Field Service

Administering Oracle Field Service

Field Service
Administering Oracle Field Service

F75103-11

Authors: The Field Service Information Development Team

Contents

Preface

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

Using Oracle Applications

To find guides for Oracle Applications, go to the *Oracle Help Center*.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the *Oracle Accessibility Program website*.

Videos included in this guide are provided as a media alternative for text-based topics also available in this guide.

Diversity and Inclusion

Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we're working to remove insensitive terms from our products and documentation. We're also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

Contacting Oracle

Access to Oracle Support

Customers can access electronic support through Oracle Support. For information, visit *My Oracle Support* or visit *Accessible Oracle Support* if you are hearing impaired.

Comments and Suggestions

Please give us feedback about Oracle Applications Help and guides. Please take one of the following surveys:

- For web-based user guide, *Web-based User Guide Survey*
- For tutorial feedback, *Tutorial Survey*

1 Configure the General Settings

Your Company's Configuration

You can configure Oracle Field Service to your specific business requirements, such as the type of work performed, the kinds of skills available for assignment, the way in which working calendars are organized, and so on. You can configure the settings for all these requirements on the **Configuration** page.

Most configuration settings are available on the **Configuration** page. However, depending on the way you have implemented the application for your company, some of the settings might be placed in individual menu items or grouped under different menu items. Your user type configuration determines the options displayed on the menus.

The configuration elements are grouped logically on the **Configuration** page:

- General (the settings related to the general principles of the company operation):
  - About
  - Business Rules
  - Link Templates
  - Work Schedules
  - Work Zones
  - Work skills
- Resources, Activities, Inventories (the settings related to the resources the company employs, the activities it performs and the inventory used in the course of their performance):
  - Properties
  - Capacity Categories
  - Time Slots
  - Resource Types
  - Activity Types
  - Inventory Types
- Displays (the settings related to the general appearance of the application, page layouts, languages and translations):
  - Glossary
  - Display
  - Themes
  - Filters
  - Forms & Plugins
- Users, Security, Integrations (the settings related to user management and system access):
  - Organizations

    - Login Policies
    - User Types
    - Applications
    - Oracle Knowledge
    - Integration Cloud Service
- Subsystems (the settings related to Oracle Field Service modules):
    - Statistics
    - Applications
    - Collaboration
    - Message Scenarios

Items are added only to the groups listed earlier. Each item, when clicked, leads to the corresponding configuration page.

Configuration Page Access and Visibility Settings

You can allow or deny access to the **Configuration** page for each user type. This means, all users of that type either have the **Configuration** item in their menu or not. The visibilities that set the user access to this page are hidden, read-write, and read-only.

You can configure the items and their visibilities on the **Configuration** page in a dedicated context layout, **Configuration**. Similar to other context layouts, you can configure the **Configuration** page for each user type. This means that all users of the selected type see the same items on the page with the same level of visibility. The **Configuration** context layout can include only the company configuration items. Therefore, the **Add property** dialog box contains only the list of items related to company configuration. The reverse is also true—the company configuration items are not included in the action list of any other context layout.

Configure Business Rules

When you set up Oracle Field Service you can use the **Business Rules** page to configure the way your business processes are handled by the application. You can configure the settings for marking en route for activities, activity priority, countries available in the application, activity markers, retention period, and overnight work among others.

The **Business Rules visibility** profile permission controls the access to the **Business Rules** page. You must set this permission for each user type that manages Business Rules. If the action is not configured for a user type, or if no visibility is defined, the users don't see the **Business Rules** page. If you select ReadOnly, Business Rules is placed into a view-only mode. If you select Read/Write for this setting, the user can manage Business Rules in Oracle Field Service.

1. Click **Configuration**.
2. In the **General** section, click **Business Rules**.
   The **Business Rules** page appears.

3. Complete these fields:

Field	Description
General	
Work Skills Support Work Zones support	If a feature is disabled (deselected) the settings defined for it are retained in the application, but no restrictions are applied. Work skills and work zones are critical settings greatly affecting performance, particularly, activity assignment to resources. Select these check boxes to impose these constraints on the process of activities assignment and reassignment: o Routing considers work skills and work zones and assigns activities only to resources matching the work skill and work zone requirements of the activities. o All newly-created activities have work skills and work zones calculated for them and, therefore, will be correctly assigned afterwards o Self-assignment, Quota management, manual activities move or assignment are subjected to work skills and work zones check All these factors contribute to higher application performance and help improve the use of the workforce. Disabling work skills support and/or work zones support may result in Routing results below optimum and, therefore, must be used with care.
Service Window Support	Select this check box to select the **Service Window** field by default when you add an activity or teamwork.
En Route Support	Select the check box to let field resources change the activity status to 'En route'. This status is then shown to your customers on the **Where is My Technician** page. After you enable the En route Support option, the 'En route' status is available only for the activity types that have the **Calculate travel option** enabled.
Periodic update of ETA for En Route activities	Select this check box to provide periodic auto-adjustments to the estimated time of arrival (ETA) to an activity site when an activity is in the En Route status. You can see these adjustments in updated ETA values across the product. You can also see them on the activity History page. Upon selecting this check box, the changes take effect in one hour and doesn't affect the activities that are currently in the "En route" status. **Note:** You can see this check box, only if you've a license for Oracle Field Service Enterprise edition with Google Maps. Further, you must select the **Use real-time traffic data** setting for the user type of a user for which you want to assign an activity that receives periodic updates of ETA.
Points Support	Select the box if you use points. When points are used, each shift and corresponding work schedule is assigned some points, which are a relative expression of the required work to be performed within such work schedule. Similarly, each activity may be also assigned some points. As the resource completes activities in their route, their points are added and compared to the total number required for the work schedule. Points may be used by Routing in activities assignment.
Overnight Work	Select this check box to define number of hours for overnight work since midnight. Use only if you've overnight work activities. Select the time zone that is used to define when your work-day closes. If the value is greater than 0, it's possible to create activities for the previous day's route and perform other route modifications based on the time zone setting value. Working time ____ hours since midnight <…..> When you define the overnight work hours, you can't update activities if any of these conditions is met: o Current time is greater than the end of the day of the day of route +overnight setting in the resource's time zone.

Field	Description
	○ Current time is greater than the end of the day of the day of route +overnight setting selected in this field. This setting affects the logic of data saving by the Daily Extract functionality. If the company doesn't support overnight shifts, the extraction period covers time since the previous extraction till the end of the previous day. If the company supports overnight shifts, the Daily Extract data for the previous day is available for extraction after the overnight setting expires, that is, at 00:00 AM + overnight. If the data is extracted before that time, the resulting files contain data from two days before. It is recommended to schedule the Daily Extract process several minutes after the overnight setting expires to guarantee that only the relevant data is extracted. If you use the **Overnight Work** feature, your field resources must deactivate their routes and sign out of the application. If they don't do these, they will see the previous day's date when they sign in the next day.
Allow update activities and offline sync after overnight within the following number of hours	Enter the number of hours after the overnight end time within which users can update the past activities and inventories. Users can update activities and inventories through the user interface and the 'Update Activity' and 'Update Inventory' REST API methods, as well as sync offline. Updates aren't allowed after this period. Outbound messages for actions in the past are blocked, except for scenarios that use the 'Service request is created' launch condition.
Full-time Equivalent	Enter a value to convert the calendar to a Full-time Equivalent resource. The value is used in the **Planning** section of **Calendars** and is a company wide setting. For example: If the resource works from 08:00-16:00 (8 hours) and the Full-time Equivalent value = 8 this resource will be shown as 1 Full-time Equivalent.
Expose mass and repeating activities for these number of days	Enter the number of days in advance in which the template activities are created in technicians' routes automatically. The default value is '0', which means that such activities are not instantiated automatically, but are created only when a route is created. When you modify the value and save it, Oracle Field Service scans all the technician routes and instantiates the templates for the dates that match the configured period. If you increase the value, then the application includes more dates into consideration for automatic instantiations. If you decrease the value, then the application does not remove the existing instantiated activities, instead processes fewer dates from then on. When you add a new resource or change the templates and schedules, the application changes the activities accordingly. **Note:** Instantiating activities may require significant time, especially if you increase the value and there are many technicians in the application. It also generates a significant amount of transactions such as events (routeCreated, activityCreated) and outbound messages for the "Activity is created" launch conditions.
Activity Priority	Select the property that defines the priority of an activity. Activity priority is used by Routing to assign urgent activities, immediate activities, and to prioritize activities for self-assignment on the map. You can use any custom property of activity with type string, enumeration, or integer, but not fields. The configuration consists of these parameters: ○ **Property to define priority**: Defines the activity property that will be used to identify urgent, immediate, and self assignment activities. ○ **Urgent activities have these values of the property**: Defines the specific values of the property, which make the activity urgent or immediate. Several values of the same property can be used as criteria. In this case the values must be separated by commas in the field. The order of property values defines the priority level. The value listed first will have the highest priority, with other values following in the descending order. For example, if you have a privileged customer, you may specify it as a specific value (such as "PC") in an activity property, so it qualifies the activity as urgent. For enumeration properties, you must specify the enumeration values. ○ **Normal activities have these values of the property**: Defines the specific values of the property, which make the activity normal. For example, in-house activity selected as "IN" in an activity property may qualify the activity as normal.

Field	Description
	When activities are routed using the immediate routing run option or the urgent routing option, the priority specified in the field that you select here are considered. For example, a company must always perform repairs as soon as possible to reduce service disruptions. In this case, the company may have a custom property which indicates that the activity is "Repair" to consider an activity as urgent. The preferred ETA for Urgent activities is the earliest possible time. SLA start time does not have any impact on Urgent activities, which means, SLA violation is expected behavior. Further, even if you select Immediate routing, SLA start time does not have an impact on the Urgent activities ETA.
Enable the Visit functionality	*How do I define bundling keys for a visit?*
Visit Bundling Keys	*How do I define bundling keys for a visit?*
Maps and Geocoding	
Available Countries	Select the + symbol to select an additional country from the drop-down list for geocoding purposes. Select the pencil icon to edit the country name for localization purposes. Geocoding is the process of finding associated geographic coordinates (latitude and longitude) from other geographic data, such as street addresses, or zip codes (postal codes). Geocoding data is required for Routing and is critical for Map/driving directions. Proper geocoding information is necessary for every country that this instance of the application is operating within. The **Available Countries** field allows adding additional countries for geocoding purposes.
Default Country for Geocoding	Select the country that is used as the default country for geocoding. The country you select here must be within the **Available Country** list selected earlier.
Zip Code Format	Select the format of ZIP (postal) code and state code values. Both fields are used in the activity coordinates resolution from its geographic address. The ZIP value is validated by the Inbound API, therefore, its format is important. When the ZIP value sent by the Inbound API does not correspond to the format set in the Business Rule, the API returns an error. However, when the Free Post code option is selected, the ZIP value is not validated and will always be accepted.
State Format	Select the State format. This field includes Free format and US. Select US for addresses in the USA having a strict 2-letter state code format. For all other countries with different civil entity systems, select Free.
GPS	**Identify technician by** – Determines how a unique technician is identified within the context of GPS plotting. These items are applicable with Oracle Field Service Smart Location Cloud Service: o **Resource is considered idle if moved less than __ meters within _- minutes** o **Resource is considered to be at the activity location if the distance is less than __ meters -**
Map Parameters	Define the items related to the Map page: o **Distance Measurement Units:** Specify whether the distance is measured in miles or kilometers. o **Ignore coordinates with accuracy less than:** Set the minimum sufficient accuracy level for geocoding. The minimum sufficient accuracy level is the coordinate's accuracy which is considered acceptable for usage. The coordinates below the specified level will not be used as insufficiently accurate.

Field	Description
	○ **Baidu Maps and Geocoding parameters:** Provide the server key and browser key for Baidu maps, which are used to authenticate the user or organization using the service. **Note:** Driving directions for Oracle map and geocoding are only shown in these languages: (English (default), French, German, Italian, and Spanish). The default maps and geocoding provider is Oracle. Google or Baidu can be used, if it is part of your subscription. To use Google or Baidu maps, contact Oracle Sales. Further, you can have only one provider (Oracle, Google, or Baidu) configured in the application. Information about the geocoding provider is displayed at the bottom of the map.
Map Layers	Configure the map layers you want to use on top of the map: Work Zone layer (work zone shapes) and/or custom map layers (for example, places of interest such as gas stations or gas pipelines). You can add a Work Zone layer or a new map layer, modify or delete an existing layer, and change the permissions for an existing layer. When you click **Add new**, the **Add Map Layer** dialog box appears. You can either upload shape files through the interface or through an API, or you can provide the path to MapViewer from where the custom layer is obtained. You can add a maximum of 10 map layers per instance. You also see these sections: ○ **Status:** Indicates the status of the layer. If the shape file is uploaded successfully and is ready for use, the status displays a green check mark. If the shape file isn't uploaded properly or has any errors, the status displays a red cross mark. ○ **Map layers:** Provides the name of the map layer and the date on which it was last updated. If the map layer isn't available, this column provides the reason such as: Shape loading failed. ○ **Permissions:** User types to which the layer is assigned. If there are multiple user types, they are displayed as, '<user type> and <number> more'. For example, 'Technician and 3 more'. This column is empty for the Work Zone layer. **Note:** The **Permissions** option isn't available for a Work Zone layer. Properties of Work Zone layers: ○ Each Work Zone can have only one map layer, and if it doesn't exist, the message, No configured layers appears. ○ You can create only one Work Zone layer. After a Work Zone layer is created, the Create Work Zone layer option is grayed out on the **Add map layer** dialog box and the message "Only one layer for work zone shapes can be created" is displayed. ○ When you delete a Work Zone layer through the metadata API, only the layer is deleted. The shape files aren't deleted from the database. However, when you delete a Work Zone layer from the **Business Rules** page by selecting the **Delete associated shapes** option, the layer and its associated shapes are deleted.
Company Boundaries	Provide the latitude and longitude coordinates of the company's geographical work area. Activities can be performed only within these boundaries that are a set of squares. To identify a square, its top left and bottom right corners are defined. If no boundaries are defined the company can perform work anywhere. Additional boundaries can be added by clicking the + symbol.
Retention period	
Activity, Inventory, Service Request and History information	Enter the retention period for the activities in the past, customer related inventory, service requests, and the associated activity history. It also includes the service requests, messages, logs such as activity history, quota history, configuration log, changes to resources and users. The default value is 90 days. You can set a value between 1 and 90 days. Activities are retained for these number of days regardless of their status. The background data purge process considers the updated value whenever the process runs the next time. If the difference between the changed numbers is huge (for example, you change from, 90 to 3 days), the purge process may take up to 24 hours. **CAUTION:** Do not set the value to 1 (one), if you have set the 'Overnight work' setting on Business Rules to a number greater than 0 (zero). If you do so, your data may be purged before the Daily Extract process runs.

Field	Description
Collaboration History	Enter the retention period for Collaboration chat history. The default value is 90 days. You can set a value between 1 and 90 days. The background data purge process takes into account the updated value whenever the process runs the next time. If the difference between the changed numbers is huge (for example, you change from, 90 to 3 days), the purge process may take up to 24 hours.
Resource Position History	Enter the retention period for the resource's GPS coordinates. Resources locations are extracted as part of the Daily Extract process. You can retrieve them through the 'Get last known positions of resources' and 'Get position history for resource for certain date' Core API requests. The default value is 90 days. You can set a value between 1 and 90 days. The background data purge process takes into account the updated value whenever the process runs the next time. If the difference between the changed numbers is huge (for example, you change from, 90 to 3 days), the purge process may take up to 24 hours. **Note:** The value for this field must be less than the value for 'Customer, resource and user information'. As part of the background data purge process for 'Customer, resource and user information', information about queues are also removed. Resource locations are gathered at the queue level, so they cannot be shown on the page when the queue is removed.
Daily Extract files	Enter the retention period for files that are generated by the Daily Extract process and retrieved through the 'Download daily extract file' Core API method. The default value is 90 days. You can set a value between 1 and 90 days. Updated value is taken into account for when the Daily Extract files are generated the next time. The retention period for existing Daily Extract files is the period that was defined when files were created.
Quota Management	
Quota Management	These items are applicable with Oracle Field Service Capacity Cloud Service: o **Measurement units for Quota and Available Capacity** Defines the general settings affecting Quota Management functionality. Particularly, the user can choose the units of measurement to display Quota and Used values by setting the Quota and available capacity are defined in parameter. The available values are hours, man-days and minutes. Internally, all values are calculated in minutes anyway, and are converted to the selected unit when the corresponding value is displayed in the Quota View. When man-days is selected as the unit of measurement, the **Number of hours per man day is** field appears where the correlation between man-days and hours can be defined. Ultimately, this parameter is used to convert man-hours into minutes. When the Quota is defined as percentage of the capacity available by calendar, sometimes it requires adjustment. To adjust the value, the system estimates the capacity available by calendar, processes the already booked activities (to calculate the Other activities value), and, finally, recalculates the Quota in minutes using the defined percentage value.

Field	Description
	○ **Recalculation period** You can set a predefined time interval for Quota and Capacity recalculation using the **every [ ] minutes**field. Valid values: 1 to 1,440 minutes Default value: 10 minutes Also, you can recalculate quota and capacity for a predefined future period (defined as days or calendar weeks). For example, if you enter 10 minutes and set 3 calendar weeks for Quota and Capacity recalculation, then the recalculation occurs after every 10 minutes for 3 calendar weeks. The Calendar Week (**during**drop-down list) option is processed based on the value selected from the **First Day of the Week**drop-down list in the **Display** page. When you use the Calendar Week option, all remaining days of the current week (unless the start day is the week start day selected using the **First Day of the Week** drop-down list) plus all days of these weeks are considered. However, if the recalculation period is set to 7 days, the recalculation is performed for 7 days only. The maximum value for the Calendar Week option is set to 99 days or 15 calendar weeks. You can select the recalculation start day (current day, tomorrow, or day after tomorrow) from the**The Corresponding quota values are automatically adjusted starting from** drop-down list. The Quota and Capacity is recalculated for the **Available Capacity**, **Booking Status**, and **Quota** pages. **Note:** When an activity is booked during the predefined recalculation period, then irrespective of the routing schedule and the specified recalculation period, the values in the **Available Capacity**, **Booking Status**, and **Quota** pages are recalculated immediately.
Capacity Intervals	See *Define Time Intervals* section in the *Oracle Field Service Capacity Cloud Service Guide*.
Recalculate data on a daily basis	Select this check box if you want to recalculate the Forecasting data on the current instance every day. The data is updated overnight. This check box is selected by default for production instances and deselected for test instances.
Search Fields	*How do I define the activity search fields?* and *How do I define the inventory search fields?* **Note:** Search uses the first 40 characters of the search string. Inventory search does not support enumeration type fields. You cannot configure the Search field to accept a keyword that is fewer than three characters or symbols.

Related Topics

- How do I add a map layer?
- How do I enable the En Route Support feature?

Configure Activity Map Markers

You can configure map markers to differentiate between the non-scheduled and not assigned activities that are displayed on the Scheduling layer on the Route map and on the Dispatch Console map.

1. Click **Configuration** > **Business Rules**.
2. In the **General** section, go to **Non-scheduled Not assigned activity map markers**.
   You can see that Urgent (red big circle) and Other (yellow small circle) are available by default.
3. Click the pencil icon.
4. On the **Activity map markers** dialog box, click the plus icon, and complete these fields:

Field	Description
Activity Markers	The predefined shape to indicate the activity.
Filter	The condition to display the activity. All the filters that are configured on the **Configuration** > **Filters** page that satisfy these conditions are displayed here: o The entity is Activity. o The **List/Time/Map/Daily** check box is selected. If you have selected a dynamic field such as Activity type or Work zone, a field appears below **Filter** to add the value. You can use the same marker with multiple filters.
Filter value	The value for the condition. For example, if you have selected Activity type for **Filter**, select Installation for the **Work Type**. You can use the same filters multiple times, with different conditions. For example, you can use the Days to SLA filter with conditions equal to 2 or 7.

5. Click **OK**. Repeat steps 4 and 5 and add more markers.
   You can add a maximum of 10 markers.
6. Use the stack icon to reorder the markers.
   The first marker in the list gets the highest priority, the second marker gets the second priority and so on. When multiple activities are displayed in a cluster on the map, the application determines the marker based on the priority assigned to it.

   Note: You cannot reorder Urgent and Other markers.

7. Click the minus icon to delete a marker.
8. Click **OK** on the **Activity map markers** dialog box.
9. Click **Save** on the **Business Rules** page.

How Geocoding Works

Oracle Field Service attempts to geocode a location using the address data that is provided when the activity is created.

The application uses these fields when attempting to geocode the location:

- Address (caddress)
- City (ccity)
- State (cstate)

- Zip/Postal Code (czip)
- Country (country_code)

Data provided in these fields are submitted to the geocoding service without any modification or manipulation. When the geocoding service resolves a location, it returns a response with an accuracy level. In understandable terms it is accurate up to the address, accurate up to the street, and accurate up to the city. The location is resolved based on the selection made in the **Ignore coordinates with accuracy less than** setting on the **Business Rules** page. For example:

- If the value for **Ignore coordinates with accuracy less than** is Address, and the geocoding service returns Accurate up to the Intersection, the location is not resolved, because the lowest acceptable level based on the configuration is Address.
- If the value for **Ignore coordinates with accuracy less than** is Intersection and the geocoding service returns Accurate up to the Address, the location is resolved, as it exceeds the lowest acceptable level based on the configuration of Intersection.

Ignore coordinates with accuracy less than includes these options in descending order:

- Address: Indicates an accuracy level of the exact premise. Usually requires an exact match of the address (including house number, street name, street type/suffix/prefix), city, state, zip, and country.
- Intersection: Indicates an accuracy level of a major intersection, usually of two major roads.
- Street: Indicates an accuracy level of a street.
- Route: Indicates a named route (such as US 101). This may not apply to all countries.
- Zip: Indicates an accuracy level of the zip/postal code. May also require a city name and country match.
- City: Indicates an accuracy level of the city. May also require the country name to be matched.
- County: Indicates an accuracy level at the county level. This type may indicate a minor civil administrative level. Not all countries have this type of administrative levels.
- State: Indicates an accuracy level at the state level. Within the United States, these administrative levels are states. Not all countries have this type of administrative levels.
- Country: Indicates an accuracy level of the country. If you update an existing activity (with resolved coordinates) with a new country_code, the coordinates for the activity are reset to zero (acoord_x=0, acoord_y=0).

The better the data quality, the more likely the location is resolved. For example - if you submit “10 Henr St Chartley, MA 02712”, the accuracy level will most likely result in something less then an accuracy level of Address, because Henry is misspelled. Other items to watch out for are extra characters or spaces in the fields, missing or wrong address prefix or suffix, abbreviations that don't match postal guidelines, a new address that is not in any geocoding service, wrong data (wrong zip/post code or street name), and partial data. Any of these items can cause challenges with resolving an address.

Best practices

- **We strongly recommend** that you send us the geo-coordinates when you create activities. This ensures that the coordinates are available for use in the application. Send the values using Coordinate X (acoord_x) and Coordinate Y (acoord_y).
- For the activities associated with the Activity Types that have the **Calculate travel** option selected, we encourage you add and populate address fields. This helps the application use the information to make the best possible decision.
- We recommend setting the **Ignore coordinates with accuracy less than** to Zip. Any other settings may result in fewer locations being resolved or too many locations resolved with a low level of accuracy.
- don't include additional address elements in the Address (caddress) field. The element includes but is not limited a business name, unit, flat, suite, floor number, and so on.

