Oracle® Scheduler

Concepts and Procedures

Release 11*i*

March 2001

Part No. A86062-02

Oracle Scheduler Concepts and Pocedures

This document contains the following topic groups:

- Understanding Oracle Scheduler
- Using Oracle Scheduler
- Administering Oracle Scheduler

Understanding Oracle Scheduler

This topic group provides overviews of the application and its components, explanations of key concepts, features, and functions, as well as the application's relationships to other Oracle or third-party applications.

Topics covered are:

- Overview of Oracle Scheduler
- Oracle Scheduler Process Flow

Overview of Oracle Scheduler

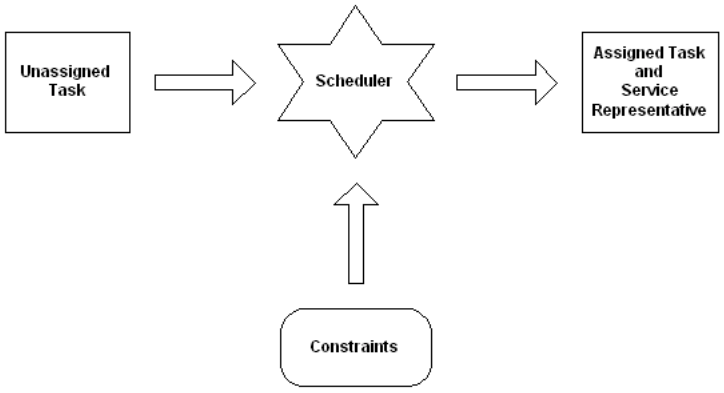
The objective of Oracle Scheduler is to provide state of the art scheduling and optimization capabilities of tasks and trips specifically for field service business needs. Oracle Scheduler offers intelligent scheduling or scheduling with the window to promise as scheduling methods. It largely depends 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. 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

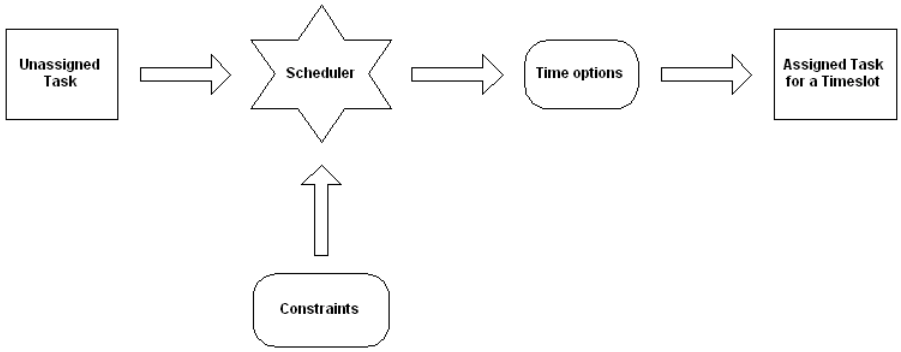
Scheduling Intelligent

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.



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 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.



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 Overview of Assignment Manager.

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.

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.

Oracle Scheduler Process Flow

Based upon the selection criteria set in the Assignment Manager qualified resources, service representatives, are selected. Once qualified service representatives are found the Oracle Scheduler process is to assign a task or time slot based upon constraints including travel time, resulting in a complete trip for each service representative. These constraints are build around a cost mechanism. Costs are defined for each constraint. Scheduler calculates the cost for each possible plan option in each qualified service representative's trip. The option with the lowest cost is the presented plan option.

Constraints used for scheduling:

- Selection Criteria to select Qualified Service Representative
- Cost Related Constraints

Selection Criteria to select Qualified Service Representatives

In the Assignment Manager selection criteria are set up to retrieve qualified resources. The selection criteria used by the Oracle Scheduler are:

- Preferred Resource
- Territories

For more information see Assignment Manager Process of Assigning.

Cost Related Constraints

The Scheduler provides a planning based upon cost. Each cost is related to a factor that might influence your planning, these factors are predefined and based upon constraints. These factors are referred to as cost parameters and reflect your organizations business rules for planning. The information regarding these constraints must be available to make the cost mechanism work. Part of this information is setup during implementation of the Oracle Scheduler application in the profile options.

The cost related constraints used for planning are:

Cost Related Constraint	Description
Travel time	The total of travel time that is spend in a trip.
Travel distance	The total of travel distance of the day trip.
Working overtime	The time the service representative is working overtime in the trip.
Visit time	The actual time the service representative is arriving at the customer site in relation to the scheduled start time.
Escalating time bounds	The total amount of time the tasks in the trip are exceeding their time bounds.
Preferred resource	Whether the preferred service representative is actually assigned to the task.
Delay	Each day the task is scheduled after the log day.

Using Oracle Scheduler

This topic group provides process-oriented, task-based procedures for using the application to perform essential business tasks.

Oracle Scheduler makes use of the Assignment Manager to perform the following tasks:

- Assigning Intelligent
- Assigning with the Window To Promise

For more information, see *Oracle CRM Foundation Concepts and Procedures.*

Oracle Scheduler makes use of the Control Tower of Oracle Field Service to perform the following tasks:

- Recalculate a Service Representatives Trip

For more information see *Oracle Field Service Concepts and Procedures*.

Administering Oracle Scheduler

This topic group provides general descriptions to administer the application successfully.

Topics covered are:

- Setting Up Scheduling Parameters
- Profile Options

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

Cost Parameters tab

The Scheduler provides a planning based upon cost. Each cost is related to a factor that might influence your planning, 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 planning 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 plan the task automatically.

Options

You can set these options in any sequence.

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

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 these steps 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.

Profile Options

The following profile options are unique to Oracle Scheduler.

Profile Options

You can set these options in any sequence.

Step	Option	Description
1.	CSR: Auto commit	The amount of tasks that will be saved to the database during the auto-assign scheduling process.
2.	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.
3.	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.

Step	Option	Description
4.	CSR: Maximum calculation time	The maximum number of milliseconds Oracle Scheduler can calculate schedule advise.
5.	CSR: Maximum number of schedule advises	The maximum number of service representatives to calculate a schedule advise for.
6.	CSR: Maximum overtime	The maximum number of minutes a service representative can be scheduled to work overtime.
7.	CSR: Maximum time difference between appointment time and scheduled time	The maximum time in minutes a task can be scheduled from it's appointment in time.
8.	CSR: Plan scope	Default number of schedulable days.
9.	CSR: Calculation type of TDS	Set the calculation type of the Time Distance Server (TDS): 1 = fastest, 2 = shortest, 3 = cost based.
10.	CSR: Log Activated	To display internal S cheduler log messages on the server window.
11.	CSR: Functional class 0 delay factor	The calculated travel time is multiplied with the functional class 0 delay factor.
12.	CSR: Functional class 1 delay factor	The calculated travel time is multiplied with the functional class 1 delay factor.
13.	SR: Functional class 2 delay factor	The calculated travel time is multiplied with the functional class 2 delay factor.
14.	CSR: Functional class 3 delay factor	The calculated travel time is multiplied with the functional class 3 delay factor.
15.	CSR: Functional class 4 delay factor	The calculated travel time is multiplied with the functional class 4 delay factor.