Field Service

Understanding Field Service APIs

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Preface

This preface introduces information sources that can help you use the application and this guide.

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1 Introduction

Document Purpose

The document is intended to provide overall understanding of Oracle Field Service API documents.

Scope of the Document

The document provides basic overview of Oracle Field Service and describes overall SOAP and REST API idea, the use and applications related to each specific API. The document does not cover any front-end and back-end applications descriptions or detailed information on the specific API usage and transactions, as the information is provided in the correspondent SDKs.

Target Audience

The document was designed for those, who work with Oracle Field Service API documentation.

Accessing the APIs

To access the APIs, you must use the https://<instance_name>.fs.ocs.oraclecloud.com URL scheme. For example, to access the [API name] WSDL, the URL is: https://<instance_name>.fs.ocs.oraclecloud.com/soap/[API]/?wsdl.

The instance name is available on the About page of . Alternatively, you can use the alternate instance name displayed in the service console.

Glossary

Glossary Terms

Term	Explanation
Activity	Entity of the Oracle Field Service system that represents any time consuming activity of the resource

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Term	Explanation
Bucket	Entity appearing on the resource tree which can contain resources of a defined type and be assigned activities
Capacity	Workforce possessing the necessary work skills available at a certain moment of time
Capacity category	Predefined set of work skills, work skill groups and time slots within which they are considered by the Capacity Management API
Customer	End-customer, entity that benefits from the activity
ISO 8601 format	see *http://en.wikipedia.org/wiki/ISO_8601*
Other activities	All repeating, mass and shift activities, including those without instances, which are not part of Quota management
Quota	Number of minutes allocated by the company to perform activities of a specific capacity category within specific time period by resources of a specific bucket and date
Resource	Element in the resource tree representing a defined company asset
Resource External ID	Company-unique key used to identify a specific resource
Resource tree	Hierarchy of company resources showing "parent-child" relationships
SOAP 1.1	Lightweight protocol for exchange of information in a decentralized, distributed environment see *http://www.w3.org/TR/2000/NOTE-SOAP-20000508/*
SOAP Interface	Interface used to receive requests and return responses via SOAP
SOAP Client Application	Application running at the Client's site and providing interaction with Oracle Field Service server via SOAP
SOAP Fault	SOAP element used to carry error and/or status information in a SOAP message
Statistics Agent	Oracle Field Service module used to recalculate travel and duration statistics based on the more recent data received in the database since its previous run
Time Slot	1) Fixed service window defined with a name and label, specifying when certain types of activities can be performed 2) Service Window (if the activity type does not support time slots)
Used	Number of minutes actually booked to perform activities of a specific capacity category within specific time period by resources of a specific bucket and date

Term	Explanation
User	1) Person using Oracle Field Service 2) Entity used for authentication and authorization, allowing people or external software to access Oracle Field Service
Work Skill	1) Activity that a resource is qualified to perform (resource property) 2) Qualification required to perform an activity (activity property)
Work Skill Conditions	Set of conditions based on the values of specific activity properties that is used to define the work skills for the activity
Work Skill Group	Several work skills combined in a group. When a work skill group is assigned to a resource, the resource receives all work skills in the group with their levels
Work Zone	Defined geographical area in which a resource can perform an activity

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2 Application APIs

Application APIs

Oracle Field Service APIs supports integration of Oracle Field Service with the corporate systems of a client company, enabling a wide variety of actions, from getting data into Oracle Field Service to integration into a client's existing mobile application.

API-Related Oracle Field Service Entities

Initially, the system must be filled with users and resources. For new integrations and similar functionality, it is recommended to use the Core API REST endpoints documented in the Oracle Field Service REST API guide. Events are REST-based and can be used to obtain changes that occur in Oracle Field Service application, such as field changes, status changes, and so on. An event is generated when a change occurs in the application. You need to first subscribe to the required events defined in the application before you try retrieving the related changes.