- Avoid uncommon abbreviations, or abbreviations that are part of a defined standard used by the postal authority. It is possible that “Ave”, “Ave.” and “Avenue” can lead to different accuracy resolutions.
- You may have to experiment to find the best way to send address data to Oracle Field Service.

How can I add a map layer?

Map layers are layers that are added on top of a map to identify places of interest that are specific to your business. For example, you may add a layer that shows only the airports in a specific area. You can add layers through an external source or internally through APIs. You can use APIs or you can upload a file from your local device to upload shape files for each layer. You can also add a layer for your work zone, which is visible to all users.

Before you start

If you are adding a map layer internally, you must upload the shape file through the metadata API.

Note: Work Zone layers are not displayed on the Map view.

Here's what to do

1. Click **Configuration**.
2. In the **General** section, click **Business Rules**.
3. In the **Maps and Geocoding** section, click **Add new**.
   The **Add Map Layer** dialog box appears.
4. Select whether you want to create a Work Zone layer or a map layer.
   You can add only one Work Zone layer; after you add it, the **Create work zone layer** option is grayed out. You can add a maximum of 10 map layers per instance.
5. Enter the name of the layer in the preferred language.
   The languages displayed here are the languages that you have selected for **Company language** in the **Display** page. This option is not available for the **Create work zone layer** option. The application adds the name ‘Work Zone Layer’ automatically and translates into the required languages.
6. Add a label for the custom layer in the **Label** field.
   If you have added a custom layer through the metadata API, the name is suggested as you type it. If you have not added any layer through API and you don't add an external source, you cannot save the layer. This option is not available for the **Create work zone layer** option. The application adds the name ‘wz_layer’ automatically and translates into the required languages.
7. Select the status of the layer in the **Status** drop-down list.
   A layer with the Active status is available and a layer with the Inactive status is not available. This option is not available for the **Create work zone layer** option.
8. Select the location from which you want to use the shape for the layer:
   - **Upload local file:** Select this option to upload a shape file from your local device. You must select a zip file that doesn't exceed 150 MB. If the file is not a valid zip file, or if the zip file exceeds 150 MB, an error message is shown. You must correct the errors and upload again. Oracle Field Service stores this file until you delete the layer with the associated shape file.

- **Upload file using URL**: Select this option to upload a shape file that is available on a different computer. These fields are displayed:
  - URL to shape file: Enter the URL to the location where the shape file is available. Use only a secure protocol, that is, a HTTPS URL.
  - Username and Password: Enter the username and password to access the shape file location.
  - SRID: Enter the shape identifier that was generated in the application in which the shape was created.
- **Upload shapefile later via API:** Select this option to upload a shape file through API.
- **Use already uploaded shape:** Select this option to use a shape that is already uploaded. The list of available shapes is displayed and these details are displayed:
  - Layer label: The label of the layer.
  - Last updated: The date on which the shape file was last updated.
  - Source URL: The URL in which the shape file is uploaded.
- **Use external data source:** Select this option to use an external data source to display custom layers. This functionality requires Oracle MapViewer where the layers are created and stored. These fields are displayed:
  - MapViewer URL: Path to MapViewer from where the layer data is obtained.
  - Data source: The source of the map layer data used by MapViewer.
  - Theme: Layer name in MapViewer.

  All the fields are mandatory. If a field is left empty, the window is rejected with the error message: {field_name} is empty.

9. Click **OK** and then click **Save** on **Business Rules**.

   By default, users of all user types have access to the new custom layer. If the status is Active, the application verifies if:
   - Data for this layer is present in the database.
   - Data is consistent and not corrupted.
   - There are no errors when displaying the layer on map.

   If these conditions are satisfied, the layer is saved and displayed on the team map, activity list, and activity details map pages. You can add a maximum of 10 map layers per instance.

What to do next

Review this information before uploading shape files:

Requirements for the shape file:

- The shape file must be in a zip archive.
- Column names in the shape file must contain only alphanumeric characters and underscore ('_').
- Column names must begin with an alphabet.

Shape file restrictions:

- When uploading a shape file using HTTPS, these restrictions apply: WebLogic's default certificate validator does not accept certificates with wildcards (including Google Drive certificate).
- SRID value should be a valid SRID.
- A maximum of 2 GB is available for extracted shape file data that is uploaded and hosted in Oracle Field Service.
- If a shape file contains a column with the name "SHAPE_AREA" (case insensitive), it is renamed as “SHAPE_AREA_".

- If a column name is same as an Oracle Database reserved word, then an underscore ("_") is prefixed to the column name. The full list of Oracle Database reserved words is available at: *Oracle Database Reserved Words*.

Recommendations:

- It is recommended that you use shape files with compressed data size less then 50 MB. The shape file data is extracted and stored in the browser memory (when showing to end user), so the size of the file may heavily influence the browser performance, including the inability to show the map layer.
- It is not recommended to use polylines for work zones.

Cancel a Map Layer Upload

If your shapefile archive contains an invalid file or if you provide an incorrect SRID while uploading a map layer, the uploading fails. You can cancel the operation while the uploading is in progress, from the **Business Rules** page.

1. Click **Configuration** > **Business Rules**.
2. In the **Maps Layers** section, locate the layer for which the status is **Pending** or **In-progress**.
3. Click the menu and then click **Cancel**.
4. Click **Cancel** on the confirmation dialog box.
5. Click **Save** on **Business Rules.**

   File uploading stops and the corresponding layer in the list shows the status "Canceled" with a red X mark in the first column. You can delete these layers and the shapes associated with them.

Messages for Failed Upload

There could be many reasons for which uploading map layers or shapefiles fail.

Here is list of messages that might be displayed when the uploading of map layers or shapefiles fails.

- Archive doesn't contain any shapefiles
- Unable to download file
- File processing is stuck. Try to reupload.
- Incorrect request data
- Invalid shapefile
- Unable to extract file
- Unable to upload data
- Zip archive contains file with not valid extension
- File processing is timed out
- Cancel {LAYER_NAME} upload
- Shapefile uploading will be stopped
- Canceled
- Cancel upload

Display a Work Zone Layer on a Map

You can display a Work Zone layer on the map, only if you have added it to the **Business Rules** page. Before you display a layer on the map, you must select the shape identifier on the **Edit Map Layer** dialog box. The shape identifier helps you identify the shape when you are working on a different page. For example, the shape identifier can be the internal serial number.

1. **Note:** In the list of possible shape identifiers, attribute columns are shown with only unique values (no duplicates).

1. To select the shape identifier:
    a. Click **Configuration** > **Business Rules**.
    b. Go to the **Map layers** section.
    c. Click **Modify** against the layer for which you want to add the shape identifier.
    d. In the **Edit Map Layer** dialog box, select a value in the **Shape Identifier** drop-down list.
2. To display the Work Zone layer on the map:
    a. Click **Configuration** > **Work Zones**.
    b. Select or create the work zone for which you want add the shape identifier.
    c. Add the value of the shape identifier in the **Work Zone Shapes** field.
    d. Click **Update** or **Add**.

    The work zone shape corresponding to the selected shape identifier is displayed on the map.

Update Shape Properties

After you upload a shape, you can modify its properties such as visibility on the Map hint.

1. Click **Configuration**.
2. In the **General** section, click **Business Rules**.
3. In the **Map layers** section, click the stack icon next to layer that you want to modify and click **Modify**.

    The **Edit map layer** dialog opens and displays the information in the **Layer info** and **Shapes** sections. The information in the **Shapes** section depends on the way in which you have uploaded the shape.
4. Select a title for the shape in the **Shape** title column drop-down list.

    This title is displayed for the shape on the Map view.
5. Click **Shape Hint Button** and select a plug-in or custom form.

    The name of the plug-in or custom form that you select here is displayed as a button (link) in the custom map layer hint. When a user clicks the link, the plug-in or form opens. To delete a plug-in or a custom form that is configured for a custom map layer, you must clear 'Shape hint button' field.

    To send parameters to the plug-in or custom form, specify the values in the **Plugin/Form Field** column in the Shape Hint table. This maps the fields in the shape file to the parameters in the plug-in or custom form. For plug-ins, the parameters are sent as additional parameters within the 'openParams' section. For custom forms, the fields are populated based on the specified names.

    To send the coordinates of the point where the user clicked on the map to the plug-in or custom form, specify the corresponding parameters in **Plugin/Form Field** column.

6. Fill up these fields in the **Shape hint columns** section:

Field	Description
Visible on hint	Select the check box if you want to display the property in the hint on the Map view.
Latitude and Longitude	Enter the name for Latitude and Longitude in your plug-in or custom form. These fields capture the coordinates of the point where the user clicked on the map.
Source	Asset property as defined in the shape file.
Label	Enter a meaningful name for the property in the hint.
Plugin/Form Field	Enter the name of the property that maps to the corresponding source field. This column is visible only when you select 'Shape hint button'. The parameter that you specify in this column is sent to the configured plug-in or form upon opening.

7. Click **Submit** and then click **Save** on **Business Rules**.
   The changes are saved.

Assign Permissions to a Map Layer

When you upload a shape, by default it is available for all user types. You can change the permissions as to which users can see which shape.

1. Click **Configuration**.
2. In the **General** section, click **Business Rules**.
3. In the **Map layers** section, click the stack icon next to layer that you want to modify and click **Permissions**.
   The **Select user types** dialog appears. By default, all the user types are selected.
4. To remove access to the selected layer, click the minus icon next to the user type.
5. To provide access to a layer, click the plus icon. Select the check boxes next to the user types to whom you want to provide access.
6. Click **Save**.
   The changes are saved. The updated permissions come into effect the next time the user of the corresponding user type logs in.

Delete a Map Layer

You can delete just a map layer, or a layer and its associated shape files. You can delete the layer using the metadata API, or through the **Business Rules** page.

1. Click **Configuration** > **Business Rules**.
2. Go to the **Map layers** section.
3. Click the menu on the right against the layer that you want to delete and click **Delete**.
   The **Delete map layer** dialog box appears.
4. To delete just the layer, click **Delete**.
   If you go to the **Add map layer** dialog box and select the **Use already uploaded shapefile** option, the shape file that was related to the deleted layer is displayed in the list.
5. To delete the layer and its associated shape files, select **Delete associated shapes** and then click **Delete**.
   If you go to the **Add map layer** dialog box, the **Use already uploaded shape file** option is not available. This is because, the shape file that was associated with deleted layer was removed from the Geospatial Database.

6. Click **Save** on the **Business Rules** page.

> **Note:** Deleting a layer and its associated shape file is possible only through the Core Application interface. The metadata API DELETE method removes only the layers from the database.

Download a Shape File that was Uploaded from a Local Device

Sometimes, you may want to download a previously-uploaded file to edit and upload as a new layer.

1. Click **Configuration** > **Business Rules**.
2. Locate **Map Layers**.
3. Click the stack icon and then click **Modify** against the layer from which you want to download the file.
4. Click the filename in the **Source file** field.
   The file is downloaded to your local device.

Define Bundling Keys for a Visit

Oracle Field Service sends configured notifications for each activity separately. If several activities (appointments) are scheduled on the same day for a customer and you want to send one notification of each kind (for example, day before, reminder, or change notifications) to the customer, then select the **Enable Visit Functionality** check box to activate the Visit functionality.

Use the **Visit Bundling Key** field to define the criterion for a visit. The criterion can include an activity property field, where you can set the length of the property values and determine whether the property values are case sensitive. The application compares the values defined in the activity fields against the specified criterion. Activities are grouped together as a visit, only if the values of all visit bundling keys match the specified criterion. To ensure that external system messages are sent properly, you must add a launch condition using visit triggers while configuring message scenarios.

> **Note:** A single activity can appear on the Links tab with a Visit ID if the Visit bundling criteria are met.

When routing is run using Immediate Assignment and if the Bundling setting is used (only available in Immediate Assignment routing), then the Immediate Routing plan uses the Visit Bundling key for route optimization. For example, when you use the activity address as a bundling key and run routing for urgent activities, then routing finds activities that are on the same address as the urgent activity to create visits. For more details, refer to the Immediate Activity Assignment section in the *Oracle Field Service Using Routing Cloud Service Guide*. After you define the visit bundling keys, click **Save** to recalculate the existing activities according to the new visit settings. To define bundling keys for a visit:

1. Click **Configuration**.
2. Click **Business Rules** in the **General** section.
   The **Business Rules** page appears.
3. Select the **Enable the Visit functionality** check box.
4. Click the **Modify** icon.
5. Click the **Plus** icon.
6. Select the required keys, for example, ZIP/Postal Code.
7. Click **Add**.

8. Use these filters to specify additional criterion for grouping activities:
    - **Length**: Enter an integer value between 0 and 99. For example, if you have selected ZIP/Postal Code as the key and enter **5** here, then the first 5 digits of the zip code are considered.
    - **Function parameter**: Select a parameter to determine whether the activity property values are case sensitive, case insensitive, first word case sensitive, or first word case insensitive.
9. Click **Update**.
10. Use the slider and set the lower and upper limits of ratio for the duration of bundled activities.

    This is the ratio of the average duration of activities that are part of a bundle (except for the first one) to the duration that is currently estimated for such activities. This ratio is applied to the original estimate to get the estimated duration of bundled activities. The ratio is not applied to the estimated duration of the first activity of the bundle. The first activity continues to have the same duration as a similar standalone activity. You can also see the value calculated by the application based on the duration reported by the field resources. The final ratio that is applied to the estimation durations of the non-first bundled activities is within the lower and upper limits set here. So, if the calculated ratio lies within the limits, that value is used. If not, then the limit closet to the calculated value is used.

    You can use the limits to override the ratio to be used for the duration of non-first bundled activities. To override, set both the lower and upper limits to the value that you want to use. Since, the application always respects the limits, it uses the value you have set. For example, if your desired ratio is 80%, then set both the lower and upper limits to 80% to use this always, regardless of what the calculated value is. Similarly, to disable this feature and to have the application behave the way it used to, set the lower and upper limits to 100%.

    For more information, see the Bundling of Activities section in the Using Routing guide.
11. Click **Save** on the **Business Rules** page.

> **Note:** If there are already visits in the system, and if the visit bundling keys are changed, then after recalculation, the visits no longer matching the keys are split into individual activities. 'Not Done' status for a visit is defined as follows:
>
> - All the work orders in the visit have final statuses.
> - A 'notdone' visit either contains a 'notdone' work order or several work orders with 'completed' and 'cancelled/deleted' statuses.

Example of How to Define Bundling Keys for a Visit

Assume that an installation activity is scheduled for a customer on 21st June, 2016 and is the only notification you send to the customer. The installation activity involves the activities, installing the hardware and installing the software but you want the customer to receive only one notification.

Assume that installing the hardware is assigned to technician William and installing the software is assigned to technician Philip. Both activities are scheduled on the same day at 4 to 5 pm and 5 to 6 pm respectively. Assume these details for the customer:

- Account number: 123456
- Address: 77 Discovery Drive, Bozeman, Montana 59718

Since both the activities are performed on the same day for the same customer and at the same location, and the goal is to notify the customer only once, it is necessary to bundle the activities together and schedule a visit. Let us select Account Number and Address properties as the bundling keys from the **Configuration**, **Business Rules** page and click **Save**. Since the values defined in the activity fields (that is, Account number and Address) match the selected criteria

(that is, Account Number and Address properties selected as the bundling keys); the activities, installing the hardware and installing the software, are grouped together as a visit. To verify whether the activities are grouped as a visit:

1. Select **Dispatch**, **Activities**.
2. Select the technician **William** from the resource tree.
3. Select the **Installing the hardware activity** from the dashboard and view the activity details.
4. Select the **Links** tab.

   A Visit number is displayed with the Pending status.
5. Repeat steps 1 through 4 for the Installing the software activity.

Configure the Manual Move Reasons

When dispatchers move activities manually using the **Assignment Assistant**, they add the reasons for moving. Dispatchers can select the reasons only if you have configured them on **Business Rules**.

1. Click **Configuration** > **Business Rules**.
2. Scroll down to the **Assignment Assistant** section.
3. Click **Add New**.

   You can use the pencil icon to edit an existing move reason.
4. Complete these fields on the **Add Move Reason** dialog box:
   a. In the English field, type a reason for moving an activity. For example, Non-availability of resource.
   b. Provide the translation names in the required languages.
   c. Set the status as Active (or inactive). Only Active reasons are available for selection on the **Assignment Assistant**.
   d. Select at least one move condition from these options:
      - Moving from bucket to resource
      - Moving from resource to resource
      - Moving from resource to bucket
      - Moving from bucket to bucket
      - Reordering within route
   e. Click **Submit**.
5. Click the pencil icon in the **Move Reasons are not applicable for selected User Types** field. Select the User Types that need not provide a reason while moving activities. For example, contractors.

   Users that belong to the User Types selected here do not see the **Move Reason** field on the **Assignment Assistant**.
6. Click **Save** on **Business Rules**.

   The Active move reasons are now available for selection on the **Assignment Assistant**. On the **Business Rules** page, Move Reasons are sorted alphabetically and Inactive reasons are displayed in the end, highlighted with the **Inactive** label. Further, the **Conditions** column is blank when all the move conditions are enabled for a Move Reason.

Move Reasons Enhancements

When activities are manually moved within Oracle Field Service, depending on the configuration, dispatchers may be required to indicate a move reason. Move reasons help the leadership to understand why moves are being made thus, enabling them to drive optimization changes within the organization.

To better analyze such changes, move reasons can be exported to Oracle Analytics Cloud, Oracle Autonomous Database or other systems using Events API. For example, you may be interested to know what types of activities are being moved most often or how each division is trending with the adoption of automated routing plans. Exporting move reasons to Oracle Analytics Cloud, or other BI tools, allows you to group, filter and/or pivot the data in different ways. Doing so helps you to identify a new routing plan configuration requirement or potentially a process change within the organization.

New Property: Label

A mandatory property **Label** has been added to the Add/Edit Move Reason dialog. During upgrade to Update 22C, this field is populated with move_reason_id value. This property is available for the Manual Move Fields entity in the Daily Extract Application.

Export to Oracle Analytics Cloud and Oracle Autonomous Database

You can export activity move action details to Oracle Analytics and Oracle Autonomous Database. The new entity Manual Move Fields is available for Applications with types Oracle Analytics and Oracle Autonomous Database.

The possible data transfer value is **Once Daily**.

Manual Move Fields contain the same dataset as the Daily Extract application.

Events API Support

Activity move action details are available in the Events API.

The event activityMoved contains a new section **moveDetails**. This section contains the move action fields moveReason, moveCondition, workSkillMismatch, and workZoneMismatch.

How do I define the activity search fields?

The application uses the activity property fields defined in the **Search** section of the **Business Rules** page to search for activities.

You can also edit the activity property fields in the **Search** section of the **Business Rules** page to define additional search fields to search for activities. For example, assume that the activities are searched using the Name and Account Number activity fields. Now, you want to search the activities using the Address activity field. You can specify an additional search field as follows:

1. Click **Configuration.**
2. Click **Business Rules** in the **General** section.
   The **Business Rules** page displays.
3. Click the **Edit** icon for Activity Search fields in the **Search** section.
   The **Activity Search Fields** dialog box displays.
4. Click the **Plus** icon.

5. Select the **Address** field.
6. Click **Add**.
7. Click **OK**.
   The **Address** field displays in the **Activity Search Fields** section.
8. Click **Save**.
9. Click the search icon and click **Search Preferences**.
   The **Search preferences** dialog box displays the selected search categories.
10. Select the **by Address** check box.
11. Click the **Back to Search** button and enter an address, for example, **7700 Technology Way**, in the **Search** field.
    When you search for an activity or a resource, the search fields are selected in the order defined in the **Search preferences** dialog box. You can perform these tasks in the **Search Preferences** dialog box:
    - Click the reorder icon to drag the required activity search fields in the list to rearrange the order.
    - Select or deselect the required activity search fields to add or remove the activity search fields.
    - Select an option from the **Date** drop-down list to refine the activity search results.

> **Note:** Search uses the first 40 characters of the search string. You can't configure the **Search** field to accept a keyword that's fewer than three characters or symbols. You can't use the Activity ID field to search for activities. This is by design.

Results:

The activities matching the specified address display.

How do I define the inventory search fields?

The application uses the inventory property fields defined in the Search section of the **Configuration** > **Business Rules** page to search for inventories.

You can also edit the inventory property fields in the Search section of the **Business Rules** page and define additional search fields to search for inventories. For example, assume that the inventories in the application are searched using the Model and Item Number inventory fields. Now, you want to search the inventories using the Serial Number field. You can specify an additional search field as follows:

1. Click **Configuration**.
2. Click **Business Rules** in the **General** section.
   The **Business Rules** page displays.
3. Click the **Edit** icon for Inventory Search fields in the **Inventory Search Fields** section.
   The **Inventory Search Fields** dialog box displays.
4. Click the **Plus** icon.
5. Select the **Serial Number** field.
6. Click **Add**.
7. Click **OK**.
   The **Serial Number** field displays in the **Inventory Search Fields** section.
8. Click **Save**.
9. Click the **Search** icon.

10. Enter the Serial Number (for example, 8779808797) in the **Search** field and click **Search**.
    The inventory matching the specified serial number displays.

> **Note:** Search uses the first 40 characters of the search string. Inventory search does not support enumeration type fields. You cannot configure the Search field to accept a keyword that is fewer than three characters or symbols.

Capacity Time Intervals

The time interval set consists of time intervals delimited with a comma (","). Time intervals within the time interval set cannot have time period in common (with the only exception of a "point in time" time interval.

Link Templates

Link Templates are link profiles containing link type, time between activities constraints, scheduling constraints, and assignment constraints. Links between the activities are created with the help of Link Templates.

Linked activities ensure scheduling and detailed planning for complicated, multi-step tasks, which may potentially involve different resource types, different times, and time constraints. Configuring all these link constraints in a multi-step task allows our routing engine to assign and schedule activities while meeting all of the requirements.

The Link Templates page includes the list of link types that exist in the application. You can edit the existing links and add new ones. You cannot remove the existing activity link types, you can only deactivate them.

Access to the Link Templates page is controlled by the **Link Templates** visibility profile permission. You must set this permission for each user type that you want to manage Link Templates. If the action is not configured for the user type or if no visibility is defined, Link Templates is not visible to the user. If you select ReadOnly, Link Templates is available in the view only mode. If you select Read/Write for this setting, the user can manage Link Templates.

Add a Link Template

Link Templates are link profiles that describe how activities are linked. The templates contain the type of link, constraints for the time between activities, scheduling constraints, and assignment constraints. Links between the activities are created with the help of Link Templates.

1. Click **Configuration**.
2. In the **General** section, click **Link Templates**.
3. Click **Add Link Template**.
   The **New Link Template** dialog box is displayed.
4. Select the appropriate icon that represents the way in which you want to link activities.
   The fields below the icons change based on your selection.

5. Complete these fields:

Field	Description
Minimum interval	Minimum time interval between activities. Select one of the options: o Adjustable: The time interval is adjustable with the specified default value. o Non-adjustable: The time interval is non-adjustable with the specified predefined value.
Maximum interval	Maximum time interval between activities. Select one of the options: o Adjustable: The time interval is adjustable with the specified default value. o Non-adjustable: The time interval is non-adjustable with the specified predefined value. o Unlimited: The time interval is unlimited, with no restrictions.
Assignment constraints	Whether there are any constraints in assigning the activities to resources. Click **Different resources** if the linked activities can be performed by different resources. Click **Same resource** if the linked activities must be performed by the same resource.
Scheduling constraints	Whether there are any constraints in scheduling the activities. Click **Different days** if the linked activities can be performed on different days. Click **Same day** if the linked activities must be performed on the same day.
Link for the 1st activity	Specifies translations for the first activity. English is set as a default language, unless other languages are specified. You must also specify the label for this link which will be used by external applications.
Link for the 2nd activity	Specifies translations for the second activity. English is set as a default language, unless other languages are specified. You must also specify the label for this link which will be used by external applications.
Label	A unique identifier for this Link template.
Status	Whether this activity link type is available for selection as an option on the Add link page.

