Confirming Setup of Spatial Data
- Setting Up Scheduler

5.1 Confirming Implementation and Setup of Field Service

Make sure Field Service is fully installed, implemented, and setup as described in the *Oracle Field Service Implementation Guide*.

Ensure that all the following implementation steps have been reviewed and completed as necessary:

- Confirming Setup of Assignment Manager
- Confirming Setup of Calendar
- Setting Up Field Service
  - Generating Shift Tasks
  - Assigning Resources to Subinventories

5.2 Confirming Setup of Spares Management

When scheduling Scheduler takes into account the spare parts availability for a resource for a task. It derives this information from Spares Management. The information used from Spares Management is expressed in both time and cost.

Scheduler provides Spares Management with an availability condition for a part definition for a task. The availability conditions are defined in Spares Management. The availability condition represents the urgency for a part to be available to resolve the task, based on the likelihood a part is used to resolve a task. In Spares Management a relation between the problem definition of a task, and the parts that are likely to be used to resolve the task is established. For each of these parts it is calculated which one is used the most. The part used the most is mapped to a high likelihood percentage to resolve the task.

For automatic scheduling an availability condition is defined at setup in the profile options.

Make sure the availability condition has been defined in Spares Management. For more information see *Oracle Spares Management Implementation Guide*.

5.3 Confirming Setup of Spatial Data

Spatial data is a separate product and is used for Map Display (Dispatch Center), and Oracle Scheduler functionality such as Route Calculation (Time Distance Server) and Location finding (geocoding).

The supplier for Spatial Data is Navigation Technologies (Navtech). Navtech supplies spatial data standardized to be used with oracle applications by conforming to the Geographic Data Format (GDF).

If spatial data was not already installed during the Field Service implementation please do so as described in chapter 5 of the *Oracle Field Service Implementation Guide*, Setting up Spatial Data.

5.4 Setting Up Scheduler

Setting up the Scheduler application includes the following setup steps:

Step	Description
1. Setting Up Scheduling Parameters	Use this Scheduler setup screen to refine your business needs and define business rules for planning.
2. Setting Up the Time Distance Server (TDS)	The Time Distance Server is Scheduler functionality used to calculate travel time and distance.
3. Activating Autonomous Scheduling	Start this concurrent program to activate automatic scheduling.
4. Profile Options	Set all the Scheduler specific profile options.

5.4.1 Setting Up Scheduling Parameters

Use the Scheduler setup screen to refine your business needs and define business rules for planning. Correct setup provides you with state of the art scheduling and optimization capabilities.

The setup screens consist of:

Setup Screen	Description
Cost Parameters tab	The cost parameters are setup to create a schedule that will take into account your organizations business rules for planning.

Setup Screen	Description
Window To Promise tab	Use the Window To Promise tab to adjust the time slots of service you want to offer to your customer.

5.4.1.1 Cost Parameters tab

The Scheduler provides a schedule based upon cost. Each cost is related to a factor that might influence your schedule, these factors are pre-defined. The information regarding these factors must be available to make the cost mechanism work. Set up cost parameters to meet your organizations business rules for planning, prioritize these business rules, and address a low cost to a parameter with low priority. All these cost parameters are taken into account when scheduling a task.

Scheduler will calculate the cost of adding a task to the day trip of a service representative at different positions and compare the options. The option with the lowest cost will be the option presented to the planner. This will be done for each qualified service representative.

When using Auto-assign the option with the lowest cost is used to schedule the task automatically.

Please refer to the Cost Related Constraints topic for an explanation on the cost parameters.

Options

Perform the steps that take you through the setup screen described in the following table in sequential order.

Step	Option	Description
1.	Description	A description of the cost parameter.
2.	Value	Edit the cost value.