Users

User is a person, group of people or software accessing Oracle Field Service with a single login to the system. Each user in Oracle Field Service can manage only resources assigned to the user. You can assign user types to users to define a set of permissions for determining what the user can see and manage in the system.

More detailed description of the user processing is provided in the correspondent SDK of each specific API that processes the users.

Resources

When the system is implemented, it is populated with company-specific resources.

Resource is one of the basic entities of Oracle Field Service which deals directly with activities.

There are several resource types in Oracle Field Service. For more information, see the Resource types section in the *Administering Oracle Field Service Guide*.

Activities

Activities can be added to Oracle Field Service and then manually or automatically allocated among field resources. Activity is a time-consuming action. By default, there are three types of activities, namely, internal, customer, and team work. However, activity types can be configured. New activity types can be created, while the default types can be removed, if needed. More detailed description of the activity processing is provided in the correspondent SDK of each specific API that processes the activities.

Properties

Property is a variable associated with some Oracle Field Service entity (resource, user, activity, inventory, etc).

This is much like a field of an object in most programming languages. Property has a name, visibility, data representation, relations to entity and modification parameters.

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Therefore, if there is a property of an entity in Oracle Field Service, all such entities have this property, and all relevant API functions can read this property, write to it, and make conditional decisions based on the property value (as long as correspondent permissions are granted to a user). Correspondingly, all screens and functions, having access to the entity, can as well operate its properties (according to visibility restrictions).

Properties for Oracle Field Service entities can also be updated. A more detailed description of the property processing is provided in SDK of each specific API that processes the properties.

Inventories

Inventory is any equipment which is installed or deinstalled during an activity performance. Inventory could be virtually anything that is used in a job from consumable material to a set of instruments, or devices. Inventory can belong to any resource or customer. Basically, inventory is a property of an activity, but inventory in turn, can have own properties (e.g. type of inventory). A more detailed description of the inventory processing is provided in SDK of each specific API that processes the inventories.

Required Inventories

Required inventory is the inventory necessary to complete a certain activity. If any required inventory is defined for an activity, such required inventory is regarded as one of the criteria of activity assignment to resources. The required inventory is checked against the resource's inventory to see whether the resource's inventory is sufficient to complete the activity. If the resource has no required inventory in their pool, the activity will not be assigned to such resource. A more detailed description of the required inventory processing is provided in SDK of each specific API that processes the required inventory.

Work Skills

One of the properties defined for a resource is a set of work skills that the resource obtains and qualification level for each skill. A work skill is a task that a resource is qualified to perform. Work skills are assigned to technicians based on their training and knowledge. The names of the work skills may vary in different companies and industries.

Along with that, a set of rules is defined that enables automatic calculation of the work skills of each activity, their required and preferable levels. An activity should be assigned to a resource that obtains all of the work skills necessary to perform an activity with qualification level not less than the required level for the activity. A more detailed description of the work skills processing is provided in the correspondent SDK of each specific API that processes the work skills.

Work Zones

One of the properties defined for a resource is a set of work zones. A work zone is a defined geographical area where a resource can perform their service. A temporary work zone is a work zone that is not a resource's typical work zone, but that is assigned to the resource for a period of time. Temporary work zones will override a resource's regular work zones.

Along with that, a set of rules is defined that enables automatic calculation of the work zone of each activity. An activity should be assigned to a resource that can perform work in the work zone of the activity. A more detailed description of the work zones processing is provided in the correspondent SDK of each specific API that processes the work zones.

Message Scenarios

Oracle Field Service provides ability to create and trigger message scenarios. A Message Scenario is a collection of one or more Message Steps, defining message content, recipient, delivery protocol, and delivery business rules.

A Message Scenario defines a set of rules that tells how to do a specific notification. These rules are triggered by an internal event or certain conditions (Cancel, Complete, Change, and so forth).

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Message Scenarios enable the following actions to be executed (by default):

- Sending an e-mail
- Making an outbound voice call
- Changing a property of a technician, an activity or a user
- Sending a message to an external system

More actions can be configured according to a company's requirements. A more detailed description of the message processing is provided in the correspondent SDK of each specific API that processes messages.