Calendars

Create and Delete Work Schedules

Work schedules are templates that are made up of a combination of shifts (working time) and non-working times. When grouped as a work schedule, you can apply these shifts all at once to a bucket or to an individual resource.

1. Click **Configuration**.
2. In the **General** section, click **Work Schedules**.
   The **Work Schedules** page appears.
3. Click **Add new**.
   The **Add Work Schedule** page appears.
4. Enter a name and a unique label for the new work schedule.
   While the name must be representative of the work schedule time frame, there is no functional correlation between the name and the shifts that will be contained within the schedule.

5. Select the **Active** check box if you want the work schedule to be visible for assignment.
6. Click **Add** to save the work schedule.
7. To delete a work schedule, select the check box on the **Work Schedules** page and click **Delete**.

> **Note:** You cannot delete a work schedule if it is currently assigned to a resource. You must remove it from the resource or bucket first, and then delete it from the list.

Add a Shift to a Work Schedule

After you've created a work schedule, you can add the shifts and non-working times that will be included in the overall period of time.

1. Click **Configuration**.
2. In the **General** section, click **Work Schedules**.
   The **Work Schedules** page appears.
3. Click **Items** to the right of the work schedule for which you want to add a shift.
   The **Add Work Schedule Item** page appears.
4. Click **Shift**.
5. Click the **Shift** drop-down list and select a shift.
6. Select a **Start Date** and **End Date**.
   The start and end dates define the period for which this shift is associated with the work schedule. Leaving the **End Date** field empty implies that the shift is part of the work schedule indefinitely.
7. Add any comments for clarification or detail.
8. Select one of these options in the **Recurrence** drop-down list:
   - Daily – Allows for inclusion of the shift such as every other day or every third day. This option requires a value in the field labeled every _____ day(s).
   - Everyday – The shift applies to everyday without exception.
   - Weekly – Allows for shifts that are used on a regular weekly pattern. Select the days that apply to this shift using the check boxes for the individual days. Indicate the frequency of this pattern weekly by adding a value to the every ____ weeks(s) field.
   - Yearly – Select a date range for the shift that will recur every year.
9. Click **Add**.
   The shift is added to the work schedule.
10. Repeat the steps for each shift that you want to apply to this work schedule.
    Be aware that if you add two shifts that have the same priority to a weekday, only the shift that was created most recently is assigned.

Add Non-Working Time to a Work Schedule

In addition to shifts, you may apply non-working time to certain work schedules. This could accommodate work schedules that include non-standard work time such as four-day workweeks or even holidays that occur on the same day every year. Keep in mind that many of the non-working reasons (illness, bereavement) tend to be used more frequently on a one-off basis for individual resources as days off occur.

1. Click **Configuration**.
2. In the **General** section, click **Work Schedules**.
   The **Work Schedules** page appears.
3. Click **Items** to the right of the work schedule for which you want to add non—working time to.
   The selected work schedule appears.
4. Click the pencil icon under Actions.
5. Click **Add Non-Working Reason**.
6. Complete these fields:
   This table describes the fields when you add a non-working reason for a work schedule:

Field	Description
Shift Type	Select from **Regular** or **On Call** depending on the shift type for which you want the non-working reason.
Non-Working Reason	Select the applicable reason from the drop-down list. This list is populated from entries in **Company Settings**, **Non-Working Reasons**.
Start Date | End Date	Select the date range that this non-working time is valid for. Open-ended dates imply that the non-working reason is indefinitely associated with the work schedule.
Comments	Enter any comments about the non-working reason. If **Other** is selected as a reason, then the **Comments** field becomes mandatory.
Recurrence	Select the appropriate option from the drop-down list. Options are: o Repeat daily – Allows for inclusion of the shift such as every other day or every 3rd day. This option requires a value in the field labeled every _____ day(s). o Repeat everyday – The shift applies to everyday without exception. o Repeat weekly – Allows for shifts that are used on a regular weekly pattern. Select the days that apply to this particular shift using the check boxes for the individual days. Indicate the frequency of this pattern weekly by adding a value to the every ____ weeks(s) field. o Repeat yearly – Select a date range for the shift that will recur every year.
Date Selections	Enter the date selections based upon the previous selection. Dates are inclusive.

7. Click **Add**.
   The new non-working reason and period is added to the work schedule.

Add a Non-Working Reason

If a resource is not available for work during their regular work schedule or shift, then you must apply a non-working reason (for example, illness, vacation, bereavement) to explain their absence. Once set, this reason appears on the calendar within the **Daily** view.

1. To view the Non-Working Reasons page:
   a. Click **Configuration**.
   b. In the **General section**, click **Work Schedules**.
      The **Work Schedules** page appears.
   c. Click **Non-Working Reasons**.
2. To add a new non-working reason, click **Add new**.

3. To edit an existing non-working reason, click the pencil icon under Actions.
   In either case, you will be prompted to enter a name and a label (unique identifier) for the non-working reason.

Shifts

Shifts are standard patterns of working time. They determine when a resource is available for work.

Add a Shift

Use this feature for special types of shifts that don't fall within the traditional 24-hour clock. You can create separate shifts for each working time pattern within your organization.

1. Click **Configuration**.
2. In the **General** section, click **Calendars**.
   The **Work Schedules** page appears.
3. Click **Shifts**.
   The **Shifts** page appears.
4. Click **Add new**.
   The **Add Shift** page appears.
5. Fill up these fields and then click **Add**:

Field	Description
Name	Enter a name for the shift, as it appears in the application.
Label	A unique identifier for this shift.
Active	Click the check box to activate (make available for use) this shift.
Type	Select the type of shift from the drop-down list. Common shift types include **Regular** for standard periods of time, or **On-call** for longer time frames that a resource might be available, after the regular shift ends. Select the color coded on-call icon that you want to attach to the shift. When you add this shift to a resource, this icon is displayed on the Dispatch Console, Manage, Calendar, and Resource Calendar pages, and on the resource avatar.
Time From	Enter the start time for this shift.
Time To	Enter the end time for this shift.
Points	Within the application, points are used as limiters. If activities are assigned point values (based on different completion durations, complexity, value, and so on.), then assignment caps can be determined on a shift-by-shift basis. Once point thresholds are reached for a resource to which that shift is assigned, then routing will allocate no more activities to that resource.

Add an Activity to a Shift

Add an *activity* to a *shift*, when you want to add the activity to the calendars of all of the resources that have the shift assigned to them.

1. Click **Configuration** > **Work Schedules** > **Shifts**.
   The **Shifts** page appears.

2. Click the **Activities** link in the row of the shift that you want to add the activity to.
3. Click **Add new**.

   The **Add Activity** page displays. If this activity is an internal activity, the layout of the page changes. If it is a customer-facing activity, the layout stays the same.
4. Complete the applicable fields.

Field name	Action
Activity Type	Select the *activity type* from the **Activity Type** drop-down list.
Name	Enter the customer's name. Used for customer-facing activities only.
Work Order	Enter the work order number associated with this activity.
Duration	Select the hours and minutes that the activity lasts.
Position in Route-Not Ordered	Select the position of the activity in the route. o Not Ordered: If the activity is not ordered, it appears in the **Not Ordered** column in the Time view. o Ordered: The activity is displayed on the resource's route. If you specify a time slot, the activity displays in that time slot. Otherwise, it displays as **pending** at the beginning of the route.
Time Slot	Select the period of time within which this activity can be started.
Activity Notes	Enter any notes associated with this activity.
Repeating Activity	No action required. This check box is selected by default and you cannot change it.
Recurrence-Repeats-Daily	Apply to schedules such as every other day or every 3rd day. If you select this option, add the frequency of occurrence in the field **Days between occurrences**.
Recurrence-Repeats-Weekly	Apply calendars that have a regular weekly pattern. Select the days that apply to this shift using the check boxes for the individual days. Indicate the frequency of this pattern weekly by adding a value to the **Weeks between occurrences** field.

5. Click **Submit**.

Work Skills

What is a Work Skill?

A work skill is the job-specific skill or competency that's necessary to perform an activity. Work skills are the defining criteria to match activities with the resources. So, when you create a work skill, you assign it to an activity type and set the level of expertise of the skill required for the activity.

Similarly, when you create a resource, you can assign a work skill to the resource and define the level of expertise the resource has in the skill. For example, if you create Install as a work skill, you can have the required level of expertise as 90. Only the resources that have the expertise level of 90 percent or more are assigned to the activity. Further, you assign a work skill to a work skill condition and resource. You can also add work skills to Work Skill Groups.

Add a Work Skill

Work skills are client-specific sets of skills or competencies, required by resources to perform their assigned activities.

1. Click **Configuration**.
2. In the **General** section, click **Work Skills**.
   The **Work Skills** page appears.
3. Click **Add new**.
   The **Add Work Skill** page appears.
4. Complete these fields:

Field	Description
Name	Enter a descriptive name for the work skill in at least one of the language fields (for example, New Install, Video, Outage, etc.). This is the wording that will appear to users within the application.
Label	Enter a unique string for this work skill. This is how the work skill will be identified within the database.
Sharing of the skill in the team	Select from the drop-down list: o Maximal — Team gets the maximal work skill level of all the team members (default). o Minimal — Team gets the minimal work skill level of all the team members. o No Sharing —This work skill, if assigned to a team member, it does not affect skills of the team. o Summary — Team gets the total sum of work skill levels of all the team members The work skill sharing parameters will define if a specific activity can be assigned to a team-holder but not higher than 100.
Active	Select the check box to activate. If active, the work skill and its conditions are used by the routing engine. If inactive, the skill and its conditions still exist but are not used by the routing module.

5. Click **Add**.

Example of Sharing Work Skill

A team gets the total sum of work skill levels of all the team members. The work skill sharing parameters define whether a specific activity can be assigned to a team-holder, but not higher than 100. In this example we will consider how sharing influences work skill allocation in the group. If a resource is assigned a group of work skills (G) and some work skills explicitly (WS), and there is an intersection of skills, then the explicitly assigned work skills prevail. A resource that is not assigned any work skills is considered to obtain all the work skills with 100 qualification.

Work Skills	Team Holder	Team Member 1	Team Member 2
WS0 - Maximal WS1 - Maximal WS2 – No Sharing WS3 - Minimal WS4 – Summary	WS0 (100) WS3 (100) G: [WS3 (10), WS4(10)]	G: [WS0 (1),WS1 (1),WS2 (1) , WS3 (1), WS4 (1)]	WS4(10) G: [WS0(20), WS2(20)] G: [WS0(30), WS2(30)]

Effective work skills of the team-holder:

- WS0(100) - Maximal(100, 1, 30)
- WS1(1) - Maximal(0, 1, 0)
- WS2(0) – No Sharing (0, 1, 30), team-holder doesn't have this skill
- WS3(0) - Minimal(100, 1, 0)
- WS4(21) – Summary (10, 1, 10)

Delete, Activate, or Deactivate a Work Skill

You cannot delete a work skill that is currently assigned to at least one resource. You can set the active or de-active status at any time. Deactivated work skills are not deleted from the application and are unavailable for selection.

1. Click **Configuration**, **Work Skills**.
   The **Work Skills** page appears.
2. Select the check box next to the work skill that you want to delete, activate, or deactivate.
3. Click **Delete**, **Activate**, or **Deactivate** in the header.
   You cannot delete a work skill that is assigned to a resource.
4. Click **Delete**, **Activate**, or **Deactivate** in the confirmation dialog box.

Temporary Work Skills

Determine the skills required to perform an activity and the skills of the technicians. Based on these technician skills activities are assigned to perform.

You can use this feature to set up a date range during which a skill is considered actual. These settings are part of the work skill settings of a resource and define the period during which the resource is considered having a certain skill of a certain level. This feature is helpful when some skills require periodic certification, some equipment is available for limited time only and if a planned maintenance is scheduled which requires special skills.

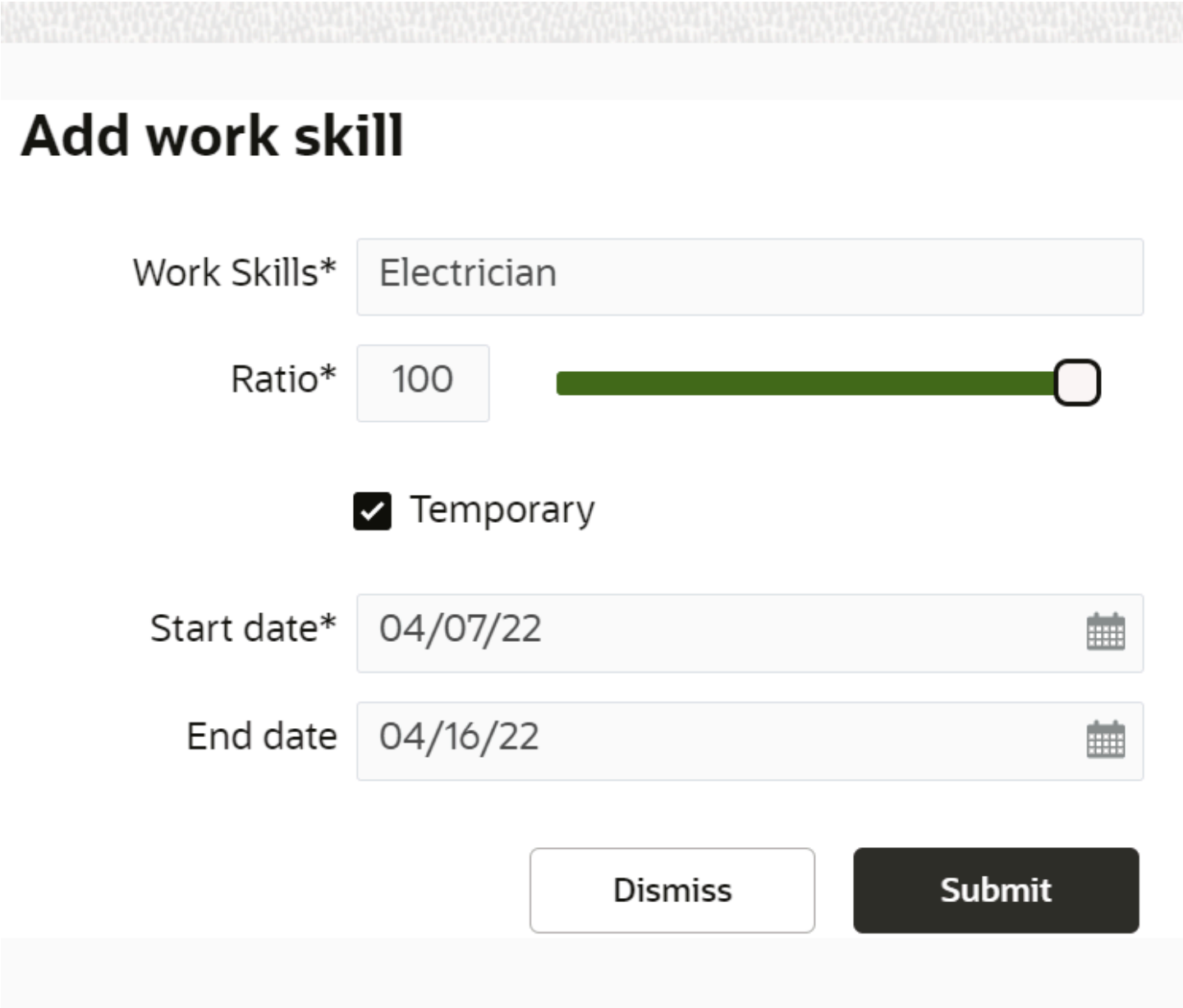
If no work skills have been explicitly assigned to a resource, the resource is assumed to permanently have all work skills configured in the system with the maximum ratio. If any work skills have been assigned, the resource has only those work skills with the specified ratios.

Define a Temporary Work Skill

Set up the assignment period for each work skill or work skill group assigned to a resource. When a work skill or work skill group is selected for a resource, its start and end dates can be defined in the calendar.

1. Open **Resource Info** > **Work Skills**.

2. Click **Add**.
   The **Add Work Skill** page appears, as shown in this screenshot:



3. Select the appropriate work skills from the list.
4. Assign the work skill ratio.
   If the ratio is not defined, the resource is considered to have the maximum work skill ratio of 100.
5. Select **Temporary**

6. Select the **From** and **To** dates of the skill assignment period from the calendar.

   By default, the start date is always set to the current date making the work skill applicable immediately. If the start date is changed to a past date, it will still be replaced with the today's date, as the application does not support changes to past data. The end date can be left blank to mark the skill assigned permanently

7. Click **Submit**.

   The work skill is assigned to the resource; skills are separated by semi colons. The name of each work skill is followed by its ratio and assignment dates in parentheses. The work skills are displayed according to these rules:
   - Work skills terminated in the past are not displayed
   - Assignment dates are shown in the 'from… to…' format. When the start date is in the past, from date is not shown. When end date is not set, to date is not displayed.
   - If a work skill level is set to 100, the level is not displayed.
   - Inactive work skills are shown in gray font.

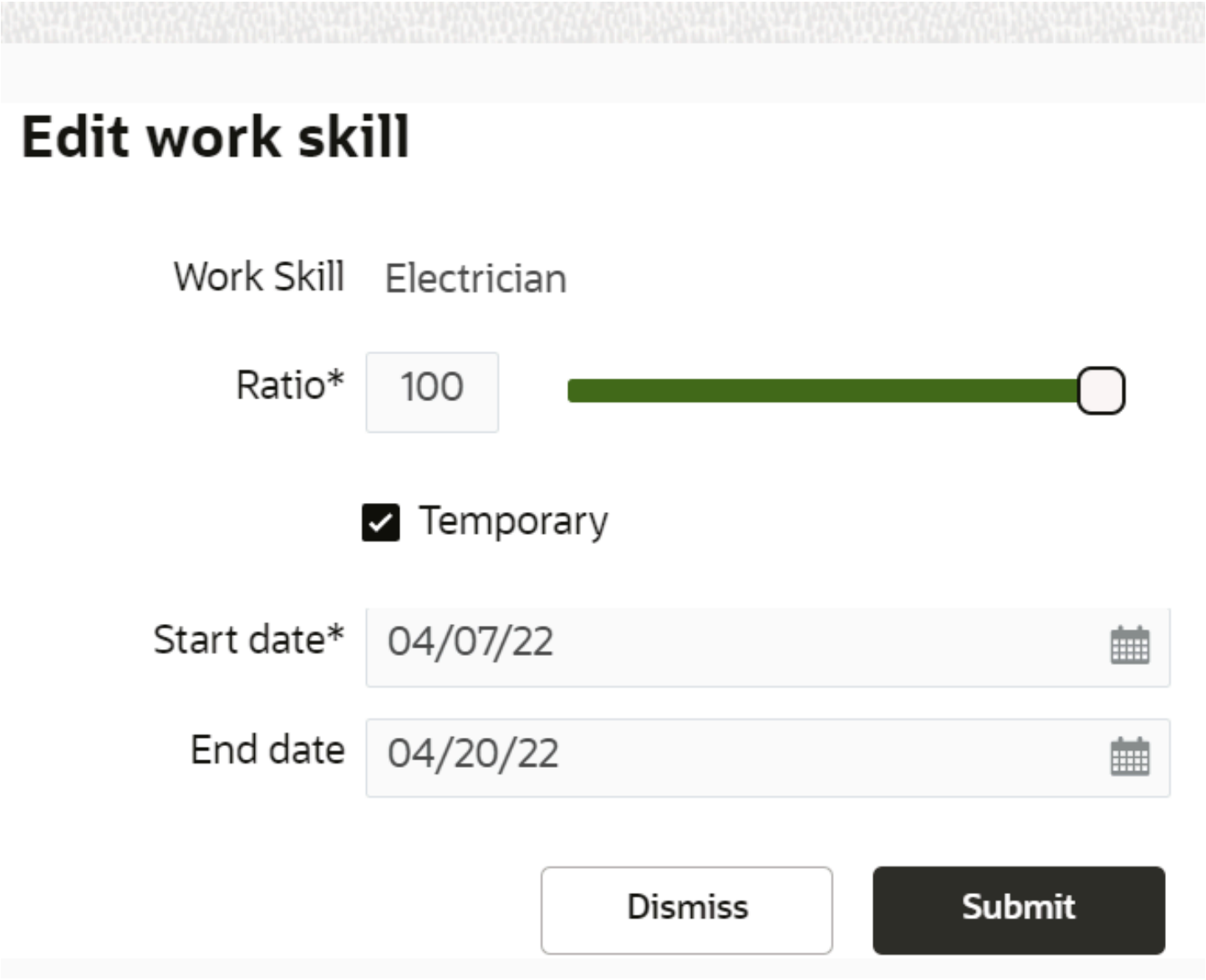
> **Note:** If the resource is not assigned with the work skills, the resource is assumed to permanently have all the work skills configured in the application with the maximum work skill ratio.

Edit a Work Skill

Update the work skills of a resource as an when the resource acquires more skills or proficiency. You can also delete the work skills of a resource.