5.4.1.2 Window to Promise tab

The Window to Promise concept has two objectives: from the service supplying side (your organization) and from the service demanding side (customer). The service supplying sides objective is to make the time slot in which a task needs to be planned as large as possible, to create the most efficient trip. However the service demanding sides objective is to reduce this time slot to be as small as possible, to create the most efficient personal planning and reduce the inconvenience of waiting for a service representative. The time slot is defined by time bounds: Start Time and End

Time. The purpose of the Window To Promise is to adjust the default time bounds to the biggest time slot that is acceptable to offer to the customer.

Use the Window to Promise setup screen to adjust the time slots you want to offer to your customer. By default a set of time slots is created.

Options

Perform the steps that take you through the setup screen described in the following table in sequential order.

Step	Option	Description
1.	Name	Time slot name.
2.	Start Time	Time slot is bound to start.
3.	End Time	Time slot is bound to end.
4.	Description	A description of the time slot.

5.4.2 Setting Up the Time Distance Server (TDS)

The Time Distance Server (TDS) is used to calculate travel time and distance in between two tasks. You can calculate the travel time and distance with the TDS in three ways.

Please refer to the following topics for details on TDS setup:

- Using Default Values for Route Calculation
- Calculating a Route with Time Boundaries and Average Speed
- Calculating the Actual Travel Time and Distance
- Combine the Options

5.4.2.1 Using Default Values for Route Calculation

You can choose to use default values for route calculation by the TDS. This is referred to as the Default TDS.

This is done by setting the following profile options:

Steps

1. Switch to the Field Service Administrator responsibility.
2. Navigate to **Other > Profiles**.
3. Open the Find Personal Profile Values window.
4. At **Profile Name** enter **CSR%**.

5. Click **Find**.

   You can set these options in any sequence.

Step	Option	Description
1.	CSR: Use Default TDS	Choose to calculate the travel time and distance by setting default values for both.

6. **Save** your work.
7. Close the window and again navigate to **Other > Profiles**.
8. Open the Find Personal Profile Values window.
9. At **Profile Name** enter **CSF%**.
10. Click **Find**.

    You can set these options in any sequence.

Step	Option	Description
1.	CSF: Default travel distance for Time Distance Server	The value is used as the default travel distance between two tasks.
2.	CSF: Default travel duration for Time Distance Server	The value is used as the default travel duration between two tasks.

11. **Save** your work.

5.4.2.2 Calculating a Route with Time Boundaries and Average Speed

You can choose to calculate a route in between to locations (tasks) by applying time boundaries and average speed. This is referred to as the Location TDS. The following method is applied:

1. You define the maximum amount of travel distance a service representative has to travel to a customer (as a crow flies).
2. You cut up this distance in a maximum of three parts and define a maximum average speed for each part. Typically the average speed in the first part would be the lowest, like travelling in a city, the second a little faster, and the third part the fastest, e.g. motor way. Each part is restrained by a boundary. This is all defined by setting profile options.
3. TDS calculates the actual distance in between two tasks as a crow flies.
4. Then it applies the boundaries set and the average speed for each boundary to this distance.

Spatial data needs to be installed and a location for each task with a geocode for the address needs to be defined. When the geocode is not defined the location finder will try to create one based on the address information defined for the task.

Set the following profile options to calculate a route in between two tasks by applying the above method:

Steps

1. Switch to the Field Service Administrator responsibility.
2. Navigate to **Other > Profiles**.
3. Open the Find Personal Profile Values window.
4. At **Profile Name** enter **CSR%**.
5. Click **Find**.

   You can set these options in any sequence.

Step	Option	Description
1.	CSR: Create location	To call upon the location finder when a task has no geocode to create one. **Note :** A task must have a geocode when using Oracle Scheduler to be able to schedule it with the TDS.
2.	CSR: Use Location TDS	Choose to calculate the travel time and distance between two locations by applying the time boundaries and average speed options to the distance measured (as a crow flies).
3.	CSR: First boundary for Location TDS	Determine the first distance (km) in which the set value for first average speed is used.
4.	CSR: First average speed for Location TDS	The set value for average speed (km/h) is used for the first boundary distance defined.
5.	CSR: Second average speed for Location TDS	The set value for average speed (km/h) is used for the second boundary distance defined.
6.	CSR: Second boundary for Location TDS	Determine the distance from the first boundary to the second boundary (km) in which the set value for second average speed is used.
7.	CSR: Third average speed for Location TDS	The set value for average speed (km/h) is used after the second boundary distance defined.