Service Request

Service request is a message generated as the result of the 'send Service Request' operation and assigned to a specific entity in Oracle Field Service. A more detailed description of the service requests processing is provided in the correspondent SDK of each specific API that processes the service requests.

Route

Route is a list of activities assigned to a resource for a specific date, or a list of non-scheduled activities assigned to a resource. A route may contain zero or more activities.

One workday of one technician defines a route. Any references to the 'date' of the route mean the date of the workday start (e.g. if the resource works overnight).

Initially the route is formed in accordance with the resource calendar for every active resource with the working time scheduled for the date. The route of a resource can be filled with activities. When a user to which such resource is assigned has logged into the system the user can manage the route. A more detailed description of the route processing is provided in the correspondent SDK of each specific API that processes the routes.

Oracle Field Service Cloud API List

The following APIs are available for Oracle Field Service. The APIs below are listed in the alphabetical order:

REST APIs

For new integrations and similar functionality, it is recommended to use the following REST API endpoints documented in the Oracle Field Service REST API guide:

Capacity REST Endpoints

The function of the Capacity REST-based services can be used to get available capacity, booking options, close booking scheduled, and create/update quota when you have a subscription to Oracle Field Service Enterprise Service.

Collaboration/Chats REST Endpoints

The function of the Collaboration REST-based services can be used to create integrations to Oracle Field Service Collaboration including getting chat participants, inviting them to a chat, leave a chat, send a message, or starting a new chat.

Core REST Endpoints

The CORE REST-based services serve numerous functions including the management of Activities, Daily Extracts, Event management, Inventory, Resources, Service Requests, and Users.

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Metadata REST Endpoints

The Oracle Field Service Metadata API provides REST-based services that can be used to manage the configuration elements (for example, work zones) of Oracle Field Service. The Metadata API provides a new, modern way to manage Oracle Field Service configurations.

OAuth2 REST Endpoints

The OAuth2 REST-based services are used to manage access tokens.

Parts Catalog REST Endpoints

The Parts Catalog REST-based services are used to create and manage parts catalogs.

Statistics REST Endpoints

The Statistics REST-based services are used to manage Activity and Travel durations when you have a subscription to Oracle Field Service Professional or Enterprise Service.

SOAP APIs

Oracle Field Service uses the following SOAP APIs:

Capacity Management API

The function of the Capacity Management API is to:

- Extract all data available in the Quota View of Oracle Field Service.

- Set or update the quota parameters.

- Retrieve, set, or update the time when the quota is to be closed automatically.

- Determine quota available for an activity to be booked and provide this information to the system where this booking is actually performed.

Inbound API

The Inbound Interface is used to import data from a client external system to Oracle Field Service.

Inbound Interface is implemented as SOAP function for the following purposes:

- Set activities for a specific day for all resources or resource groups in Oracle Field Service.

- Add new activities to Oracle Field Service.

- Update, reassign, reschedule, and cancel activities in Oracle Field Service.

- Change an activity status in Oracle Field Service.

- Delete activities from Oracle Field Service .

- Set inventory for resources and activities in Oracle Field Service.

- Update or delete specific inventory in Oracle Field Service.

  The upload can differ in the object uploaded: activities or resource inventories; and in the scale of upload: full or incremental. Detailed information on the methods used by Inbound API can be found in the corresponding Inbound Interface SDK.

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Outbound API

Outbound API is used for interaction between the Oracle Field Service message engine and external Client Application. Client Application is a software that is developed to integrate Oracle Field Service with external system(s). Client Application SOAP Service implements the following operations called by Oracle Field Service:

- Send messages to Client Application.

- Check if the message is still being processed.

- Remove message from the agent internal queue, if the need in such message no longer present.

- Optionally changing properties of an activity and/or activity status.Update or delete specific inventory in Oracle Field Service.

  Detailed information on the methods used by Outbound API can be found in the corresponding Outbound Interface API guide.