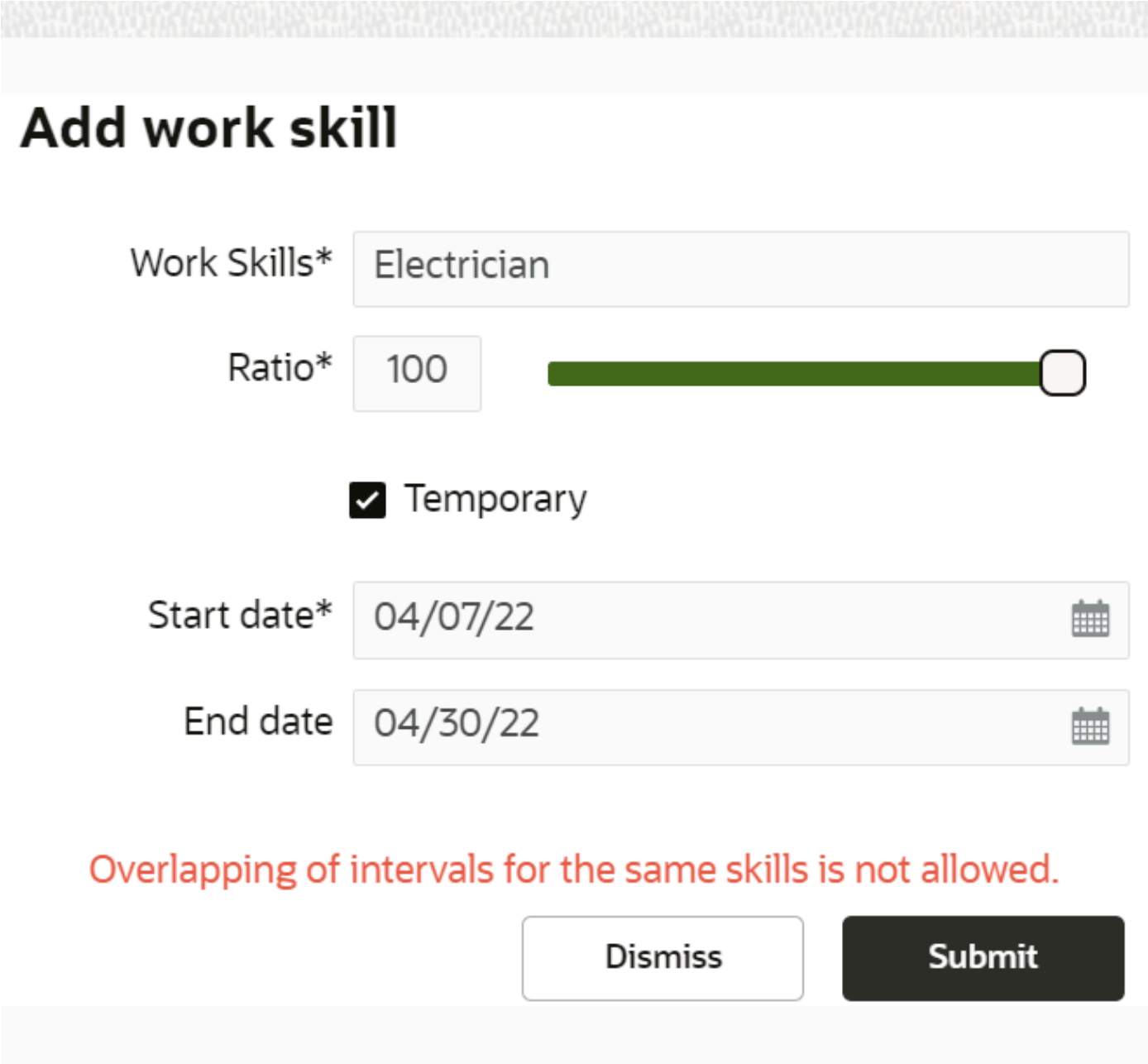
1. Open **Settings** > **Resource Info** > **Work Skills**

2. Click **Edit** on the required work skill.
   The **Edit Work Skills** dialog box opens, as shown in this screenshot:



3. Update the changes and click **Update**.
   The work skills are updated based on these rules:
   - Overlapping records with same work skill and same ratios are automatically merged into one. The start date of the merged record is the **To** date of the first record, and the end date of the merged record is the **From** date of the latest record
   - Records with the same work skills and different ratios will not be merged. Two different records are created. However, if their assignment periods overlap, the input is rejected with the message, Overlapping of intervals for the same skills is not allowed. The assignment periods have to be adjusted so that they no

longer overlap. This screenshot shows an error message on the **Add work skill** dialog box, when you try to add the same work skill with overlapping intervals:



- If a work skill is deleted, it is marked terminated on the previous day.
- If a work skill is updated, the old work skill is marked terminated on the previous and the new work skill record starts from the current date.

Work Skill Conditions

To ensure that a resource has the ability to perform subsequently assigned activities, a correlation must be made between incoming activity skill requirements and the skills specified for each resource. The Work skill functionality is what that correlation is based on. Work skills are set up first, and then are assigned to resource records, with the appropriate levels of qualification set for each.

Incoming activities are also assigned Work Skills, which are then matched up with resources with corresponding skills during routing. For the application to know which Work Skills to assign to the activities, however, another correlation must be made. This correlation is referred to as Work Skill Conditions – criteria that is based on certain field values of activities. Work Skill Conditions are what the application uses to define which Work Skills should be assigned to activities. Each Work Skill has at least one condition that refers to a specific field and value in the incoming activity record. An example of this could be where an install Work Skill's condition is to look for the field/value of "WO_TYPE = 1" ("1" being code for an install). If this condition were found within the activity record, then the application assigns that Work Skill to the activity.

- The application assigns as many work skills to an activity record as there are conditions found.
- If multiple works skills are assigned to an activity, then the same list of skills must be associated with a resource record in order for that resource to be considered for that job.
- If a work skill condition includes two conditions, they are processed using the AND operator. However, if the conditions are included in different work skill conditions, they are processed using the OR operator.
- If required and preferred skill levels are used to define Work Skills and conditions, then routing matches activities to available resources with equal or higher qualifications of the skills as it determines who should be assigned which activities.

Add a Work Skill Condition

A work skill condition correlates incoming activity skill requirements with the skills possessed by resources. Work skill conditions are used to determine which activities are assigned to which resources.

Before you start

You must add work skills before adding work skill conditions.

Here's what to do

1. Click **Configuration**.
2. In the **General** section, click **Work Skills**.
3. Click **Work Skill Conditions**.
   The **Work Skill Conditions** page appears.
4. Click **Add new**.
   The **Add Work Skill Condition** page appears.
5. Complete these fields:

Field Name	Description
Work skill name	The work skill for which you want to add a condition. These work skills are created in the **Add Work Skill** page.

Field Name	Description
Required level	The minimum qualification level of the skill a resource must have, to be considered for the activity. Only resources that have the required level or better skills are selected for the activity.
Preferable level	If more than one resource meets or exceeds the required level, then the one(s) with the level that is closest in number to the “preferable level” is selected for the activity.
Add new condition	A new condition for the work skill. Three new fields appear. Select the field for which you want to add the condition and select the condition. For example, suppose you want the work skill Install to be assigned to a technician who has a minimum skill level of 75, for work order types IN. Select the Work skill name as Install, enter 75 for Required level, click Add new condition and then select W/O Type, In, and IN.

6. Click **Add**.
   The work skill condition is added. When a new activity is added, these work skill conditions are used to determine which work skills are assigned to the activity. If two conditions are added to the same work skill condition, they are processed using the AND operator. However, if the conditions are included in different work skill conditions, they are processed using the OR operator.

Add a Work Skill Group

You can bundle selected work skills into work skill groups. This creates greater ease and flexibility for assigning skills to resources. You can continue to assign individual work skills and work skill groups, creating a more accurate resource work skill record. You must define work skill groups to be used for capacity categories, if different work skills must consume quota from a single capacity category.

1. Click **Configuration**.
2. In the **General** section, click **Work Skills**.
3. Click **Work Skill Groups**.
   The **Work Skill Groups** page appears.
4. Click **Add new**.
   The **Add Work Skill Group** page appears.
5. Complete these fields:

Field	Description
Name	Enter the work skill group name. If you have set multiple languages for the application, input boxes appear for the different languages.
Label	Enter a unique identifier for this work skill group.
Active	Select the check box to make this work skill group active.
Can be assigned to a resource	Select the check box if you want the work skill group to be able to be assigned to a resource record. If a group is assigned to a resource, then that the resource obtains all the work skills defined for the group.
Can be added to a capacity category	Select the check box if you want the work skill group to be able to be assigned to a capacity category. If a capacity category contains a group of work skills, then an activity is considered a match to the category if it 'requires' at least one of work skills from the group.

6. Click **Add**.
   The work skill group is added and is listed on the **Work Skill Groups** page.
7. To edit the ratio of work skills in a group, click **Edit Work Skills** for the required work skill group.
   The **Edit Work Skills Ratio** page appears. The existing work skills are listed with a default ratio of zero (0).
8. Add the required ratio for each work skill.
   For example, let's say the installation type of activity requires estimation and electrical work skills. You can create a work skill group named Installation and add the ratio between 1 and 100 for these two skills.
9. Click **Update** when done.
10. To modify a work skill group, click the pencil icon.
    The **Edit Work Skill Group: [Work skill group name]** page appears, which is similar to the **Add Work Skill Group** page.

Delete a Work Skill Group

You can delete a work skill group, if you don’t need it any more.

1. Click **Configuration**.
2. In the **General** section, click **Work Skills**.
3. Click **Work Skill Groups**.
   The **Work Skill Groups** page appears.
4. Select the check box next to the work skill group that you want to delete.
5. Click **Delete** in the header.
6. Click **Delete** in the confirmation dialog box.
   The work skills that are part of the group are no longer available for the resource to which the work skill group was assigned.

Work Zones

Work Zones

A work zone is the defined geographical area within which a resource can perform activities. Work zones are defined within the work zone dictionary, and are then assigned to resource records.

By default, all technicians inherit work zones from their parent organization unit or bucket. This means that they work inside the organization unit and inside the work zone their organization unit is responsible for. When a work zone is assigned to a technician directly (whether temporarily or not), the inheritance of work zones is not applied anymore. Nevertheless, the technician is still considered to work inside the organization if they either have inherited the parent's zones, or are directly assigned only the zones that are part of their parent's configuration.

Temporary Work Zones

If at least one of the work zones assigned to a technician is not the same as those assigned to their parent organization, then it means that the technician has been temporarily assigned to another work zone. The technician may perform work that can't be handled by other members of the organization unit. Such assignment may be different for a

particular day because work zones can be specified for a date interval. It is not possible to set a work zone for part of the day. Temporary work zones override a resource's regularly assigned work zones.

A work zone key consists of a field (or combination of fields) and length-specific values, that when identified within an activity record, determines which work zone gets associated with that activity. You can view, add, and modify work zones from the **Work Zone** page.

Routing assigns activities to resources taking into account the work zones of those resources and assigning only those activities that are within his or her work zone.

Add a Work Zone

Work Zone is unique to each company and reflects how geographic regions are divided for more effective and efficient routing.

Before you start

Ensure that you have added the required travel areas.

Here's what to do

1. Click **Configuration**.
2. In the **General** section, click **Work Zones**.
   The **Work Zones** page appears.
3. Click **Add new**.
   The **Add Work Zone** page appears.
4. Fill up these fields:

Field	Description
Work Zone Name	A meaningful name to describe the group of Work Zone key values that make up the Work Zone.
Work Zone Label	A unique identifier for the Work Zone.
Status	Status of the Work Zone—active or inactive.
Delimiter	Choose whether commas separate locations in the Work Zone Keys list or each location appears on a new line.
Travel Area	A higher level bundling of zones used by the application's statistics engine.
Work Zone Keys	Values within and formatted as defined by the overall Work Zone field key, that will positively associate an incoming activity with a particular Work Zone.
Work Zone Shapes	Work Zone shapes are used as visual representations of Work Zones on the map and, as a tool for yet more subtle definition of Work Zones. For example, if the company chooses to define its Work Zones by city names or postal codes the Work Zones may be rather large. At the same time, several shapes can be attached to the Work Zone dividing it into geographically smaller areas. This way, one team can work in one *shape* and another team – in another *shape* while still working in the same Work Zone. If used, enter the shape identifier. The property serving as the shape identifier is defined during the shape configuration via the Metadata API. For example, if ZIP code is used as shape identifier, enter one or more ZIP codes associated with Work Zone shapes.

5. Click **Add**.
   The Work Zone is saved.

> **Note:** The Work Zone identifiers must be unique. If you have used the identifier for another Work Zone, the error message: Key {identifier} conflicts with key {identifier} of Work Zone {work_zone_name} is displayed.

View Work Zones

Work Zone is unique to each company and reflects how geographic regions are divided for more effective and efficient routing. The keys that define zones can be anything with geographic relation – a zip code, address portion, network items (nodes, sub-nodes), map grids, or even geo-coding.

1. Click **Configuration**.
2. In the **General** section, click **Work Zones**.
   The **Work Zones** page appears and displays these fields:

Field	Description
ID	System-generated number used to identify a unique Work Zone.
Status	The Work Zone can be active and available for routing or inactive and not available for routing. Green tick mark indicates active and red cross indicates inactive.
Work Zone Name	A meaningful name to describe the group of Work Zone key values that make up the Work Zone.
Work Zone Keys	The exact values that can be found within the primary key (field) that are used to associate the activity record with a Work Zone.
Actions	Click the pencil icon to edit the Work Zone.
Shapes	Link appears if one or more shapes have been added to at least one Work Zone. Clicking **Shape** opens the map showing the shapes associated with the selected Work Zone. For adjacent shapes the map shows one common area formed by the combined shapes.

3. Click **View** to filter the Work Zones.

Modify a Work Zone

After you create a Work Zone, you cannot delete it, but you can activate or deactivate it. You can also modify the work zone by changing the name, or by adding or removing locations from it.

1. Click **Configuration**.
2. In the **General** section, click **Work Zones**.
   The **Work Zones** page appears.
3. Click the pencil icon for the Work Zone that you want to modify.
   The **Edit Work Zone** page appears.

4. Change as required and click **Update**.

   Current activities are recalculated per the modifications. Any future activities will be routed according to the newly modified Work Zones. For precautionary reasons, you must perform the Work Zone changes outside of the application's peak usage time.

   > **Note:** Changing the status of a Work Zone to **Inactive** stops Routing from using the Work Zone or any of its locations.

How do I modify the work zone key?

A work zone key helps you identify a work zone with a short name. The work zones that you create are automatically assigned with the key or convention that you define in the **Work Zone Key** dialog box. By default, City is the work zone key in the application.

1. Click **Configuration**.
2. In the **General** section, click **Work Zones**.
3. Click **Modify** next to Work Zone Key in the header area.

   The **Work Zone Key** dialog box appears.
4. To retain City as the key and just change the length of the key, change the number in the **Length** field. In the next field, select whether you want the entire key as case insensitive, or just the first letter.
5. Click **OK**.

   The existing work zone keys are modified to conform to the new configuration.
6. To add a new field as the key, click the plus icon in the **Work Zone Key** dialog box.

   The list of fields available in the application is displayed in alphabetical order.
7. Select a field of your choice and click **Add**.

   The newly added field is displayed in the **Work Zone Key** dialog box.
8. Add the length of the key in the **Length** field. In the next field, select whether you want the entire key as case insensitive, or just the first letter.

   If you have selected multiple fields (a combination of fields), you must add the length of the key for each field. If the value of the field or property is lower than the length, the application populates the remaining length with 'space' characters. This is done for all the fields and properties the Work Zone is built from.

   When the application creates a Work Zone key from all the fields and properties, it trims the Work Zone key and removes all the spaces from the right to the left until the first non-space character is met.
9. Click **OK**.

   The modifications are applied to the existing work zone keys. If the key size exceeds 50 characters, it is truncated to 50.

Results:

Export and Import Work Zones

You can export and import Work Zones to move the information between two instances. You can export and import Work Zones either through an API or through the user interface. The Export and Import buttons available on the **Work Zones** page.

1. Click **Configuration** > **Work Zones**.
2. Click **Export**.
   An XML file is generated with this information:
   - XML format and product version
   - Information about Work Zone keys
     - field
     - property (can be present only if 'field' equals 'property')
     - function ('case insensitive' or 'first word case insensitive')
     - length
     - order
   - Information about Work Zones:
     - Work Zone name
     - travel area
     - status (active or inactive)
     - Work Zone shapes
     - Work Zone keys (order and formula are taken into account)
3. To import Work Zones, click **Import**.
   You can import only the Work Zones that are exported from this application.
4. Click **Browse** and select the file that you want to import and then click **Import**.
   The Work Zones are imported based on these rules:
   - Work Zone keys and shape IDs for imported Work Zones must be unique. If either of them is not unique, the Work Zone is not imported.
   - If a Work Zone is present in the company configuration and is absent in the imported XML file, the Work Zone is deactivated.
   - If a Work Zone is present in both, company configuration and imported XML file, it is updated if valid.
   - If a Work Zone is absent in the company configuration and is present in the imported XML file, it is created if valid.

   The Work Zones are imported and the summary of results is displayed. The results show the number of successfully imported Work Zones and number of Work Zones which failed to import.

Related Topics

- Example of Work Zone Export XML Structure

Example of Work Zone Export XML Structure

When you export Work Zones, an XML file is generated. This topic provides a sample structure.

```
<?xml version="1.0" encoding="UTF-8"?>
<workZones formatVersion="1" productVersion="16.8.0">
 <workZoneRules>
 <rule field="ccity" collation="case insensitive" length="4" order="0" />
 </workZoneRules>
 <items>
 <item status="active" travelArea="sunrise_enterprise" workZoneLabel="ALTAMONTE SPRINGS"
 workZoneName="ALTAMONTE SPRINGS">
```

```
<keys>
<key>alta</key>
</keys>
<shapes>
<shape>cass</shape>
<shape>gene</shape>
</shapes>
</item>
<item status="active" travelArea="sunrise_enterprise" workZoneLabel="TEX" workZoneName="TEXAS">
<keys>
<key>andr</key>
<key>colo</key>
<key>kerm</key>
<key>lubb</key>
<key>midl</key>
<key>odes</key>
</keys>
<shapes>
<shape>wint</shape>
<shape>port</shape>
</shapes>
</item>
<items>
</workZones>
```

Add a Travel Area

Travel areas define the maximum allowed travel territory for a company and can contain groupings of work zones. Typically, companies have at least one high-level travel area listed.

1. Click **Configuration**.
2. In the **General** section, click **Work Zones**.
3. Click **Travel Areas**.
   The **Travel Areas** page appears.
4. Click **Add Travel Area**.
   The **Add Travel Aarea** dialog box appears.
5. Fill up these fields:

Field	Description
Name	Name of the travel area.
Label	Your company specific unique identifier for the area.

6. Click **OK**.
   The **Travel Areas** page appears.

Travel Time Prediction

Oracle Field Service uses time-based prediction for travel time. This topic describes how travel time is calculated in the application.

Travel time between two activities is calculated as a combination of:

- Statistical “Learned” estimation
- "Straight-Line" estimation

> **Note:** You can specify durations for specific activities and technicians through APIs. For more information, see the REST API for Oracle Field Service guide.

Statistical “Learned" Estimation

Statistical Learned estimation is based on the historical travel times between two locations. These locations are represented by geographical areas, termed as Travel Keys. A Travel Key is typically a portion of or the entire Post Code or ZIP Code. When a resource records travel between two locations, the values are added to the statistics to produce a learned estimate of the travel between that set of Travel Keys. To produce and use a Statistical Learned Estimate for the travel time between two activities, both activities must contain a value that is part of the Travel Key and the Travel Keys must have enough historical travel data.

> **Note:**
> - The travel time between two Travel Keys is adjusted over time as more data is collected.
> - Generally travel time for an activity is considered to be the time between the end of the previous activity and the start of the current activity. If there is idle time after the end of the previous activity (before the start of predicted travel to the current activity; for example, the current activity was assigned to the route after the previous activity ended), then the recorded travel time is not considered for the statistics.

Airline Distance Method

Oracle Field Service calculates the airline speed and parking time for each travel key separately. If one travel key encompasses an urban area, where speeds are low and parking times are high, while another key is located in a rural area with higher speeds and minimal parking times, travel time estimations using company-wide values may not be as accurate as possible. Estimations are likely to be more accurate when the airline distance speed and departure, or parking time are based on the values collected for individual travel keys. If there is enough reported data for a travel key, the airline speed and parking time is estimated based on the collected data. If there isn't enough reported travel data, the travel time estimate uses the default airline speed and parking time, as defined for the entire organization on the **Configuration** > **Statistics page.**

For travel within a travel key, the travel time estimate is the straight-line distance divided by the airline distance speed of the travel key plus the departure or parking time of the travel key.

```
Travel time estimate = Distance/Airline distance speed + parking time
```

For travel between two travel keys, the travel time estimate is the average of the travel time estimates calculated using each of the keys.

```
Travel time estimate = 0.5 * (Distance/Airline distance speed of key 1 + parking time of key 1) + 0.5 *
 (Distance/Airline distance speed of key 2 + parking time of key 2)
```

The final estimated travel time may be based on the airline distance estimation combined with statistically calculated travel durations.

Override Airline Distance Based Travel

You can use the Statistics API to override the travel estimations based on airline distance with any value you deem appropriate for each travel key. If a calculated override value exists, that value will be used to determine the travel time. For more information on the API, see the REST API for Oracle Field Service guide.

Travel time estimation

Oracle Field Service uses a parameter called Coordinated Travel Weight (CTW) to combine the two methods of estimations described earlier. CTW is a company–level value and is calculated using the **Coordinate calculation weight** parameter. **Coordinate calculation weight** is configured at the company level, in the **Statistics** page. The formula is:

```
Travel Time = Statistical x (1-CTW) + Straight Line x CTW
```

For example, if you set CTW to 0.5, the travel time is the average of the two.

Exceptions:

- If the CTW value is 0.0, only the Statistical Learned estimation is used. If no Travel Key is available, the **Default Travel time** is used.
- If the CTW value is 1.0, only the Airline Distance Method is used. If coordinates are not available for both activities, the **Default Travel time** is used.
- If neither Statistical Learned estimation nor Airline Distance Method is available, the **Default Travel time** is used. The **Default Travel time** is a single configuration at the company level.

Additional adjustments

After routing is performed, the application may adjust Travel Time further for activities that are pending and ordered on a route. This adjustment may occur when the application is unable to find a Statistical “Learned" record that matches the pair of Travel Keys in these cases:

1. When only the Airline distance method is used.
2. When the "default" value is used.

When either of the above occurs, the application attempts to adjust travel time using two methods:

- Generate “actual travel" data: The application submits the origin and destination addresses to the Oracle Spatial and Graph Route Server, if the accuracy level of each activity = “address”. The application calculates the travel time between the activities, adds the results to the temporary statistics, and recalculates the travel time on the route using the updated statistics.
- Generate "street/post code level" estimate travel between post codes
    - This method requires post or zip code to be configured as the travel key.
    - The application submits the origin and destination post or zip codes to the Oracle Spatial and Graph Route Server and the application calculates the travel time between them. The returned information is used to improve the quality of the temporary statistics.

      > **Note:** When the post code is the same for both the activities, this method is not used.

Temporary statistical travel data is calculated and used until real data is accumulated. This is accumulated as resources record travel between two locations based on the status of the activity. As soon as actual resources learned statistics are obtained, the temporary record is deleted. The Daily Extract - Appt data set contains the ‘travel_estimation_method’ field, which identifies what travel method was used for the travel time estimation. This field is only available in the Daily Extract file. These values can be present:

Values for the Travel estimation method field

Value	Description
0 - travel is not calculated	Travel is not calculated. This is not calculated because the Activity Type feature = “Calculate travel” is not selected.
1 - company default	Travel estimation uses the company default found in “Configuration - Statistics”
2 - statistics only	Travel estimation uses only the Statistical Learned estimation. This could be a result of an activity not being geocoded or the Coordinated Calculation Weight parameter set to 0.
3 - expansion statistics only	Travel estimation is based on the expansion statistics. See 2A above for a definition.
4 - initial statistics only	Travel estimation is based on the temporary statistics that were generated based on the results received from street level routing.
5 - coordinates only	Travel estimation only uses the Airline Distance Method. This could be a result of an activity not having a physical address or the Coordinated Calculation Weight parameter set to 0.
6 - statistics + coordinates	Travel estimation is based on a combination of the Statistical Learned estimation and Airline Distance Method using the ‘Coordinate calculation weight’ setting.
7 - expansion statistics + coordinates	Travel estimation is based on a combination of expansion statistics and the Airline Distance Method using the ‘Coordinate calculation weight’ setting.
8 - initial statistics + coordinates	Travel estimation is based on the statistics that were generated as part of the results received from street level routing and the Airline Distance Method using the Coordinate calculation weight setting.
9 - "manual" adjustment	Travel estimation is based on the value that was updated using an API. This value can be set via Core API (update activity). For this goal, “manual” should be passed as a value of the “setTravelTime/source” field.
10 - "street level" adjustment	Travel estimation uses the street level estimations provided by Location Services between coordinates of locations. This is used when you use SLR for Routing.
11 - "externally estimated value provided via API" adjustment	Travel estimation is based on the value that was updated using an API. This value can be set via Core API (update activity). For this goal, “manual” should be passed as a value of the “setTravelTime/source” field.
12 - same location	Travel was not calculated because the location is the same based on address or geocode. (Travel = 0)
13 - statistics (not-ordered, bucket, not-scheduled)	Travel estimation only used the Statistical Learned estimation. In this case the origin location of the travel is still unknown and the application estimates an average traveling time value. A presence of these estimations is important for capacity management.
14 - company default value (not-ordered, bucket, not-scheduled)	Travel estimation used the company default found in “Configuration - Statistics”. In this case the origin location of the travel is still unknown.
15 - GPS coordinates	Travel estimation uses the Airline Distance Method between the GPS based location of the resource and the Activity location.
16 - Point to point adjustment	Travel estimation is adjusted using point to point estimations provided by location services based on coordinates of locations.