6. **Save** your work.
7. Close the window and again navigate to **Other > Profiles**.
8. Open the Find Personal Profile Values window.
9. At **Profile Name** enter **CSF%**.
10. Click **Find**.

    You can set these options in any sequence.

Step	Option	Description
1.	CSF: Location Finder Installed	Value set to check if the location finder is installed. It is launched when a location for a task is missing, see profile option CSR: Create location.

11. **Save** your work.

5.4.2.3 Calculating the Actual Travel Time and Distance

You can choose to have the TDS calculate the actual travel time and distance in between two tasks based on a roadnetwork. This is referred to as the Route TDS.

Spatial data needs to be installed and a location for each task with a geocode for the address needs to be defined. When the geocode is not defined the location finder will try to create one based on the address information defined for the task.

Set the following profile option:

1. Switch to the Field Service Administrator responsibility.
2. Navigate to **Other > Profiles**.
3. Open the Find Personal Profile Values window.
4. At **Profile Name** enter **CSR%**.
5. Click **Find**.

   You can set these options in any sequence.

Step	Option	Description
1.	CSR: Create location	To call upon the location finder when a task has no geocode to create one. **Note :** A task must have a geocode when using Oracle Scheduler to be able to schedule it with the TDS.
2.	CSR: Use Route TDS	Choose to calculate the actual travel time and distance between two locations by applying an underlaying road network for route information.

6. **Save** your work.
7. Close the window and again navigate to **Other > Profiles**.
8. Open the Find Personal Profile Values window.
9. At **Profile Name** enter **CSF%**.
10. Click **Find**.

    You can set these options in any sequence.

Step	Option	Description
1.	CSF: Location Finder Installed	Value set to check if the location finder is installed. It is launched when a location for a task is missing, see profile option CSR: Create location.

11. **Save** your work.

5.4.2.4 Combine the Options ■

You can combine some of the options for scheduling with the TDS. You can use the Route TDS and the Location TDS in combination with the Default TDS. When for some reason no geocode exists the route will be calculated using the default values from the Default TDS. When you choose not to use the Default TDS in combination with one of the other two options, you will receive an error message when no geocode was found or could be created for a task.

5.4.3 Activating Autonomous Scheduling

You can run a concurrent program that schedules tasks automatically without interference of a dispatcher. When a task becomes schedulable it is picked up by the concurrent program for scheduling. When Scheduler isn't able to schedule a task for some reason, the task status is set to Auto-reject

and a log is generated. Use the Viewing Failed Autonomous Schedule Assignments procedure from the *Field Service Concepts and Procedures* to view these logs.

Use this procedure to activate the concurrent program and define at what time intervals you want the program to pick up tasks to schedule:

- Define Task Status to be Scheduled Automatically
- Set Profile Option for Automatic Scheduling
- Autonomous Scheduling

If for some reason the concurrent program doesn't seem to execute, perform the following tasks:

- Define an Executable
- Setup Concurrent Program

5.4.3.1 Define Task Status to be Scheduled Automatically First you have to decide which tasks you want to be picked up for automatic scheduling. Then you create a query to select these tasks. By default some queries have already been created for this purpose with the following values:

Query Name	Description	Query Definition
Inbox	All tasks that are schedulable, entered today and haven't been assigned yet.	creation_date > trunc(sysdate) and scheduled_start_date is null and nvl(status_ schedulable_flag,'N') = 'Y' and nvl(type_schedulable_flag,'N') = 'Y'
All Open	All tasks that are available for planning and schedulable.	nvl(status_schedulable_ flag,''N'') = ''Y'' and nvl(type_ schedulable_flag,''N'') = ''Y'' and not exists (select '''' from csf_ct_task_assignments where task_id = csf_ct_tasks.task_id)
Auto Scheduling	All tasks that can be scheduled by the Autonomous Scheduler.	Task_status = Auto in planning

Use the following procedure to create a query for the tasks you want to schedule automatically with a different task status.