  Detailed information on configuring the outbound messages can be found in the Notification Configuration Guide. The recommended use for the Outbound Interface is for time-based notifications (for example, notifications to customers) typically using the Reminder and Change notification triggers. For all other system events (for example, Route changes, Activity status changes, Inventory changes, Service Request changes, and so on), it is recommended to use the Core API/Events REST API for integration.

Parts Catalog API

Parts Catalog API provides a set of functions used to manage the Oracle Field Service Parts Catalog. They are as follows:

- Create a new catalog.

- Start and upload transaction for an existing catalog.

- Upload data to an existing catalog.

- Close an upload transaction for an existing catalog.

- Abort the current transaction and delete all data uploaded during such transaction.

- Search for existing catalogs.

- Upload item weights to an existing catalog.

- Delete item weights from an existing catalog.

- Update inventory types or the item types in the catalog.

- Delete all catalog data.

- Get the list of transactions for an existing catalog.

  Detailed information on the methods used by Parts Catalog API can be found in the corresponding Parts Catalog API guide.

Metadata API

The Oracle Field Service Metadata API provides REST-based services that can be used to manage the configuration elements (for example, work zones) of Oracle Field Service. The Metadata API provides a new, modern way to manage Oracle Field Service configurations.

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3 Implementation Prerequisites

Implementation Prerequisites

Implementation is the installation of Oracle Field Service system and its further configuration in accordance with a specific client's specifications, business rules, and requirements. Prior to implementation the following prerequisites have to be provided:

Prerequisites

Prerequisite	Details
Oracle Field Service system	The system must be configured and run in compliance with the client's specification.
Network environment	The environment must be configured in order to get access to Oracle Field Service system.
Connectivity testing	Network connectivity tests must be performed: connection to the right port, request of the wsdl.
URLs, ports, user logins and passwords	Can be configured in the user interface.
Permissions and access details	Must be defined in the system as described in the section below.

Authorization

Access to the APIs is determined by performing the following tasks:

- *Register a Client Application*
- Define the APIs that the application can access. See *Authorize Access to APIs*
- Define the users that can access the APIs. See *Authorize Access to APIs*

  > **Note:** By default, all users can access the APIs.

Register a Client Application

Register the application that you want to integrate with Oracle Field Service.

1. Click **Configuration** and select **Applications** from the Field Service Manage interface.
2. Click the **Plus** icon from the left pane.
3. Enter the **Application Name** and **Application ID** of the application that you want to register.
4. Click **Submit**.

   The application displays in the left pane.
5. Select the type of token service for the registered client application from the **Token service** drop-down list.

   By default, the type of token service is **OFSC**.
6. Click **Save**.

Authorize Access to APIs

You must perform the following tasks to access the APIs:

- Define the APIs that the application can access

- Define the users that can access the APIs

1. Define the APIs that the application can access:
   a. Click **Configuration** and select **Applications** from the Field Service Manage interface.
   b. Select the registered application from the left pane.
   c. Click **Add New** from the **API Access** section.
   d. Select the required APIs and click **Submit**.
   e. Click the icon next to the selected API and select the required option.

      For example, for the Capacity API, you can select the required method using the **Available Methods** option.
   f. Select the required methods and click **Submit**.
2. Define the users that can access the APIs:
   a. Select the **Allow access only to certain resources** check box in the **Additional Restrictions** section.
   b. Click **Add** and select the resources.
   c. Select the **Allow access only for certain IP-addresses** check box and enter the **IP addresses** in the text box to restrict access by IP addresses.
3. Click **Save**.

System Requirements

Oracle Field Service Interfaces work via HTTPS protocol. As such, they require an environment that supports SOAP 1.1 and HTTPS protocols: (see http://www.w3.org/TR/2000/NOTE-SOAP-20000508/).

Actual hardware and operating system platforms are usually not a constraining factor. Oracle Field Service APIs can be used with a variety of technologies, including but not limited to Java, .Net, and C/C++, on both Windows or UNIX platforms.

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OFSC Glossary Keys

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Oracle Product Abbreviations Keyword Map