Value	Description
17 - Real time traffic	Travel estimation is adjusted using the real-time traffic data estimations provided by the location services, based on the activity coordinates or resource locations.
18 - Travel Key based Airline Distance	Travel estimation uses the Airline distance based estimation using the coordinates of the medians of travel keys. This could be the result of a location not having valid coordinates and not having learned statistics between the locations.

2 Configure Resources, Activities, and Inventories

Activity Types

An activity is any time-consuming task such as, installation, trouble call, lunch, or team meeting that a resource does. Each activity type includes a set of features, which are yes/no flags and define the way the activity type is processed. Examples for features include whether activities of a specific type can be moved, created in a *bucket*, rescheduled, and so on. The **Activity Types visibility** controls the access to the **Activity Types** window. You must set the visibility for each user type that you want to manage Activity Types. If you don't configure an action for a user type or if you don't define the visibility, users of the user type cannot see the **Activity Types**. If you select ReadOnly, **Activity Types** is available in a read-only mode. If you select Read/Write, users can manage Activity Types.

Here is the detailed description of the features that may influence the processing of *activity* from the back office applications through Oracle Field Service.

Features that influence activity processing

Feature	If enabled, the activities of the type...
Allow to create from Incoming Interface	... can be created from external systems, including Oracle Field Service ETAWorkforce
Allow move between resources	... can be moved between resources
Allow creation in bucket	... can be created in bucket through routing plans and profiles
Allow reschedule	... can be moved to another day
Support of not-ordered activities	... can be not-ordered – such that can be started by the resource before/after any other activity within the route
Allow non-scheduled	... can be activities without a date
Support of time slots	... can use time slots (time-period within which they are to be started can be defined)
Calculate activity duration using statistics	... are estimated using statistics that are gathered at the resource level and company level

How do I add an activity type?

An activity type defines the properties based on which users can create activities. The properties could be whether the activity is created for customers, internal activities, or team work, whether travel needs to be calculated for the activity, whether the activity can be rescheduled, and so on. You can't change some features after you start creating activities for some activity types. Whether you change the features for existing activity types on the user interface or through REST APIs, the application validates the features and displays warnings, as appropriate.

1. Click **Configuration** > **Activity Types** > **Add new**.

2. On the Add Activity Type page, complete these fields:

Field	Action
Activity type info section	
Label	Enter a unique identifier for the activity type.
Active	Specify whether the activity type is active. Users can't select inactive activity types while creating activities.
Name	Enter a user-friendly name that appears in the interface. Enter the name in English and in all the languages that are active in the application.
Group	Select the activity type group this activity type belongs to, for example, Customer, Internal, Teamwork, or Task.
Default duration, minutes	Enter the time taken to complete the activity in minutes. This is the default value and it will be used when no statistics are available for the activity.
Available Time Slots Section	
Available Time Slots	Select the times slots during which activities of this type must be completed. You must have set up time slots on **Configuration** > **Time Slots** for them to be available on this page. Select the check box to activate the time slot.
Color Scheme Section	
Copy from	Select the color palette to be copied from an existing activity type. The color scheme of the selected activity type is duplicated.
Pending through Cancelled	Define colors for each of activity statuses and for warning with standard RGB color codes and palettes. The colors that you select here are used on all the application pages. For example, let's say you select Green for the Started status. Whether you view the Time View, List View, or Manage, activities with the Started status are displayed in Green. The colors Pending = FFDE00, Completed = 79B6EB, Warning = FFAAAA, Suspended = 99FFFF, Not done = 60CECE, Not ordered = FFCC99, Started = 5DBE3F, and Canceled = 80FF80 are not available in the Supervisor Time View (Manage).
Features Section- The features are yes/no flags, which define individual characteristics of the type processing. If the check box is selected then the feature is enabled.	
Allow mass activities	Select the check box to define that the activities of this type can be performed by multiple resources simultaneously. For example, team meeting, or training. If you select this option at the time of creating the Activity Type and save the Activity type, you can't clear it later. However, if you've cleared it at the time of creating the Activity Type, you can select it later. But, you see a warning message. o This option can't be enabled if **Teamwork** is selected. o This option can't be enabled if **Allow move between resources** is selected. o This option can't be enabled if **Support of not-scheduled activities** is selected. o This option can't be enabled if **Allow reschedule** is selected.
Teamwork	Select the check box to define that the activities of this type are allowed for teamwork. Teamwork is an activity that's performed by minimum two resources: a team leader and an assistant. You can select this option only while creating the Activity Type. After you select this option and save the Activity type, you can't clear it. Similarly, if you clear it at the time of creating the Activity Type, you can't select it later. When the Teamwork activity feature is enabled, these activity type features are disabled: o Enable segmenting and extended duration o Allow move between resources

Field	Action
	○ Allow creation in buckets ○ Allow reschedule ○ Allow non-scheduled ○ Enable 'day before' trigger ○ Enable 'reminder' and 'change' triggers ○ Support of work zones ○ Support of work skills ○ Support of inventory ○ Support of preferred resources ○ Allow mass activities
Enable segmenting and extended duration	Select the check box to define that the activities of this type are intended to be used for field work that must be split into segments, which can be scheduled and assigned to technicians. You can select this option only while creating the Activity Type. When you select this option, a new section, **Enable segmenting and extended duration**, appears in the **Add activity type** window where you can set the duration for segments. After you select this option and save the Activity type, you can't clear it. Similarly, if you clear it at the time of creating the Activity Type, you can't select it later. These fields are displayed in the **Enable segmenting and extended duration** section: ○ **Minimum segment duration for a single day:** Defines the minimum length (in minutes) of each segment the activity is to be split. ○ **Maximum segment duration for a single day:** Defines the maximum total duration (in minutes) of the activity segments for any day. When you select the **Enable segmenting and extended duration** feature, these activity type features are disabled: ○ Teamwork ○ Allow mass activities ○ Allow repeating activities ○ Enable 'day before' trigger ○ Enable 'reminder' and 'change' triggers ○ Enable 'not started' trigger ○ Enable 'SW warning' trigger
Allow move between resources	Select the check box to define that the activities of this type can be moved from one resource to another. You can't select this option if you've selected **Teamwork**.
Allow creation in buckets	Select the check box to define that the activities of this type can be created in a bucket. If you select this option at the time of creating the Activity Type and save the Activity type, you can't clear it later. However, if you've cleared it at the time of creating the Activity Type, you can select it later. But, you see a warning message. ○ You can't select this option if you've selected **Teamwork**. ○ You can select this option only if you've selected **Allow move between resources**.
Allow reschedule	Select the check box to define that the activities of this type can be rescheduled to another date.
Support of not-ordered activities	Select the check box to define that the activities of this type can be not-ordered activities. If you select this option at the time of creating the Activity Type and save the Activity type, you can't clear it later. However, if you've cleared it at the time of creating the Activity Type, you can select it later. But, you see a warning message.

Field	Action
	Not-ordered activities are the ones for which the order of processing isn't defined. Such activities don't have an estimated time of arrival. The resource, dispatcher or routing may define the order (for example, command change order in mobile interface or edit activity command in web interface).
Allow non-scheduled activities	Select the check box to define that this activity type can have non-scheduled activities. You can't select this option if you've selected **Teamwork**. If you select this option at the time of creating the Activity Type and save the Activity type, you can't clear it later. However, if you've cleared it at the time of creating the Activity Type, you can select it later. But, you see a warning message. Non-scheduled activities are the ones that don't have a specific day of completion assigned to them.
Support of work zones	Select the check box to define that the resource work zone must be calculated for this type of activities. This option can't be enabled if **Teamwork** is selected. If this option is selected and a work zone can't be calculated, a warning is displayed when such an activity is moved; routing will not assign such activities. If using work zones, Business rules must be configured to allow support of work zones (**Configuration** > **Business Rules** > **GUI features** > **Enable work zones support**).
Support of work skills	Select the check box to define that the work skills are calculated and assigned to the activities of this type, based on any conditions met. Subsequently, only resources with matching work skills are considered for assignment of the activity. If you don't select this check box, work skills are not considered and the activity can be assigned to any available resource. o You can't select this option if you've selected **Teamwork**. o This option does not depend on the **Allow move between resources** feature (as work skills are used not only to move activities but to calculate capacity). If you choose to use work skills, you must configure Business Rules to allow support of work skills (**Configuration** > **Business Rules** > **GUI features** > **Enable work skills support**).
Support of time slots	Select the check box to define that the activities of this type require time slots. This refers to predefined time slots within which the activity can be performed. After you select this option and save the Activity type, if you try to clear the option, you see the message, 'Time Slot values will not be preserved after the change of this feature.' If you don't select this check box and the 'Time slot' field is added to the **Edit/View activity** context layout, then it's replaced with the Service Window field.
Support of inventory	Select the check box to define that inventory can be used for activities of this type. For example, lunch breaks and team meetings do not have inventory. You can't select this option if you've selected **Teamwork**. If you select this option at the time of creating the Activity Type and save the Activity type, you can't clear it later. However, if you've cleared it at the time of creating the Activity Type, you can select it later. But, you see a warning message.
Support of links	Select the check box to define that the activities of this type can be linked with predecessor/successor activity relationships. If you select this option at the time of creating the Activity Type and save the Activity type, you can't clear it later. However, if you've cleared it at the time of creating the Activity Type, you can select it later. But, you see a warning message.
Support of preferred resources	Select the check box to define that the activities of this type can have preferred resources (Preferred Resource tab). You can't select this option if you've selected **Teamwork**. If you select this option at the time of creating the Activity Type and save the Activity type, you can't clear it later. However, if you've cleared it at the time of creating the Activity Type, you can select it later. But, you see a warning message.
Allow repeating activities	Select the check box to define that the activities of this type can be recurrent. If you select this option at the time of creating the Activity Type and save the Activity type, you can't clear it later. However, if you've cleared it at the time of creating the Activity Type, you can select it later. But, you see a warning message. o You can't select this option if you've selected **Allow move between resources**. o You can't select this option if you've selected **Support of not-scheduled activities**.

Field	Action
Calculate travel	Select the check box to define that the travel time to an activity must be calculated. If you've selected **Calculate travel** for an activity and it has neither the travel key (that is, zip code) nor coordinates, a company default value is used as a value of travel to and from the activity. o If the feature is selected, the algorithm implemented for activities is used for all activities of the type. o If the feature isn't selected, the travel time to activities of the type is always calculated as zero (0) (as if location of activities of the type is the same as location of previous activity) and travel to the next stop also starts from this previous location.
Calculate activity duration using statistics	Select the check box to define that the activities are estimated using the statistics that are gathered at the resource level and company level.
Allow to search	Select the check box to define that the Oracle Field Service Search Engine indexes activities of this type.
Allow to create from Incoming interface	Select the check box to define that the activities of this type can be created from Inbound Interface. Activities may originate from either Oracle Field Service or external systems.
Enable 'day before' trigger	Select the check box to define that the day before trigger is invoked for activities of this type. You can't select this option if you've selected either **Teamwork** or **Enable segmenting and extended duration**. You can select or clear this option at the time of creating the Activity Type, or later.
Enable 'reminder' and 'change' triggers	Select the check box to define that the 'reminder' and 'change' triggers are invoked for activities of this type. You can't select this option if you've selected either **Teamwork** or **Enable segmenting and extended duration**. You can select or clear this option at the time of creating the Activity Type, or later.
Enable 'not started' trigger	Select the check box to define that the 'not started' trigger is invoked for activities of this type. You can't select this option if you've selected either **Teamwork** or **Enable segmenting and extended duration**. You can select or clear this option at the time of creating the Activity Type, or later.
Enable 'SW warning' trigger	Select the check box to define that the 'SW warning' trigger (Service Window warning) is invoked for activities of this type. You can't select this option if you've selected either **Teamwork** or **Enable segmenting and extended duration**. You can select or clear this option at the time of creating the Activity Type, or later.
Calculate delivery window	Select the check box to define that a delivery window can be calculated for activities of this type.
SLA and Service window use customer time zone (required for routing)	Select the check box to define that SLA/Service Window can be adjusted for the activities of this type. You must select this feature if you've selected **Support of time slots**.
Support of required inventory	Select the check box to define that the required inventory is supported for activities of this type.
Disable resource tracking for this activity type	Select the check box to define that the resource's geolocation isn't tracked, if the activity has the status 'Started'. The message, 'Your location isn't tracked for this activity.' appears on the Landing page. Location tracking resumes after the activity status changes (that is, the status changes to 'Completed/End', 'Suspend', or 'Not Done') and, the route is still active. This functionality is supported in the Oracle Field Service Core Application (browser) and installed applications (Android and iOS) and requires Oracle Field Service Smart Location, Oracle Field Service Professional Cloud Service or Oracle Field Service Enterprise Cloud Service. This message isn't displayed if you've not selected **Enable GPS Telemetry** under the **Configuration** > **User Types** > **Permissions** section.

3. Click **Add**.

Related Topics

- How is activity duration calculated?

Find Activity Types

An activity type defines the specific parameters of the activity, such as in which time slot the activity takes place. You may want to find activity types to view, edit, or clone them.

1. Click **Configuration**.
2. In the **Resources, Activities, and Inventories** section, click **Activity Types**.
   The **Activity types** page appears and displays these columns:

Column	Description
ID	System-generated number assigned to records in the database – not used by anyone except the Support team.
Status	Indicates if the activity type is being used. o Green check mark = Active and in use o Red X = Inactive and not used
Activity Type Name	The user-friendly name the end user sees in the drop-down list of choices on the **Activity** page.
Activity Type Label	A unique identifier for the activity type.
Activity type group	The group to which the activity type belongs. It could be Customer, Internal, Teamwork, or Task.
Actions	Links to the modify and clone actions you can take on this activity.

3. To filter the activity types, click **View**.
4. Type the activity type that you want to find in the **Find** field.
5. Click **Apply**.
   The results appear in the work area.

View Internal Activity Types

Internal activities are non-customer facing activities that a resource performs as part of their daily duties. External activities are activities where resources are required to travel to perform some type of service.

For many resources, their first activity might be a warehouse visit. Around mid-way through the shift, there will be a lunch activity. The last activity might also be a warehouse activity, to complete their end-of-day tasks. This is an example of how an internal activity is part of a resource's daily duties.

1. Click **Configuration**.
2. In the **Resources, Activities, Inventories** section, click **Activity Types**.
   The **Activity Types** page appears. The internal activities are listed under the heading **Internal**. The colors indicate the colors used on the Time, List and Map view.
3. Scroll down to see the activities types of various groups.

Activity Alerts

You see alert messages when you move activities. These messages guide you through the process. These alerts are available:

Overtime Alert: This alert notifies you that the estimated completion time of the activity extends beyond the end of a resource's working day.

Soft Skill Mismatch Alert: This alert displays when you move an activity to a resource that does not have the preferable qualification level of an activity skill.

***Work skill* Mismatch Alert:** This alert displays when you move an activity to a resource that does not have the required and preferred qualification level of an activity skill. Depending on your settings, the **Work Skill Mismatch Alert** either prevents you from moving the activity, or gives you the option to move it or to cancel the move.

Don't Move Alert: This alert displays when you try to move an activity type that is not allowed to move between resources. Activity types are configured in the **Add activity type** page.

How do I activate, deactivate, or delete an activity type?

If you don't want to use an activity type any more, you can change its status and deactivate it, or delete it. Similarly, if you've an existing deactivated activity type, you can activate it and start using it.

1. Click **Configuration**.
2. In the **Resources, Activities, Inventories** section, click **Activity Types**.
3. Select the check box next to an activity type.
   Group action buttons such as activate and deactivate appear.
4. Click the appropriate button, based on the action you want to perform.

> **Note:** Deactivate doesn't delete the activity type; it just makes it inactive. You can't delete an activity type that's in use (or, activities of this type exists).

How Activity Duration Is Calculated

You can define the activity duration or the application can calculate it using statistics that is obtained from learned durations.

> **Note:** You can specify durations for specific activities and technicians through APIs. For more information, see the REST API for Oracle Field Service guide.

The manually-defined and statistical methods work as follows:

- **Manually-defined:** If you have not selected the **Calculate activity duration using statistics** check box on the **Add activity type** or **Modify activity type** dialog box, the duration specified at the time of creating the activity is used. If you have not specified the duration in the activity, the default duration for that activity type is used.

- **Statistical:** If you have selected the **Calculate activity duration using statistics** check box on the **Add activity type** or **Modify activity type** dialog box, the duration of the activity is calculated based on statistical methods. If the history is not enough to calculate using statistics, the duration entered manually (if entered) at the time of creating the activity is used. If neither history nor a manually entered value is present, then the default duration for that activity type is used. The default duration is specified at the time of creating the activity type.

Calculation of activity duration using statistics

Activity duration estimations are calculated by the application based on the historical data of completed activities. The application analyses new data, compares it against previous estimations, and corrects the previous estimations, based on the new data, to obtain updated estimations for future usage. For this, the application uses two main statistics: company profile and personal profile. The application learns how each technician performs tasks and updates these statistics daily.

- **Company profile:** The activity duration is calculated at the company level based on the **Activity duration stats fields** configured on the **Statistics** page. All activities belonging to the same field value are grouped together for calculating the duration. The key is typically something that identifies similar activities as a single entity including fields such as **Activity Type**. When a technician performs tasks and reports the time against them, the company level estimate is derived for each task type based on the stats field values. The application gives more importance to more recent data for computation, rather than historic data. This increases the estimation accuracy and allows the application to respond to changes in trends in a timely manner. The default duration specified in the **Add activity type** dialog box is used as the starting point for estimating the duration. The application:
  - Refers to the previous experiences of similar tasks.
  - Calculates the estimate based on the summary of experiences.
  - Learns from new experiences.
  - Updates and remembers the updated experiences for future use.

  Every day the estimate is modified by a small amount, based on the durations reported on the previous day for similar activities. The correction applied is controlled to ensure that there isn't too much deviation from the previous estimation and the estimated durations don't keep fluctuating on a daily basis; but is significant enough to respond to any trend change within a few days.

  The formula to calculate the new estimate is:

  ```
  New estimate = Previous estimate +/- Correction
  ```

  where correction is based on previous estimates and the differences between the estimated and reported durations.
- **Personal profile:** The company level estimate and the estimated time for the activity for the technician are computed in the form of a ratio. This ratio is calculated based on the company level estimate for the activity. The final estimate at the technician level is the product of the personal profile ratio and the company level estimate. Each technician may have different ratios for different types of activities, based on their performance. Similar to the correction applied to the Company level estimates, the Personal profile ratio is also updated by a small controlled amount every day, based on the durations reported by the particular technician on the previous day for similar activities. When a technician performs an activity for the first time, the default ratio is used. Ratios are also calculated for each bucket for each kind of activity, based on the durations reported by the resources under the bucket. This ratio is used to estimate the duration when the activity is assigned to a bucket and not yet assigned to a technician. This is also the duration that is used for Capacity and Quota calculations, if the activity is assigned at the bucket level.

Overrides

You can override activity durations for each activity duration key value at either the Company level or the Technician level, using REST APIs. The Override is stored in the application, in addition to the learned statistical value for the currently active Activity key. For duration estimations, if an override is specified for the user, the overridden value is used instead of the statistically learned value. However, the statistically learned value continues to be updated based on the new reported durations as currently done.

Some more important points about activity durations:

- If the personal profile is not available for an activity key value, the default ratio for the technician is used.
- The default ratio has an initial value that is specified in the **Initial Ratio for Activity Duration** field. This value is updated each time the technician performs a relatively new activity.
- You can specify which type of resources use personal profile, using the **Personalize the estimation of activity duration** field. If you do not select this option, such resource types do not use the personal profile and use only the company wide estimations.
- You can specify whether a resource affects the company level estimates, using the **Use durations reported to enhance company-wide estimations** field. If it does, you can also specify the number of days to be skipped to avoid impacting the company estimates while the resource is new and still learning how to perform activities. The duration reported by only those resources that satisfy these two conditions is used to modify the company level estimates.
- You can set upper and lower limits for activity durations at the resource or bucket level, as a percentage of the company wide estimations. You can use using the **Lower/Upper limit for personal ratio for duration calculation** fields for this. The estimated Activity duration values always remain within the set limits.

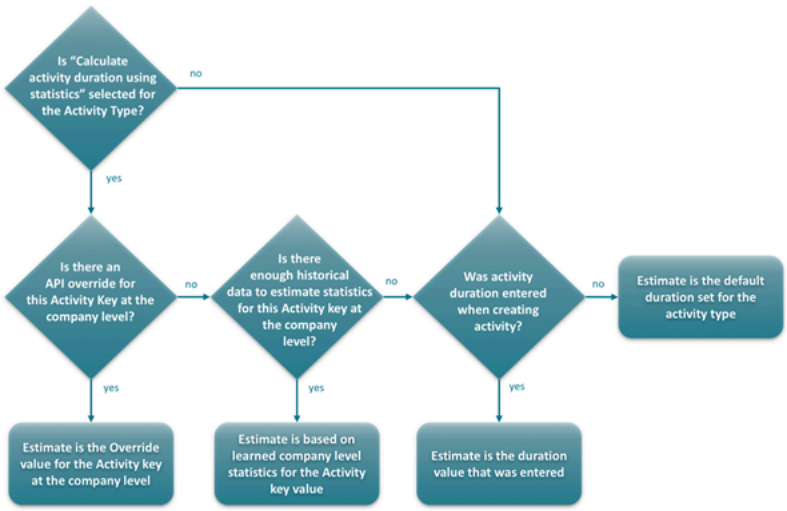
The fields that affect activity duration are:

Field	Page	Description
Minimum and maximum relevant duration time in minutes	Statistics	These specify the acceptable values for reported durations to be considered for estimating Activity Durations. If technicians report durations outside of this range, the application does not consider that value when estimating durations.
Lower/Upper limit for personal ratio for duration calculation	Statistics	These specify the range within which the duration estimation for technicians and buckets would lie as a percentage of the company level estimation. If the estimation at the technician or bucket level, as a percentage of the company level estimation, is lesser than the set lower limit, the estimation is set to (Lower limit * company level estimation). Similar modifications are done if the percentage is more than the set upper limit.
Default duration	Add activity type and Modify activity type	This is the duration used for estimation, if no other estimation is available including override or historical data for that kind of Activity to estimate duration statistically. This value is also used as the estimated duration, if **Calculate activity duration using statistics** is cleared, or no duration is specified on Activity creation.
Calculate activity duration using statistics	Add activity type and Modify activity type	This parameter specifies whether the duration of the activity must be estimated statistically using historical data. If cleared, the duration specified at the time of creating the activity, or the default duration is used.

Field	Page	Description
Personalize the estimation of activity duration	Add resource type	This parameter specifies whether the activity duration estimation must be learnt for each resource separately. If selected, the application estimates personal profile ratios for each resource for each kind of activity separately. If cleared, the application uses the company wide estimations.
Use durations reported to enhance company-wide estimations	Add resource type	This parameter specifies whether the durations reported by the resource must be considered while calculating activity or travel estimations.
Don't consider reported data of the first x working days	Add resource type	This parameter specifies the number of days only after which the durations reported by a new resource are considered for enhancing statistical estimations. Till such time the durations reported by a new resource are not considered for duration calculation purposes. This field is editable, only if the previous parameter is selected.
Initial ratio for Activity Duration	Resource Info	This is the default ratio that is used for the resource, if there isn't enough historical data for the resource for a particular type of activity. For such activities, the estimated duration of the technician is the value of the **`Initial ratio * company wide estimation`** (provided "Personalize the estimation of activity duration" is selected).
Working days left for reported data to start impacting duration estimations	Resource Info	This parameter specifies the number of days left before the reported duration of the resource starts affecting the estimated duration. The initial value is based on the value set in **Don't consider reported data of the first x working days**.