Prerequisites

Tasks with a schedulable status and type.

Steps

1. Navigate to **Field Service Dispatcher > Dispatch Center**.
2. Click the flashlight icon on the tool bar. The Find Tasks window is opened.
3. Enter information to query the tasks you want to schedule automatically. You can create a query based on a combination of search criteria.
4. Click **Find**. The Tasks list of the Dispatch Center is populated with tasks found.
5. To add your query to the list of values from the Tasks list, choose **Save Query As** from the Tools menu on the tool bar. The Save Query As window is opened.
6. Enter a Name for the query, this name is returned in the list of values in the Dispatch Center. Enter a Description for the query, this is returned when setting the profile option. Enter an Active Start and End Date.
7. Click **OK**. The query is added to the list of values when selecting View By from the Tasks region or the profile option.
8. To edit the query choose **Edit Query** from the Tools menu on the toolbar. The Edit Query window is opened. You can modify the information but you can not delete a query. When the Active End date is reached the query will disappear from the list of values when selecting View By from the Tasks region.

5.4.3.2 Set Profile Option for Automatic Scheduling Define by setting the profile option which query is used for automatic scheduling.

Prerequisites

None.

Steps

1. From the Dispatch Center navigate to **(M) Edit > Preferences > Profiles**. The Personal Profile Values window is opened.
2. Query the following profile:

Profile Option	Description
CSF: Default Query	Query used for automatic scheduling.

3. Choose the appropriate query from the list of values.

4. **Save** your work.

5.4.3.3 Autonomous Scheduling

You can choose to schedule tasks without interference of a dispatcher. The autonomous scheduling concurrent program is used for this purpose. Use the following procedure to start it and to define the time intervals at which tasks are scheduled automatically.

Prerequisites

None.

Steps

1. Navigate to **Field Service Setup** > **Autonomous Scheduler**.
1. The Parameters window is opened.
2. Enter the **Start date of time frame** to run the program for a specific period.
3. Click **Ok**. The Autonomous Auto Schedule setup window is opened.
4. The Parameters field contains the entered start date of time frame.
5. Click **Schedule**. The Schedule window is opened.
6. Define how often you want to schedule tasks for the time frame defined previously.
7. Click **Apply a Saved Schedule** to use the settings of a previous saved schedule.
8. Choose one of the options at **Run the Job**.
9. Click **OK** when finished.
10. Click **Submit**.

5.4.3.4 Define an Executable Steps

1. Logon with the Field Service Administrator responsibility.
2. Navigate to **Concurrent > Program > Executable**.
3. Enter the following values into the fields:

Field	Value
Executable	CSR: Autonomous Scheduling
Short Name	CSR_AUTO_SCHED
Application	Oracle Scheduler

Field	Value
Description	Free, e.g. Schedules tasks automatically that become schedulable at defined time intervals.
Execution Method	Java Concurrent Program
Execution File Name	`SchedulerConcurrentProgram`
Execution File Path	oracle.apps.csr.concurrent

4. Click **Save**.

5.4.3.5 Set Up Concurrent Program Steps

1. Logon with the Field Service Administrator responsibility.
2. Navigate to **Concurrent > Program > Define**.
3. Enter the following values into the fields:

Field	Value
Program	Autonomous Auto Schedule
Short Name	CSR_AUTO_SCHED
Application	Oracle Scheduler
Description	Free, e.g. Schedules tasks automatically that become schedulable at defined time intervals.
Executable Name	CSR_AUTO_SCHED
Executable Output format	Text

4. Make sure that in the Output region the Save check box is checked and the Print check box is unchecked.
5. Click **Save**.