Flowcharts

The following diagrams show how Oracle Field Service determines activity durations. The first flowchart is based on the assumption that the **Personalize the estimation of activity duration** check box is not selected for the resource type, and therefore the activity duration estimate is not adjusted by the resource's personal profile or initial ratios.



The second flowchart is based on the assumption that the **Personalize the estimation of activity duration** check box is selected for the resource type. This means, the activity duration estimate is adjusted by the resource's personal profile or initial ratio.

Configuration examples

Example 1: Application uses the duration that is provided at the time of creating the activity

- Activity Type dialog box:
  - Default duration = 30
  - Calculate activity duration using statistics = not selected

If the activity created has a duration of 50 minutes, that value (50) is used. If no value is provided at the time of creating the activity, 30 minutes is used.

Example 2: New resource in the application has no historic data. The administrator wants to provide 20% more time than the estimated duration at the company level.

- Resource Type dialog box: Personalize the estimation of activity duration = selected
- Resource Info page: Initial Ratio for Activity Duration = 120%
- Activity Type dialog box: Calculate activity duration using statistics = selected
- Assume company-wide estimation for the activity to be 45 minutes

Since the resource does not have previous records for this kind of activity the initial (default) ratio is used for calculations. The estimated duration for the resource is: 45 * 120% = 54 minutes

Example 3: Application uses technician's learned duration with limits. Resource has performed activities of this type in the past and, hence, has a personal activity key ratio.

- Statistics page:
  - Lower limit for personal ratio to calculate duration = 50%
  - Upper limit for personal ratio to calculate duration = 200%
- Resource Type dialog box: Personalize the estimation of activity duration = selected
- Activity Type dialog box: Calculate activity duration using statistics = selected
- Assume personal profile to be 40% and company-wide estimation for the activity to be 50 minutes.

Since the personal activity key ratio is less than the lower limit of 50%, the application uses the lower limit value of 50% for calculations instead of 40%. The estimated duration for the resource is 50 * 50% = 25 minutes.

Example 4: Application uses company duration without using personal profile

- Resource Type dialog box: Personalize the estimation of activity duration = not selected
- Activity Type dialog box: Calculate activity duration using statistics = selected
- Assume company-wide estimation for the activity to be 45 minutes

Since the personal profile is not configured, the estimated duration for the resource is same as the company wide estimation = 45 minutes.

Example 5: Application uses overridden value at technician level instead of learned statistics

- Resource Type dialog box: Personalize the estimation of activity duration = not selected
- Activity Type dialog box: Calculate activity duration using statistics = selected
- Assume personal profile to be 80% and company-wide estimation for the activity to be 50 minutes
- Assume that the duration for the resource for the Activity key has been overridden by a value of 30 minutes

The overridden value takes precedence over the learned duration at the resource level. The estimated duration is 30 minutes and not 80% of 50 = 40 minutes.

Example 6: Reported durations outside the acceptable range are not used as input for Activity duration estimation

- Statistics page: Minimum relevant duration time in minutes = 5 mins
- Statistics page: Maximum relevant duration time in minutes = 1440 mins
- Assume that the estimated duration for the activity was 20 minutes and a resource starts and completes the activity in 4 minutes. That is, the resource reports a duration of 4 minutes for a completed activity.

Since the reported duration lies outside the acceptable range of 5 to 1440 minutes, the duration of 4 minutes is not considered to enhance the estimated duration of the activity key and the estimated duration remains unchanged at 20 minutes (assuming there weren't any other reported activity that could have changed the estimated duration).

Activity Duration Statistics Fields

You can configure multiple activity duration statistics keys, so that you can compare the quality of keys. Data is collected for all the keys, and the quality ratings of the keys are displayed on the Statistics page.

With multiple activity duration statistics fields you can:

- Configure up to five keys and choose any one of them to be 'Active' at any point of time.
- View the quality of each key.
- View all the configured keys in the 'Work Statistics' report and view the report for specific keys as well.

Only the 'Active' key is used for estimating activity duration. Although the application collects data for all the configured keys, the keys that are not 'Active' are not included in the calculation. The advantage of this feature is that before making a new key 'Active', you can compare the performance of the new key with the existing one. This happens without affecting the current calculations.

The quality of the key is displayed as stars next to each key. More number of stars indicates better quality of estimation. Based on the quality of keys, you may choose to 'Activate' any of the currently inactive keys. When you activate an inactive key, the currently active key becomes inactive. If another key has better quality than the currently active key, the 'Activate' button is displayed beside the key. For all other inactive keys, the Activate option is available within the options menu. You cannot delete an active key; you can only delete inactive keys. To delete a key, first make it inactive, and then delete it.

New or modified keys

Whether you add a new key or modify an existing one, the application considers both of these as new keys. When the application gets a new key, the Activity duration estimation algorithm is run on the next day (or the next time the recalculation process is run). This gives the estimated durations of all keys based on the new key. The application then calculates the quality of the new key based on the historical durations and the calculated estimated durations. Further, when an existing key is modified and the recalculation process is yet to run, the message, "Changes have not been applied yet" is displayed. The key that is currently in effect (previously active key) is also displayed until the new key takes effect.

Existing keys

The estimated durations for all key values and the quality of each key (Active and Inactive) is calculated every day. The Activity durations that are actually used in the application are calculated based only on the Active key. Hence, if you change the status of a key from Inactive to Active (or Active to Inactive), the quality of the keys is not affected. Similarly, since the estimated duration is also calculated for inactive keys, the learning that is applied since the key is created, is still in effect when an inactive key is activated. Similar to other keys, changes in an existing key or activation of a new key comes into effect only when the recalculation process runs the next time (typically by the next day). Similarly, the quality of a new or modified key is displayed only from the next day onward.

Calculating the quality of keys

The application calculates the quality of each key based on how accurate the estimation of Activity durations have been or would have been, if the key was used for calculations. These steps are used:

- The estimated duration is calculated for each type of activity (Activity key value) using the key for which the quality has to be found.
- Durations reported by technicians, for completed past activities are compared with the estimated duration for that activity using the said key.
- If the difference between the estimated and reported duration is less, the estimation is considered to be good. If the difference between the estimated and reported duration increases, the quality is considered to deteriorate.
- The final quality of the key is calculated based on the number of activities that showed good, satisfactory and bad estimations, for that key.

Consider this example:

- Key 1 = Activity Type (2, case insensitive)

- Key 2 = Plant Code (2, case insensitive), Problem Code (2, case insensitive)

This table shows the data to demonstrate how the quality of a key is calculated:

Activity ID	Activity Duration Key based on Key 1	Activity Duration Key based on Key 2	Estimated Duration based on Key 1	Estimated Duration based on Key 2	Reported Duration	Quality of Estimation based on Key 1	Quality of Estimation based on Key 2
1	AA	PP11	50	90	52	Good	Poor
2	BB	PP22	75	70	68	Good	Good
3	BB	QQ22	75	95	100	Satisfactory	Good
4	CC	QQ22	100	95	125	Satisfactory	Satisfactory
5	AA	RR11	50	35	45	Good	Satisfactory
6	DD	PP11	150	90	135	Good	Poor
7	BB	RR22	75	45	30	Poor	Satisfactory
8	DD	PP11	150	90	140	Good	Poor
9	AA	RR22	50	30	20	Poor	Satisfactory
10	CC	QQ11	100	140	110	Good	Satisfactory

The quality of a key is calculated based on these formula: `Quality of Key = (0.06 * % of Good Estimations) + (0.04 * % of Satisfactory Estimations)`

Based on this formula:

- Quality of Key 1 = 4.4
- Quality of Key 2 = 3.2

Work Statistics report: All the configured keys appear on the Work Statistics report. The user can select any key (Active or Inactive) and the report displays the updated values based on the selected key.

Activity duration stats fields: The formation of the keys (made up of fields) used for the grouping of work duration values to find the averages. You can define up to five activity keys and have one active key at any time. Data is collected for all the keys, and the keys are rated for their quality. Stars indicate the rating and more number of stars indicate better quality. For more information, see the Activity duration statistics fields topic.

Pre-Calculated Travel Statistics

Travel statistics are based on the actual durations reported by field resources. As such, new customers and existing customers expanding into new operating areas will not have actual durations in the application. The application uses pending and completed activities to derive estimated durations using point-to-point estimations. Using this method improves travel durations at the time of optimizing routes and moving activities.

Oracle Field Service performs this process once a day:

- Get the list of activities and their locations.
- Estimate the probability of travel in future between each pair of 'Activity travel stats fields' (Travel Keys). The travel probability is calculated for all Travel Key pairs, based on the relative distances between them.
- Sort Travel Key pairs in descending order, based on distance.

  Note: Travel Keys that have existing learned travel are excluded from the estimation process.

- Estimate the travel duration using point-to-point estimations for a maximum of 12,000 pairs based on the sorted list.

After performing the process, the application has additional travel duration data. The next time Routing runs, or a user moves an activity, the application uses the pre-calculated travel values. Calculating probability and sorting Travel Key combinations:

- Activities that have valid coordinates with an accuracy value of either 8, 9, or 0 are considered. Travel coordinates with an accuracy value of '0' are provided by customers.
- Travel Keys that have at least one activity with valid coordinates are considered for estimation.

To find out the relative distances between pairs of keys, the application calculates the median coordinates for each key. This is done based on the median values of the latitudes and longitudes of all activities that belong to the travel key. The median values of latitude and longitude are calculated separately.

The application also finds the coordinates of the two closest activity locations to the calculated median for each key. The coordinates of these medoids are used when sending pairs of locations between keys.

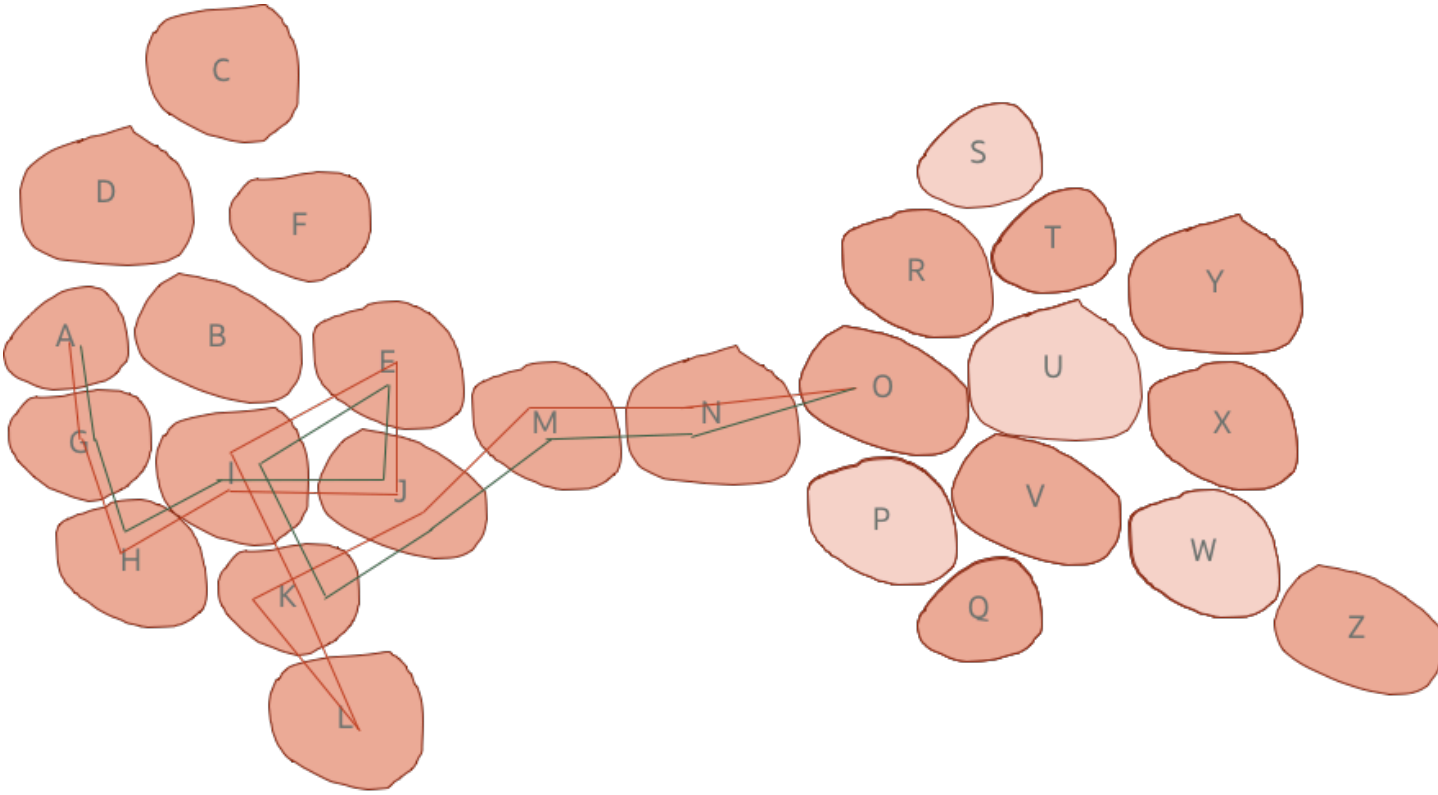
Algorithm

The general rules of the algorithm are as follows:

- Travel keys are sorted based on the number of activities corresponding to the key. Pending Activities carry higher weights than completed ones.
- The algorithm starts from the most popular key in the list that does not have learned duration to at least one other key within 150 kms. After the request is started from that key, the algorithm moves to the next most popular key and repeats the process.
- If there is no travel data from a key to itself, the application sends two pairs of coordinates within that key as a part of the request.
- Between the keys, the application prioritizes the travel between nearest keys, based on the distances calculated between the medians.
- The algorithm ensures that there is always at least two pairs of locations between any two keys. The final travel estimation is the average of the two travels.
- Keys that are more than 150 kms apart are not considered as a part of the request.

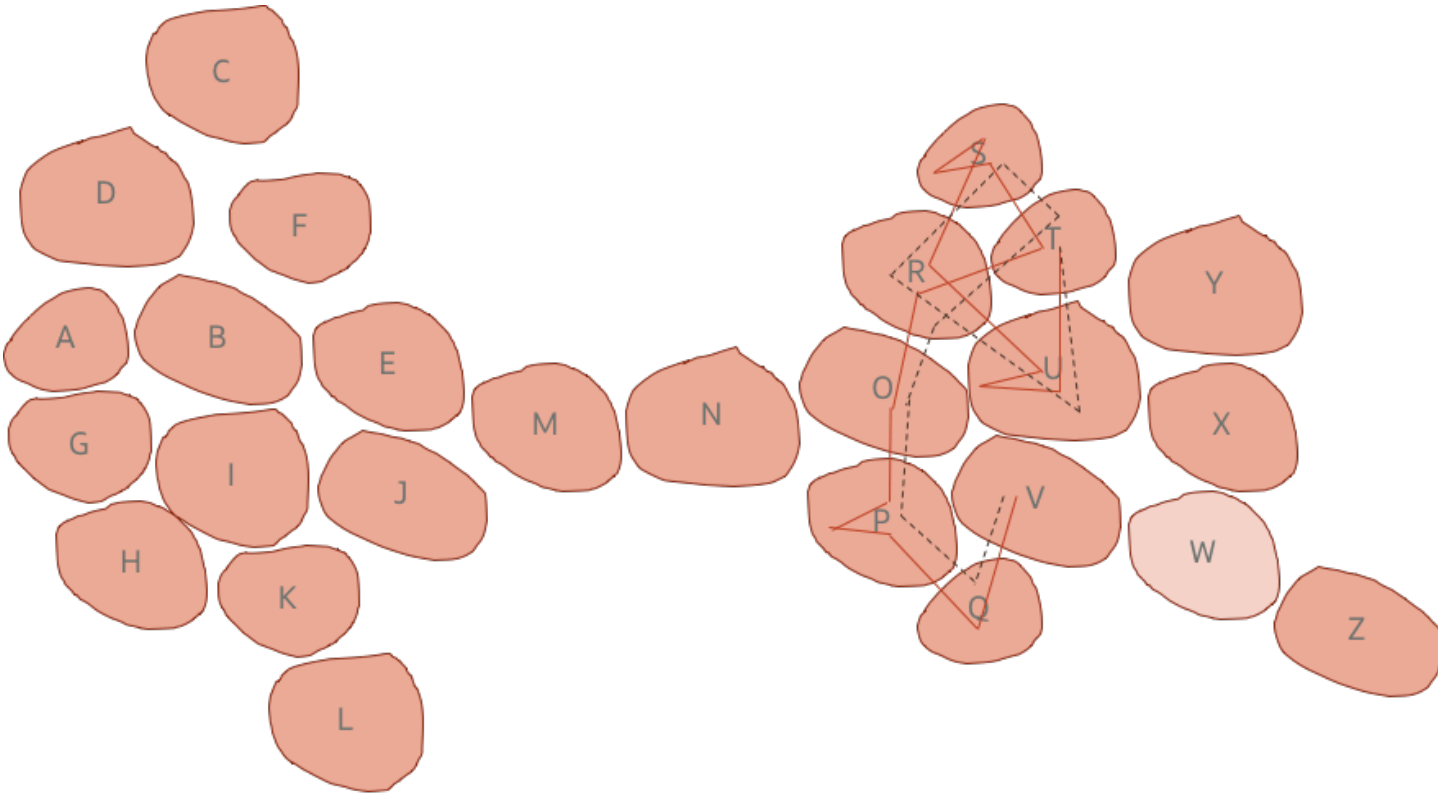
Example

Consider a geographical location, where each cell represents a Travel Key. Keys in lighter shades denote keys that do not have travel estimations from that key to itself. The request starts from the most popular key that is not connected to at least one key within 150 kms. The request traverses 13 unique keys and comes back to the original key. Thus, each request contains 24 travels. The final request would be A-G-H-I-J-E-I-K-L-K-J-M-N-O-N-M-J-K-I-E-J-I-H-G-A:



The request then moves on to the next most popular key, say V and repeats the same process. On the way if there is a key that is not connected to itself, the application includes two travels within the key. Whenever such a

case is encountered, the key is counted twice when counting 13 unique keys. The next request would be V-Q-P-P-P-O-R-T-S-S-S-R-U-U-U-T-U-R-S-T-R-O-P-Q-V:



This process continues till 1000 requests are sent on that day or no more non-connected neighbouring pairs are left to be sent. After the entire process completes for enough number of days, the learned travel estimations from every key to every other key within 150 kms of itself will be available.

Capacity Categories

A Capacity Category is a predefined set of work skills and/or work skill groups and time slots visible to a user who is booking the activities for customers.

Based on the number of minutes available (Capacity = Initial Quota allocation minus used minutes), the user decides if enough time is available within a time slot to realistically promise a specific service window to the customer. This information is sent to the CSR via Capacity API. Capacity Categories are visible only if you are using the Oracle Field Service Capacity Service module.

Note: The **Used Minutes** value is calculated based on the exact time (in minutes) from start to end of a working day.

You must enable the Capacity Categories visibility profile permission for each user to access the Capacity Categories window:

- **Read-Only:** Select this option to display capacity categories in a view only mode.
- **Read/Write:** Select this option to let the user manage Capacity Categories in Oracle Field Service.

If the permissions are not configured for a user type, the activity types will not be visible to the users. Oracle Field Service maps the work skills to assign incoming activities to the resources. In general, many companies define quota for a work skill group rather than for an individual work skill. For example, separate skills are required for installation, un-installing and maintenance of modems, but from a scheduling perspective, quota is defined for all the modem-related works group.

A capacity category can also consist of a single work skill and the minimum required level of the skill level. For example, a category can be created for all the customer-oriented work and a separate group for VIP customers or for highly difficult tasks. The two categories would contain the same work skills but the minimal qualification level in the VIP group is higher. Because of the categories and the multi-skill functionality, the same activity can match several rows in the Quota table and can be added to the Used capacity several times. The duration of this activity will be taken into account for all the capacity categories it matches.

Create a Capacity Category

A Capacity Category is a predefined set of work skills and/or work skill groups and time slots visible to a user who is booking activities for customers. You can create a capacity category to add work skills, work skill groups, and time slots.

1. Click **Configuration** > **Capacity Categories**.
   The **Capacity categories** page appears.
2. Click **Add New**.
   The **Add Capacity Category** dialog box appears.
3. Enter the appropriate information in the following fields:
   The following table describes the fields available on the **Add Capacity Category** dialog box.

Option	Description
Name	Enter the name of the capacity category. The name is displayed in the list and in the quota matrix. If the application is configured for multiple languages, input boxes will appear for each language.
Label	Specify a label. It is used in the context of APIs and it must conform to a standard naming convention.
Active	Select the **Active** check box to mark this capacity category as active. Only active capacity categories are used in the quota matrix.

4. Click **Save**.
   Once you create the capacity category, you must add work skills, work skill groups and time slots to the category.

Edit a Capacity Category

Edit an existing capacity category to change the status, name, label, work skills, or time slots.

1. Click **Configuration** > **Capacity Categories**.
   The **Capacity categories** page appears.
2. Select the check box next to the capacity category that you want to change.
3. Click the pencil icon in the **Name** column.
   The **Edit Capacity Category** dialog box appears.
4. Change the Name, Label, or Active field. Similarly, click the pencil icon in the Work Skills or Time slots columns and change the required values.
5. Click **Save**.

Delete a Capacity Category

You can delete a capacity category when you no longer need it.

1. Click **Configuration** > **Capacity Categories**.
   The **Capacity categories** page appears.
2. Select the check boxes next to the capacity categories that you want to delete.
3. Click **Delete**.
4. Click **OK**.
   The selected capacity categories are deleted.

Add or Edit Work Skills Within a Capacity Category

A Capacity Category can contain one or more work skills and each work skill must meet a minimum required level.

1. Click **Configuration**.
2. In the **General** section, click **Capacity Categories**.
   The **Capacity Categories** page appears.
3. Click the pencil icon in the **Work Skills** column for the Capacity Category that you want to add or edit.
   The **Edit Work Skill** dialog box appears.
4. Select a work skill and add the minimum level of the skill required in the corresponding text box.
   The default value is 1. When the minimum level of a work skill is defined, an activity matches a Capacity Category, only if a required skill level for the activity skill is equal to or more than the level of the Capacity Category.

   > **Note:** If a capacity category contains a group of work skills, the activity matches the category, if it requires at least one of work skills from the group.

What to do next

Recalculate activities after any edits or updates have been made to apply changes to pending and future activities in the system.

Add or Edit Time Slots Within a Capacity Category

A time slot indicates that the work mentioned in the Capacity Category must be performed in the defined time of the day. Capacity Categories can contain one or more time slot associations.

1. Click **Configuration**.
2. In the **Resources, Activities, Inventories** section, click **Capacity Categories**.
   The **Capacity Categories** page appears.
3. Click the pencil icon in the **Time Slots** column for the Capacity Category you want to add or edit.
   The **Edit Time Slots** dialog box appears.
4. Select a time slot.
5. Click **Save**.

Inventory Types

Inventory Type helps you distinguish between serialized and non-serialized inventory.

Access to the **Inventory Type** window is controlled by the **Inventory Types** visibility profile permission. You must set this permission for each user type that you want to manage Inventory Types. If the action is not configured for the user type or if no visibility is defined, Inventory Types will not be visible to the user. If you select ReadOnly, Inventory Types is placed into a view only mode. If you select Read/Write for this setting, the user can manage Inventory Types.

Add an Inventory Type

You can create *serialized inventory* and *non-serialized inventory* types.

1. Click **Configuration**.
2. In the **Resources, Activities and Inventories** section, click **Inventory Types**.
3. Click **Add new**.
   The **Add inventory type** dialog box appears.
4. Complete these fields:

Field	Description
Label	Enter a unique identifier for this inventory type.
Active	Select this check box to make the inventory type available in drop-down lists.
Non Serialized	Select this check box if the inventory type is non-serialized.
Decimal quantity	Select this check box if you want users to add decimal quantity of the inventory. For example, 1.5 liters. This check box is displayed only if you select the **Non-serialized** check box.
Quantity precision	Enter the number of digits you want to display after the decimal. This check box is displayed only if you select the **Decimal quantity** check box.

Field	Description
Supports required inventory	Select this check box to make the inventory type required for selected activities.
Model Property	If desired, select additional characteristics for this inventory type from the drop-down list.
Name	Enter a name for this inventory type in each appropriate language field.
Unit of measurement	If this inventory type is non-serialized, enter a unit of measure. Use a language and a unit of measure appropriate for the country in which this inventory type will be used.

5. Click **Save**.

Activate or Deactivate an Inventory Type

Inventory Type helps you distinguish between serialized and non-serialized inventory. You can deactivate an Inventory Type when you don't use it any more.

1. Click **Configuration**.
2. Select **Inventory Types** from the **Resources, Activities and Inventories** section of the menu.
3. Select the check box next to inventory type(s) that you want to activate or deactivate.
4. Click **Activate** or **Deactivate**.
5. Click **OK**.

Properties

A custom property is an attribute of an entity that's unique to each client. You can create a custom property through the user interface or through an API, or you can import it from another instance. Once added, the custom property is available for use in page configurations, filters, and many configuration areas (for example, search fields, duration field, and so on).

You can create these types of properties:

- String: These are custom properties that require alphanumeric entries. These can include free text boxes, URLs, phone numbers, or email addresses.
- Integer: These are custom properties that require numeric entries. This option can also be used for check boxes.
- Enumeration: These are custom properties that require selections from fixed lists. Option buttons and combo (drop-down lists) boxes are common examples of this property type.
- File: These are custom properties that require some type of file upload. These could include MIME types such as .gif, .jpg, .pdf, .mpeg, .zip, html, .wav, or .doc. Examples of File properties could be customer signatures or even technician photos.

Each entity (for example, activity, resource, inventory, and users) contains a set of associated attributes. For example, resource records might contain attributes such as name, contact information, and physical attributes such as gender or a photograph. These attributes within Oracle Field Service are combinations of fields or custom properties.

Properties with the Type “Field” are the native system properties that are available for the specified entities. For example, Name (property label, cname) is associated with an Activity, and Serial Number (property label, invsn) is associated with Inventory. Field type of properties can be mapped with similar client properties.

Note:

- Multiple fields or properties with the same name can exist. For example, Name can be a customer’s name (property label, cname) or a resource’s name (property label, pname). In this example, each Name property is assigned to a different entity and has a different property label.
- When custom property values exceed 255 bytes, the entire value is shown in the activity details, API responses, and Outbound Messages. However, only the first 255 bytes are used for search, visibility conditions, activity inventory list columns and their sorting, travel, activity duration, visit, and Work Zone Keys. If you create a condition with long values, only the first 255 bytes are used with historic data; all the long values that are added after you create the new condition will use the full set of data. Further, if a field with a long value is added to a page such as **List view**, only the first 255 characters are shown.

How do I create and format a string property?

The string property includes free text boxes, URLs, phone numbers, and email addresses. Assume that resources must enter remarks for an activity after the activity is closed. The Activity Details form must contain a text box, so the resource can enter the remarks. The text box that you add here, is a string property.

1. Click **Configuration**.
2. Click **Properties** in the **Resources, Activities, Inventories** section.
3. Click **Add New**.
4. Select **String** from the **Property Type** drop-down list.

5. Complete these fields:
   - **Property name** (required): Enter a name that you want to display to the user in English and in all the languages that are active in the application.
   - **Property label** (required): Enter a Unique database identifier for the Oracle Field Service API.
   - **Property hint** (optional): Enter a hint that you want to display when a user hovers over the field name. For example, Enter comments if any. Enter the text in English and in all the languages that are active in the application.
   - **Regular expression**: Enter an expression to validate the values or format the values in a certain way.
   - **Entity** (required): Select **Activity** since the property is associated with the Activity Details form.
   - **Lines Count** (required): Enter the number of lines that you want the property to display in the Activity Details form. For example, enter 3 to display a maximum of three lines.
   - **GUI** (optional): Select one of these options to define how the property displays to users:
     - **Text Element**: Displays as a free text field. For our example, select this option.
     - **URL**: Displays as a clickable URL.
     - **Phone**: Displays as a clickable phone number.
     - **Email**: Displays as a clickable email address.
     - **Geolocation Element**: Displays a button to show the location on a map.
   - **Regular expression** (optional): Enter an expression to validate input or to force the data to display in a certain way.

     For example, to display $23,540, then use this regular expression: /^/$?([1-9]{1}[0-9]{0,2}(/,[0-9]{3})*(/.[0-9]{0,2})?|[1-9]{1}[0-9]{0,}(/.[0-9]{0,2})?|0(/.[0-9]{0,2})?|(/.[0-9]{1,2})?)$/

     Other examples:
     - Ethernet ARP address: /^([0-9a-fA-F]{2}:){5}[0-9a-fA-F]{2}$/
     - Phone number: +1(555)5555555: "/^ *\\+? *[0-9]+[-0-9()]*$/"
     - 16-bit integer: (0-65535): /(^\d{0,4}$)|(^6553[0-5]$)|(^655[0-2][0-9]$)|(^65[0-4]\d{2}$)|(^6[0-4]\d{3}$)|(^[0-5]\d{4}$)/
     - 1 digit: (0-9): /^\d{1}$/
     - 2 digits: (01-99): /^\d{2}$/
     - Integer: (0-99): /^\d{1,2}$/
     - Integer: (0-999): /^\d{1,3}$/
     - Any 6 symbols(you can change 6 to any number): /^.{6}$/u
     - Currency (USD with 2 decimal places): /^/$?([1-9]{1}[0-9]{0,2}(/,[0-9]{3})*(/.[0-9]{0,2})?|[1-9]{1}[0-9]{0,}(/.[0-9]{0,2})?|0(/.[0-9]{0,2})?|(/.[0-9]{1,2})?)$/
     - Date formatted as DD-MM-YYYY: /^((0[1-9])|([1-2][0-9])|30|31)-((0[1-9])|1[0-2])-2[0-9]{3}$/
   - **Clone property on Reopen/Prework** (optional): Enables you to duplicate the property while reopening the activity or applying prework for a new activity.
   - **Formatting** (optional): If selected, displays these options:
     - Regular expression
     - XSL transformation (converts an XML file into a table format viewable in HTML that is read-only).

     > **Note:** Formatted properties aren't available for presentation on the Inventory Grid context layout structure.

     Assume that you want to display this data from a client system within Oracle Field Service:

Group	Price
One Time Charges and Credits	$ 100.00
Programming Change	$ 5.00
Programming Change	$ 5.00
Programming Change	$ 5.00
Programming Change	$ 5.00
UNKNOWN	$ 0.00
Monthly Charges	$ 129.98
America's Top 250	$ 69.99
HD/SD (2TV) Receiver	$ 14.00
HD/SD (2TV) Receiver	$ 14.00
DVR Service	$ 6.00
Protection Plan	$ 6.00
Israeli: The Israeli Network	$ 19.99
Monthly Credits	$ -10.00
Cr: Agent $ 10x24 Mo	$ -10.00
Monthly Charges and Credits	$ 119.98

Use this regular expression for the above data: /(/s+)?(.+/w)/s+(/$)/s+(.*)/n?/im = [item group="$1"] [name]$2[/name][price]$4[/price][currency]$3[/currency][/item]

This XML file converts the data given earlier into a table format:

```
[xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org/1999/XSL/Transform"]
[xsl:template match="/"]

 [style]
 .property_table
 {
 font-size:12px;
 font-family: Arial;
 border-collapse: collapse;
 }
 .property_table .property_name
 {
 padding-left:15px;
 }
 .property_table td
 {
 border: 1px solid grey;
 padding: 4px;
 }
```

```
.property_table .property_price
{
text-aligh:right;
}
.property_group
{
background-color:#ccc;
font-weight: bold;
}
.property_group .property_name
{
padding-left:5px;
font-weight: bold;
}
[/style]
[table class="property_table"]
[xsl:for-each select="root/item"]
[xsl:choose]
[xsl:when test="@group=' '"]
[tr class="property_group"]
[td class="property_name"] [xsl:value-of select="name"/] [/td]
[td class="property_price"]
[span] [xsl:value-of select="currency"/] [/span]
[xsl:value-of select="price"/]
[/td]
[/tr]
[/xsl:when]
[xsl:otherwise]
[tr]
[td class="property_name"] [xsl:value-of select="name"/] [/td]
[td class="property_price"]
[span] [xsl:value-of select="currency"/] [/span]
[xsl:value-of select="price"/]
[/td]
[/tr]
[/xsl:otherwise]
[/xsl:choose]
[/xsl:for-each]
[/table]
[/xsl:template]
```

```
[/xsl:stylesheet]
```

Using XSL transformation, the above XML file is displayed in HTML as shown in this screenshot:

One Time Charges & Credits	$100.00
Programming Change	$5.00
Programming Change	$5.00
Programming Change	$5.00
Programming Change	$5.00
UNKNOWN	$0.00
Monthly Charges	**$129.98**
America's Top 250	$69.99
HD/SD (2TV) Receiver	$14.00
HD/SD (2TV) Receiver	$14.00
DVR Service	$6.00
Protection Plan	$6.00
Israeli: The Israeli Network	$19.99
Monthly Credits	**$-10.00**
Cr: Agent $10x24 Mo	$-10.00
Monthly Charges & Credits	**$119.98**
Amount Due Now	**$0.00**

6. Click **Add**.
   A system generated ID is assigned to the property. The maximum size of a string property you can create is 64 KB, or the maximum length can be 65,535 characters. You can perform these actions:
   - Click **Export** to export the properties to an XML file.
   - Click **Import**, **Browse**, and select the XML file that you want to import.

Add a String Property to the Screen Configuration

After you create a property, you can assign it to a specific user type and determine where the property type displays on the page.

You can define these visibility settings for the property type:

- Read only, read/write, or mandatory options.
- Conditions under which the property type displays.

> **Note:** Not all conditions are available for every page context.

Let's assign the CSR Notes string property to the Administrator User Type, and add it to the Activity Details page. Also, let us set the property type to Read-Only when the activity status is Completed and change the property type to Read Write when the activity status is Pending. To add a string property:

1. Click **Configuration**, **User Types** in the Users and Security section.
   The existing users display in the left pane.
2. Select **Administrator** from the left pane.
3. Select the **Screen Configuration** tab.
4. Expand **Manage** and click **Add activity/Activity details**.

5. Select a property from the Layout Structure pane and click **Add property**.
6. Select the property, CSR Notes and click **OK**.
   The CSR Notes property displays in the Layout Structure pane.
7. Click **Add New Visibility** and select **Read-Only**.
8. Click **Add New Condition**.
9. Select **Activity Status** and **in (equal)** from the drop-down lists.
10. Click the **Plus** icon, select **Completed**, and click**Save**.
11. Click **Add New Visibility** and select**Read-Write**.
12. Click **Add New Condition**.
13. Select **Activity Status** and **in (equal)** from the drop-down lists.
14. Click the **Plus** icon, select **Pending**, and click **Save**.

Results:

You can view both the conditions in the Conditions column.

Create an Enumeration Property

Option buttons and drop-down lists are examples of the enumeration property. This means, you can have a set of valid values and you can select only one value from the set. For example, you have four types of customers, Standard, Gold, Silver, and Bronze and you want to indicate the customer type on each activity record.

This example creates an enumeration property, Customer level with four values, Standard, Gold, Silver, and Bronze, and displays the property as a drop-down list in the user interface.

1. Click **Properties** in the **Resources, Activities, Inventories** section.
2. Click **Add New**.
3. Select **Activity** from the **Entity** drop-down list.
4. Enter **Cust_level** in the **Property label** field.
5. Enter **Customer level** in the **Property Name** field. Enter the name in English and in all the languages that are active in the application.
6. Select **Enumeration** from the **Property Type** drop-down list.
7. Select **Combobox** from the **GUI** drop-down list.
8. Click **Add** in the **Enumeration values** section.
   The **Add enumeration value** dialog box appears with the **Active** check box selected. If you clear the **Active** check box and make a value inactive, the value is available for selection on the page to which you add the property.
9. Enter **Standard** in the **Enumeration Values** field and click **Add**.
   The values you add here display in alpha-numeric order.
   The application applies an index value automatically to each enumeration value, and it is case sensitive. The APIs reference the index value. You can add the index values manually too. For example, if you want to use a readable value for 'customer not home', you can use the code CNH instead of the default index value, 1 and map the code to the client system. You cannot edit the index value after it is added. Don't use '0' (zero) or '-1' (minus one) for index values, as they are reserved for internal use.
10. Repeat step 9 and add Gold, Silver, and Bronze.
11. Click **Add** on the **Add New Property** page.
    The "Default Values", "Validation Rules", and "Visibility" fields of Visual Form Editor only work with an enumeration property's index and not its actual value. You cannot use the value in functions such as if, concat, or in various

operators. If feasible, you can try setting the same string for both, the value and index for the properties you must use in the "Default Values", "Validation Rules", and "Visibility" fields.

Create a File Property

The File property type supports transferring of files such as documents, photos, or signatures. This means, you can upload MIME types such as .gif, .jpg, .pdf, .mpeg, .zip, html, .wav, or .doc files for activities.

1. Click **Configuration** > **Properties**.
2. Click **Add New**.
3. Select **File** from the **Property Type** drop-down list.
4. Enter a name for the property in the **Property Name** field. Enter the name in English and in all the languages that are active in the application.

   This is the name that's displayed on the context layout structure and any page to which the property is added.
5. Enter a label for the property in the **Property label** field.
6. Enter a hint that you want to display when a user hovers over the field name in the **Property hint** field. Enter the hint in English and in all the languages that are active in the application.
7. Select the entity to which the property belongs, in the **Entity** field.
8. Select one of these options for the **GUI** field:

Option	Description
File element	Select this option to upload a file. When uploaded, the file displays as a text link in the user interface. These fields are displayed: o **File size limit:** Select the maximum file size you want to allow for File elements in Oracle Field Service Mobile for Android and iOS and Oracle Field Service Core Application. This field is displayed only for the File element option. The default and the maximum size allowed is 5 MB. This limitation doesn't apply to the APIs. o **Allowed MIME types delimiter:** Select whether you want to display separate allowed MIME types with commas, or you want to display each allowed MIME type on a new line. o **Allowed MIME Types:** Click the required types of files you want to allow for upload.
Signature element	Select this option to capture the resource's signature.
Image element	Select this option to enable the user's device to capture and upload the user's photo, and to display the image as a thumbnail. These fields are displayed: o **Allow draw on image:** Select this check box to let the user draw on the captured image using a stylus. o **Show on map:** Select this option to show the image on the map. o **Watermark images with coordinates and date time:** Select this option to add a watermark to an image. The watermark includes the current date and time, UTC offset, and the latitude and longitude. The date and time are recorded in the user's time zone and displayed in the format configured for the user. When the application is opened in a browser, the watermark is added to the image that's selected from the gallery. When the application is opened from the installed app on a mobile device, the watermark is added when a photo is captured using the device. The watermark isn't added for those images that originate from a plug-in. You must add this property to a standard action page for the application to add the watermark. o **Maximum picture width (in pixels):** Enter the maximum width the captured image can have. The recommended width is 1000 pixels.

Option	Description
	○ **Maximum picture height (in pixels):** Enter the maximum height the captured image can have. The recommended height is 1000 pixels. Maximum resolution limits should be exceed 5000x5000 pixels. The Minimal value is 10 pixels.

9. Select whether you want to copy the property data when an activity is reopened or has a prework activity in the **Clone property data on Reopen or Prework** field.
10. Click **Add**.

    The new property type is added. Add this property to the context layout of the page for the user profile for which you want to display.

Related Topics

- What are the supported MIME types?

What are the supported MIME types?

The full list of supported MIME-types and the matching file extensions is provided here. Be aware that the maximum size of the file you can upload is 5 MB.

MIME Type	Supported File Extensions
animation/narrative	'nml'
application/mspowerpoint	'pot', 'pps', 'ppt', 'ppz'
application/msword	'doc', 'dot'
application/oda	'oda'
application/onenote	'one', 'onetoc2', 'onetmp', 'onepkg'
application/pdf	'pdf'
application/rtf	'rtf'
application/vnd.ms-excel	'xls', 'xlt', 'xla'
application/vnd.ms-excel.addin.macroEnabled.12	'xlam'
application/vnd.ms-excel.sheet.binary.macroEnabled.12	'xlsb'
application/vnd.ms-excel.sheet.macroEnabled.12	'xlsm'
application/vnd.ms-excel.template.macroEnabled.12	'xltm'

MIME Type	Supported File Extensions
application/vnd.ms-officetheme	'thmx'
application/vnd.ms-powerpoint.addin.macroEnabled.12	'ppam'
application/vnd.ms-powerpoint.presentation.macroEnabled.12	'pptm'
application/vnd.ms-powerpoint.slide.macroEnabled.12	'sldm'
application/vnd.ms-powerpoint.slideshow.macroEnabled.12	'ppsm'
application/vnd.ms-powerpoint.template.macroEnabled.12	'potm'
application/vnd.ms-word.document.macroEnabled.12	'docm'
application/vnd.ms-word.template.macroEnabled.12	'dotm'
application/vnd.openxmlformats-officedocument.presentationml.presentatic	'pptx'
application/vnd.openxmlformats-officedocument.presentationml.slide '	'sldx'
application/vnd.openxmlformats-officedocument.presentationml.slideshow	'ppsx'
application/vnd.openxmlformats-officedocument.presentationml.template	'potx'
application/vnd.openxmlformats-officedocument.spreadsheetml.sheet	'xlsx'
application/vnd.openxmlformats-officedocument.spreadsheetml.template	'xltx'
application/vnd.openxmlformats-officedocument.wordprocessingml.docume	'docx'
application/vnd.openxmlformats-officedocument.wordprocessingml.templat	'dotx'
application/x-excel	'xls'
application/x-gtar	'gtar'
application/x-gzip	'gz'

MIME Type	Supported File Extensions
application/x-pointplus	'css'
application/x-shockwave-flash	'swf'
application/x-sprite	'spr', 'sprite'
application/x-tar	'tar', 'tgz'
application/zip	'zip'
audio/mpeg	'mp2', 'mp3', 'mpga'
audio/x-wav	'wav'
chemical/x-pdb	'pdb'
image/gif	'gif'
image/jpeg	'jpe', 'jpeg', 'jpg'
image/png	'png'
image/tiff	'tif', 'tiff'
image/x-ico	'ico'
text/html	'htm', 'html'
text/plain	'txt'
text/richtext	'rtx'
text/tab-separated-values	'tsv'
text/x-speech	'talk'
text/x-vcard	'vcf'
video/mp4	'mp4'
video/mpeg	'mpe', 'mpeg', 'mpg'
video/quicktime	'mov', 'qt'
video/x-msvideo	'avi'

Create an Integer Property

Check boxes and text fields are examples of the integer property. Use the integer property to enter numerical values such as port number, or to select your decision such as whether an additional inventory has been approved by the dispatcher [Yes/No].

This example creates an integer property, Customer confirmed, and displays the property as a check box in the user interface.

1. Navigate to the **Configuration** page.
2. Click **Properties** in the **Resources, Activities, Inventories** section.
3. Click **Add New**.
4. Select **Integer** from the **Property Type** drop-down list.
5. Enter **Customer confirmed** in the **Property Name** field. Enter the name in English and in all the languages that are active in the application.
6. Enter **Cust_decision** in the **Property label** field.
7. Select **Activity** from the **Entity** drop-down list.
8. Select **Checkbox element** for **GUI**.
9. Enter an expression in the **Regular expression** field to validate input or to force the data to display in a certain way.
10. Select whether you want to duplicate the property while reopening the activity or applying pre-work for a new activity.
11. Click **Add**.

    The newly added property appears on the **Properties** page.

Resource Types

A resource type helps you identify these differences:

- Account for cost differences between full time employees and contractors.
- Identify the resources that you want to track using geolocation.
- Manage quota and capacity for resources.
- Distinguish between team holder and team member.
- Share a resource's inventory and work skills in a team.

You can create different resource types to differentiate the hierarchy of the Resource Tree. While creating a resource type, each resource type is assigned to a role. The roles (Field Resource, Vehicle, Tool, Bucket, and Organization Unit) enable you to differentiate the hierarchy of the Resource Tree. Each role is represented with the icons, Blue, Yellow, or Grey.

By default, the Load Threshold section displays (unless the Organization Unit role is selected) on the Add Resource Type dialog box and has the following options to determine how the icons display on the resource tree based on the resource's load (full, normal, or empty load):

- Number of Activities: Defined amount of activities, over which a resource is considered to have full load and below which is considered an empty load.
- Hours: Defined amount of hours including travel, over which a resource is considered to have full load and below which is considered an empty load.
- Time Percent: Defined % of a resource's work schedule for the day that includes activities and travels among them that is considered to be full, normal or empty. Travel time to and from work for the day is not included in these calculations.

Note: Specify the number of activities, hours, percentages in the Full Load or Empty fields. The display of icons on the resource tree depends on the specified values. For example, if 10 activities represent Full load, then the Blue icon displays.

How do I add a Resource Type for the field resource role?

A Field Resource is a resource that performs work, has work skills and work zones associated, and has a related user (actual person performing work or group of people). A Field Resource requires a user, can work, is shown with a Tech icon, and does not include the Organization unit option.

Assume that you want to assign activities to a technician. You have to first create the resource type, Technician and then select Field Resource from the **Role** drop-down list.

Note: Some features are available only during the initial configuration. This will vary based on the options selected during the configuration. Features that are not available for editing after the initial configuration will be greyed out.

To add a resource type for the Field Resource role:

1. Click **Company Name** > **Configuration**.
2. Click **Resource Types** in the **Resources, Activities, Inventories** section.
3. Click **Add resource type**.
4. Complete these fields:

Field	Description
Name (mandatory)	Enter a name for the resource type. All supported languages are listed.
Label (mandatory)	A unique identifier for the resource type that is mapped to the REST API.
Active	By default, the Active check box is selected and the resource type is activated.
Statistic Parameters section	
Personalize the estimation of activity duration check box	When selected, the resource's personal profile is used for duration calculations. Else, uses only company estimates. For more information, see *How is activity duration calculated?*
Use durations reported to enhance company-wide estimations check box	When selected, company-wide estimations are modified based on the data reported by the resource. If not selected, the company-wide estimations are not changed. This applies to both

Field	Description
	activity durations and travel estimations. don't select this check box, if you don't want the durations reported by the resource to affect company level estimations.
Do not consider reported data for the first ____ working days, for statistic estimations	Data reported by the resource does not affect the company-wide estimations for the initial number of days specified in this field. The date is considered from the time the user accesses the system. Default value is 5 days. For example, if you enter 15 days, then the data reported by the resource for activity and travel durations are ignored for the first 15 days and will not be considered while calculating the company-wide estimates. This field is enabled only if the **Use data reported to enhance company-wide estimations** field is selected.