6 Verifying the Implementation

6.1 Oracle Scheduler Implementation Verification Tasks

We recommend to use the business flow defined specific for your business needs to be used to verify the implementation.

The next chapter describes common implementation errors to help you analyze problems that might occur during verification of your flow.

7 Diagnostics and Troubleshooting

In this chapter an overview of common implementation errors, error messages, and a possible resolution is given. Because of the tight integration with Field Service these errors are discussed in the *Oracle Field Service Implementation Guide*, please refer to the Diagnostics and Troubleshooting chapter.

8 Profile Options

The following profile options are unique to Oracle Scheduler. The abbreviation TDS stands for Time Distance Server.

Profile Options

You can set the profile options described in the following table in any sequence.

Step	Option	Description
1.	CSR: Commit batch size for Auto Scheduling	The batch size of tasks that will be saved to the database during the auto-assign scheduling process.
2.	CSR: Calculation type of TDS	Set the calculation type of the Time Distance Server (TDS): 1 = fastest, 2 = shortest, 3 = cost based.
3.	CSR: Create location	To call upon the location finder when a task has no geocode to create one. **Note :** A task must have a geocode when using Oracle Scheduler to be able to schedule it with the TDS.
4.	CSR: Extension of time bounds	The number of minutes the time bounds of a task are extended to find schedule advises outside the task time bounds.
5.	CSR: First boundary for Location TDS	Determine the first distance (km) in which the set value for first average speed is used.
6.	CSR: First average speed for Location TDS	The set value for average speed (km/h) is used for the first boundary distance defined.
7.	CSR: Functional class 0 delay factor	The calculated travel time is multiplied with the functional class 0 delay factor.
8.	CSR: Functional class 1 delay factor	The calculated travel time is multiplied with the functional class 1 delay factor.
9.	CSR: Functional class 2 delay factor	The calculated travel time is multiplied with the functional class 2 delay factor.
10.	CSR: Functional class 3 delay factor	The calculated travel time is multiplied with the functional class 3 delay factor.
11.	CSR: Functional class 4 delay factor	The calculated travel time is multiplied with the functional class 4 delay factor.
12.	CSR: Log Activated	To display internal Scheduler log messages on the server window.

Step	Option	Description
13.	CSR: Maximum calculation time	The maximum number of milliseconds Oracle Scheduler can calculate schedule advise.
14.	CSR: Maximum number of schedule advises	The maximum number of schedule advises calculated and presented. This are always the schedule advises with the lowest cost addressed.
15.	CSR: Maximum overtime	Not used.
16.	CSR: Maximum selected resources	The maximum number of resources that are considered to create a schedule advise for. This are always the resources closest to the task.
17.	CSR: Maximum time difference appointment	Not used.
18.	CSR: Minimal travel time	This travel time in minutes is added to all calculated travel times by the TDS, e.g. time for parking, walking to the car. Not applied when using default travel time.
19.	CSR: Plan option delay	The maximum number of minutes to choose a schedule option. When time has passed new schedule options have to be calculated by Scheduler.
20.	CSR: Plan scope	Default number of schedulable days.
21.	CSR: Rejected by Autonomous Scheduling Status	Default status tasks are set to when they can't be scheduled by the Autonomous Scheduler program.
22.	CSR: Second average speed for Location TDS	The set value for average speed (km/h) is used for the second boundary distance defined.
23.	CSR: Second boundary for Location TDS	Determine the distance from the first boundary to the second boundary (km) in which the set value for second average speed is used.
24.	CSR: Third average speed for Location TDS	The set value for average speed (km/h) is used after the second boundary distance defined.
25.	CSR: UOM for minutes	Not used.
26.	CSR: Use Default TDS	Choose to calculate the travel time and distance by setting default values for both.

Step	Option	Description
27.	CSR: Use Location TDS	Choose to calculate the travel time and distance between two locations by applying the time boundaries and average speed options to the distance measured (as a crow flies).
28.	CSR: Use Route TDS	Choose to calculate the actual travel time and distance between two locations by applying an underlaying road network for route information.