5. Select **Field Resource** from the **Role** drop-down list.
6. Select the required features from this list:
    - **Resource can participate in a team**: Select the Resource can participate in a team check box to determine whether the resource type is an assistant for teamwork activities. If deselected, then you cannot add the resource type, technician as an assistant to a team.
    - **Resource can be a teamholder**: Select the Resource can be a teamholder check box to determine whether the resource type is a primary team holder of an activity.

      > **Note:** An activity that requires a team is always assigned to the team holder whereas the assisting teamwork activities are assigned to the assistants for the duration of the teamwork.

    - **Share inventory in teamwork**: Determines whether the resource type shares inventory with other team members after an activity is started. For example, if the team holder's inventory has 5 items and the assistant's inventory has 3 items, then when the activity is started, there are 8 items available for use at the job site.
    - **Share geolocation in teamwork**: Select the check box to define whether a resource (team holder or assistant) shares the geolocation in a teamwork assignment. Although, the application uses the GPS device of each resource to predict the location of the resource, these situations can occur:
        - Application is unable to obtain coordinates since the device of a resource has stopped to work.
        - Application is unable to find the location of the resource due to some reasons.

      In the above situations, the application uses an algorithm to predict the location of the resource using the coordinates of other resources in the team. Therefore, you can view the location of each team resource in the map view.
    - **Share work skills in teamwork (team-member only)**: Enables the resource to share work skills with the team holder. Sharing is defined on the work skill level according to the "Sharing of the skill in the team" parameter configured in the **Add work skill** dialog box.
    - **Used for Quota management**: Enables you to consider the working time of each resource into the overall workflow capacity calculation of the bucket.

      For example, assume that each resource (Technician 1, Technician 2, and Technician 3 configured as a Field Resource) has a capacity of 480 minutes per day and the **Use as Capacity Area** check box is selected for each resource. Therefore, the Max Available field in the bucket has the overall workflow capacity of 1440

minutes. Now, if a new resource type, Technician 4 is added and if the **Use as Capacity Area** check box is selected, then the overall workflow capacity of the bucket changes to 1920 minutes.

When you select the **Used for Quota management** option for a field resource, you cannot change the resource type and deselect this option.

- **Routing can assign activities**: Select the check box if you want routing to assign activities to a resource.

  If selected, these options enable you to specify the cost of the resource's time that helps you to differentiate between resources (for example, Full time resources versus Contractors):

  - **Working hours cost**: Actual working hours of the resource during the day based on activity durations. Select an option (Low, Normal, High, Highest). The routing algorithm factors working time cost differences between resource types for assignments.
  - **Overtime cost**: Overtime refers to the minutes worked beyond the end of the resource's working hours for the day. Specify cost increases either as X minutes after the end of the shift or the time beyond the X minutes threshold.
  - **Travel Time cost**: Refers to the estimated time and the cost required for travelling between activities.
- **Working time** : Define the travel allowance for resources using these options:
  - Start travel: Enables routing to consider travel time from the beginning of the resource's working time for the day and to the resource's first activity. The application estimates the actual travel time to the location of the first activity, when a resource's Start location is defined. Note that when a route includes activities that require travel and activities that don't need travel, the travel between activities is split into two (or more) pieces by inserting non-travel activities in between. If there is any idle time before an activity, it is considered as travel time for the next activity. Select one of these options:
    - Travel time to the first activity is not included from the Working Time Start – when selected, travel time to the first activity will be calculated before the Working Time Start value. If an activity has a Service Window of 8:00 am-10:00 am, the activity will have an ETA of 8:00 am and the resource will have to leave their start location to arrive by 8:00 am.
    - Travel time to the first activity is included from the Working Time Start – when selected, travel time will be calculated to the first activity. If a resource has 30 minutes of travel and the activity has a service window of 8:00 am-10:00 am the activity's ETA will be 08:30 am.
    - Resource is allotted up to <number> minutes of travel time prior to the Working Time Start – when selected, a portion of the travel time can occur prior to the start of the shift. If the value is set to 30 minutes and the resource need 45 minutes of travel the first 30 minutes will occur prior to the start of the shift and the ETA activity's ETA will be 08:15 am.
  - Final travel: Enables routing to consider travel time to a known end location. Select one of these options:
    - Travel time from the last activity to the Resources End Location is not included from the Working Time End – when selected, travel time to the final location will be calculated after the Working Time End value. If a resource's shift ends at 6:00 pm with no overtime allowed, routing can assign activities that can end at 6:00 pm.
    - Travel time from the last activity to the Resources End Location is included from the Working Time End – when selected, travel time to the final location will be calculated. If a resource's shift ends at 6:00 pm with no overtime allowed, routing cannot assign activities that can end at 6:00 pm.
    - Resource is allotted up to <number> minutes of travel time after the Working Time End – when selected, a portion of the travel time will occur after the shift ends. Suppose that the resource's shift ends at 6:00 pm with no overtime allowed. When the value is set to 30 minutes and the

resource needs 45 minutes of travel to the end location, the latest an activity can end would be 5:45pm.

- **Enable 'Not activated in time' alert and trigger**: Represents an alert that the resource's route is not activated. For example, consider the resources, Technician 1 and Technician 2 configured as field resources. If the Enable 'Not activated in time' alert and trigger check box is selected for the resource, Technician 1 and not selected for Technician 2, then the notification messages are created only for Technician 1.

7. Click **Add**.

> **Note:** These features are available when a role, **Vehicle** or **Tool** is assigned to a resource type:
> - Share inventory in teamwork
> - Share geolocation in teamwork
> - Share work skills in teamwork (team-member only)
> - Working time includes travel to first activity
> - Working time includes travel from last activity
> - Enable 'Not activated in time' alert and trigger

Results:

The resource type, technician displays on the **Resource Types** page. If you click **Modify** and change a feature setting of a resource type, the application automatically applies the changes to the resource type.

Example of a Travel Allowance Calculation

Roger's assigned Resource Type has these Work Time configurations:

- Travel time to the first activity is included from the Working Time Start
- Travel time from the last activity to the Resources End Location is included from the Working Time End

Jane and John's assigned Resource Type has these Working Time configurations:

- Resource is allotted up to 30 minutes of travel time prior to the Working Time Start
- Resource is allotted up to 30 minutes of travel time after the Working Time End

Consider Roger, Jane, and John, who have their work shift from 9:00 am to 6:00 pm and these distances from work place:

- Roger lives 30 minutes from his first and last job. So, for both jobs, 30 minutes of travel is included part of his workday.
- Jane lives 45 minutes away from the first and last job. So, for both of her jobs only 15 minutes of the travel should be counted as part of her workday and the additional 30 minutes is beyond her workday.
- John lives 20 minutes away from his first and last job. So, no travel is part of his workday and the 20 minutes travel for the last job is done beyond his workday.

Using this example, if a new activity is created that is estimated to finish by 5:45 pm and overtime is no allowed, routing will not assign this activity to Roger. If it was assigned, Roger would incur overtime, because his shift ends at 6:00 pm. The routing engine would look for a more suitable resource.

Add a Resource Type for the Bucket Role

A bucket accumulates the work that has not yet been distributed to field resources. A bucket does not require a user, cannot process work or activities, is shown with a Double Tech icon, includes the group option, and can have activities assigned.

> **Note:** Some features are available only during the initial configuration. This will vary based on the options selected during the configuration. Features that are not available for editing after the initial configuration will be greyed out.

1. Click **Configuration**.
2. Click **Resource Types** in the **Resources, Activities, Inventories** section.
3. Click **Add resource type**.
4. Select **Bucket** from the **Role** drop-down list.
5. Complete these fields:
    - **Name** (Mandatory): Enter a name for the resource type. All supported languages are listed.
    - **Label** (Mandatory): A unique identifier for the resource type that is mapped to the REST API.
    - **Active**: Select the **Active** check box to activate the resource type.
6. Select the **Use as Capacity Area** check box.
   This option is available only if you have purchased Capacity Cloud Service. For more details about Quota Management in Bucket, see the *Oracle Field Service Using Capacity Cloud Service Guide* guide.
7. Select the **Routing can assign activities** check box if you want routing to assign activities to the bucket.
8. Click **Add**.
   The Bucket resource type displays on the **Resource Types** page.

Add a Resource Type for the Organization Unit Role

An organization unit aggregates field resources, vehicles, and tools in a hierarchical structure to simplify management and reporting. An organization unit does not require a user, cannot process work or activities, is shown with a Double Tech icon, includes the group option, and can have activities assigned.

> **Note:** Some features are available only during the initial configuration. This will vary based on the options selected during the configuration. Features that are not available for editing after the initial configuration will be greyed out.

1. Click **Company Name** > **Configuration**.
2. Click **Resource Types** in the **Resources, Activities, Inventories** section.
3. Click **Add resource type**.

4. Select Organization unit from the **Role** drop-down list.
5. Complete these fields:
    - Name (Mandatory): Enter a name for the resource type. All supported languages are listed.
    - Label (Mandatory): A unique identifier for the resource type that is mapped to the REST API.
    - Active: Select the **Active** check box to activate the resource type.
6. Select the **Use as Capacity Area** check box to aggregate the capacity across buckets.

   For example, assume that the maximum available capacity for Bucket 1 is 1920 minutes and the **Use as Capacity Area** check box is selected. Bucket 2 has a maximum available capacity of 2400 minutes and the **Use as Capacity Area** check box is not selected. Now, if you select the **Use as Capacity Area** check box for Bucket 2, then the Group resource type aggregates the capacity across Bucket 1 and Bucket 2 and changes the maximum available capacity of the Group to 4320 minutes.
7. Click **Add**.

Results:

The Organization Unit resource type displays on the **Resource Types** page.

Add a Resource Type for Contingent Worker

Contingent (or Infrequent) Workforce is one where the workers don't work directly for the company. They are contractors that may not have dedicated or assigned routes everyday. They will be assigned work infrequently on an ad-hoc basis.

> **Note:** You must have selected the Contingent Worker service and it must be available as part of your Oracle Field Service subscription.

1. Click **Configuration**.
2. Click **Resource Types** in the **Resources, Activities, Inventories** section.
3. Click **Add resource type**.
4. Complete these fields:

Field	Description
Name (mandatory)	Enter a name for the resource type. All supported languages are listed.
Label (mandatory)	A unique identifier for the resource type that is mapped to the REST API.
Active	By default, the Active check box is selected and the resource type is activated.

5. Select **Field Resource** from the **Role** drop-down list.

6. Select the **Resource is a contingent worker** check box.

   The remaining check boxes are grayed out. These rules apply to contingent worker resources:

   - When the Resource is a contingent worker check box is selected, the Role cannot be anything other than "Field Resource".
   - This resource cannot participate in teamwork.
   - This resource cannot access resources other than themselves.
   - This resource cannot access the video chat service if provisioned.
   - Quota does not consider contingent workers while calculating the available capacity.
   - Bulk, urgent, and immediate routing don't assign activities to this resource.
   - The alert regarding route activation does not display for this resource.
   - Travel and activity duration from these resources are not included in the company-wide statistics.

> **Note:** The **Resource is a contingent worker** check box is grayed out on the **Edit resource type** dialog box. This means, after you create a contingent worker resource type, you cannot change it back to a normal resource. Further, a contingent worker resource can only be a field resource and this resource must have only one corresponding contingent worker user. Contingent workers are automatically removed from the application, if they have not activated a route in 12 continuous months.

Activity Booking

When a technician performs an activity at the customer's premises, the customer may enquire about the possibility to perform another job for them on a different day. The technician must be able to collect the information about the new job, create an activity, and schedule it right away. To book an activity, the technician must also have the ability to check the available capacity for that specific date and time. This situation is handled by the **Activity Booking** option. You must configure the activity booking context properly to get the most accurate and precise capacity calculation. The **Book new activity** option is configured in the **Application screens** section of the **Screen Configuration** page.

> **Note:** The activity booking functionality, Quota management page, and the Capacity Area configuration functionality are available only with the "Oracle Field Service Enterprise Cloud Service" subscription.

Technicians can book activities in three ways:

- Direct assignment booking
- Quota based booking:
  - Time slot based
  - Booking interval based (or availability based)

Direct Assignment Booking

Activity booking uses the activity information and finds all the Capacity Areas that match the activity requirements. If a Capacity Area is configured for booking using direct assignment, the activity is created (or reassigned) in a technician's route, provided the technician meets the activity requirements and has enough time to complete it. When there are many available resources that can work on the activity for a particular date and time slot, Oracle Field Service assigns the activity to one of them. The application typically finds a technician that has a smaller set of working skills than a technician with a wider skillset. This way, resource selection is optimized, so that the following activities that require

booking have more available options. With this feature, technicians can control the booking strategy that is used on a Capacity Area level. Technicians can also configure different capacity areas to use different booking strategies.

Availability-Based Booking

Technicians can book activities for Capacity Areas with booking interval based quota configuration. They can use the booking interval based quota when the time slots overlap or, have a significant variation in the activity duration. When technicians choose the booking interval based quota, they must select the booking intervals on the Quota Configuration page. If they do not select the booking intervals, the application uses the default Capacity intervals that are configured on the **Business Rules** page.

When you configure a Capacity Area for booking using Quota (time slot based or availability based), then the activity is created (or reassigned) on the bucket that is associated with the Capacity Area. If there are multiple Capacity Areas, the technician must select a Capacity Area, select the day and time slot on which they want to perform the activity, and book it.

You can obtain the booking options from the application in two ways:

- Through the Activity Booking page.
- Through the new API function showBookingGrid. This API simplifies the process of integrating the Booking functionality with external applications.

Regardless of the method, the application uses the activity information you have entered and provides you the list of options where it may be booked.

As soon as you book an activity, Oracle Field Service subtracts the capacity required for its performance from the available capacity and adds it to the used capacity. It compares the used capacity to the quota values to make sure that orders for new activities are accepted only when the capacity is still available. As having capacity information up-to-date is crucial for the functionality, Activity Booking is available only in the online mode.

If you book an activity close to the end of a time-slot, it has a higher probability of late start. To eliminate risky activity bookings, the application does not provide a booking option for an activity for which the estimated start time appears in the last 20% of the time slot.

Are there any prerequisites to use the Activity Booking feature?

If you want to use the Activity Booking feature, you must complete some prerequisite tasks.

1. Add the fields required for booking activities to the **Book new activity** Visual Form Editor. Typically, you need activity type, activity address, work skills for the activity, work zone it belongs to, activity duration, and the coordinates of the activity. On the **Schedule booked activity** Visual Form Editor, configure the fields that your technicians see when they reschedule an existing activity. Go to **Configuration** > **User Types** > **Screen configuration** > **Book new activity** (or Schedule booked activity) to add the fields.
2. Add the **Book (create) activity** and **Book (reschedule) activity** buttons to the **Edit/View activity** and the **Activity hint** Visual Form Editors. Technicians use these buttons to book and reschedule activities. Go to **Configuration** > **User Types** > **Screen configuration** > **Edit/View activity** or Activity hint to add the buttons.
3. Configure the Capacity Areas for booking activities. You can configure a different type of booking option for each Capacity Area. For more information, see the *Using Capacity* guide.
4. Configure the booking recommendations. You can show or hide the booking recommendations for each Capacity Area separately. For more information, see the *Using Capacity* guide.

Create a Layout for Booking an Activity

Use the **Book new activity** option in the **Application screens** section of the **Screen Configuration** page to create a layout for booking an activity.

1. Click **Configuration** > **User Types.**
2. Select the user type for which you want to add a layout for booking a new activity.
3. In the **Access settings** section of the **General** tab, select the **Allow access via web application** check box.
4. Expand the **Application screens** section and click **Book new activity**.
   The Visual Form Editor opens.
5. Drag-and-drop the fields that you want on the **Book new activity** page.
   You must have Activity type (aworktype) field. However, you cannot add file type of fields or properties, tabs, and the Time slot field.
6. Select the visibility settings for all the fields.
7. Click **Submit**.
   The layout is saved.
8. Add the **Book (create) activity** button to the **Edit/view activity** Visual Form Editor:
   a. Expand the **Application screens** section and click **Edit/view activity**.
   b. Drag and drop the Button element.
   c. Click the element and then click the pencil icon in the **Standard action screen** field.
   d. Select Book (create) activity and click **OK**.
   e. Click **Save**.
      If you want technicians to reschedule existing activities, add the **Book (reschedule) activity** button.

Activity Type Constraints

The activity booking function applies a number of constraints on certain activity types.

Some activity types determine whether at all an activity can be booked, while others affect the configuration of different properties on the context. The list of activity types is available in the **Activity Types** page. Click **Configuration** > **Activity Types** to access the **Activity Types** page. Describe only those activity type constraints and conditions that apply equally to all the activity types that you want to be available for booking.

Include Time Slot Support

By default, activity types do not have the **Support of time slots** option selected. You must select the **Support of time slots** option for each activity type that is to be considered for booking.

1. Click **Configuration** > **Activity Types**.
2. On the **Activity Types** page, select the type of activity that you want to be considered for booking.
3. Click **Modify**.
4. Select **Support of time slots**, and then click **Update**.

Time Slot Page Configuration

The **Schedule booked activity** context defines the layout of the **Time Slot** page. While the time slot selection widget is pre-configured and cannot be changed, all other details of the booked activity can be specified in the **Schedule booked activity** context.

These restrictions apply to the context configuration:

- You can add only read-only visibility condition for activities or properties on the context layout.
- You cannot create tabs in the Schedule booked activity context.

Otherwise, there are no special constraints, as opposed to the **Book new activity** context. The Schedule booked activity context is available in the **Application screens** section of the **Screen Configuration** page.

Include the Calculate Travel Option

If you select the **Calculate travel** option for the activities to be booked, then the capacity calculation additionally considers all fields and properties defined in the **Activity travel stats fields** section of **Statistics**.

1. Click **Configuration** > **Activity Types**.
2. Click **Modify** against the activity type for which you want to add the option.
3. Select the **Calculate travel** check box and then click **Update**.

   When you select this feature, you must add all the fields that you have selected for the **Activity travel stats** fields on the **Statistics** page to the **Book new activity** context layout and set the visibility as Mandatory.

Include the Calculate Activity Duration Using Statistics Option

If you select the **Calculate activity duration using statistics** option for the activities to be booked, then the capacity calculation additionally considers all fields and properties in the **Activity duration stats fields** selected on the **Statistics** page.

1. Click **Configuration** > **Activity Types**.
2. Click **Modify** against the activity type for which you want to add the option.
3. Select the **Calculate activity duration using statistics** check box and then click **Update**.

   When you select this feature, you must add all the fields that you have selected for the **Activity duration stats fields** field on the **Statistics** page to the **Book new activity** context layout and set the visibility as Mandatory.

Enable Work Zone Support

You must enable **Work Zone Support** for booking activities. If you have enabled **Work Zone Support** at both, the company level and the activity level for the corresponding activity types, all fields from the work zone key are considered for capacity calculation.

1. To enable **Work Zone Support** at the company level:
    a. Click **Configuration** > **Business Rules**.
    b. Select **Work Zone support** in the **General** section.
2. To select this option at the activity level:
    a. Click **Configuration** > **Activity Types**.
    b. Click **Modify** against the type of activity that you want to be considered for booking.
    c. Select **Support of work zones**, and then click **Update**.
3. Click **Configuration** > **Work Zones** and note down the field selected for Work Zone Key.
4. Add this field with a Mandatory visibility in the Book new activity context layout.

Enable Work Skill Support

You must enable **Work Skill Support** for booking activities. If you have enabled **Work Skill Support** at both, the company level and the activity level for the corresponding activity types, all fields from the work skill conditions are considered for capacity calculation.

1. To enable **Work Skill Support** at the company level:
    a. Click **Configuration** > **Business Rules**.
    b. Select **Work Skill support** in the **General** section.
2. To select this option at the activity level:
    a. Click **Configuration** > **Activity Types**.
    b. Click **Modify** against the type of activity that you want to be considered for booking.
    c. Select **Support of work skills**, and then click **Update**.
3. Click **Configuration** > **Work Skills** > **Work skill conditions**.
4. Open the work skill that you want to be considered for booking and note down the work skill conditions.
5. Add this field with a Mandatory visibility in the Book new activity context layout.

Activity Booking Error Messages

This section provides the list of possible errors and the corresponding messages the user may encounter while booking activities.

Missing Context Error

If at least one of the two contexts ('Book new activity', 'Schedule booked activity') is not added before using the Activity Booking functionality, the message: Form is misconfigured. Context layout missing appears. Depending on which context is missing, the error is shown so, you can access the corresponding pages.

Validation Errors

If any of the mandatory fields is empty on the booking activity contexts ('Book new activity', 'Schedule booked activity'), the validation message, Validation failed, please review your form is shown. If a time slot has not been selected on the **Time Slot** page, the activity is not booked and the message, Validation failed, please review your form. Time slot is not selected is displayed.

Capacity Calculation Errors

Capacity is not calculated in these cases:

- Data entered in the previous step (creating booked activity) is insufficient.
- A configuration has not been properly performed.
- There is no available capacity that matches with the activity parameters.

The possible error messages that may occur at the capacity calculation stage, that is after submitting information entered in the booking activity form are as follows:

- Work skills support is disabled at the company level.
- Work skills are not supported by this type of activity.
- Capacity category cannot be determined using the given activity fields.
- The selected activity type is inactive.
- Work zone cannot be determined by the given activity fields.
- Field or property that is required for work zone 'location' value calculation is missing.
- Time slots are not supported by this type of activity.
- Field or property that is required for the duration estimation is missing.
- Field or property required for travel estimation is missing.
- The matching buckets found don't have the required quota for booking this activity.
- Unable to find appropriate quota bucket for this activity.

Activity Bundling Rules

Let’s say your organization uses forms that require inputs from several resources through several activities or activity segments. You can use activity bundling rules to share the forms between the activities and segments, and to bundle the visits for these activities (workload optimization). You can create bundling rules using the **Configuration** > **Bundling Rules** option. Based on the rules, the application identifies related activities automatically and shares data between them and/or assigns activities optimally.

Terminology

Here are some terms you must be aware of.

- Bundling rule: A bundling rule is a combination of bundling keys, forms, and workload optimization parameters that drive the application to:
  - Build bundles (or groups) of related activities.
  - Identify and share required data between activities in a bundle.
  - Optimize workload of field resources.
- Bundling keys: A bundling key is a combination of system fields and properties used by the application to define and join related activities automatically.
- Associated forms: Associated forms are a set of forms whose data is available across all the activities in a bundle. This data could be captured by several users while through different activities from the same bundle.

Limitations of Activity Bundling Rules

Here are some limitations of activity bundling rules:

- You can create a maximum of five bundling rules, including the bundling rule for workload optimization.
- You can create only one bundling rule for workload optimization.
- The maximum number of activities in a bundle can't exceed 1000 activities. The application starts bundling activities from the newest to oldest activity and stops building the bundle when the number of activities reaches 1000.

How do Activity Bundling Rules Work?

You can use activity bundling rules to exchange information between activates and to optimize workload.

Exchange information: When you add a form to an activity bundling rule, multiple resources can add data to the form across all the activities that are bundled by the rule. The data collected this way is available for all activities, or activity segments, bundled by the rule, regardless of whether the activities or segments are assigned for different days or shifts. For example, a technician can complete a form partially during their segment of the activity and finalize the form only when other members of the crew complete their portions of the work and fill up their sections of the form.

When an activity bundling rule includes forms, you can see the submitted forms from the Forms Submitted button on the Activity Details page.

Optimize workload: The application creates a bundle of future activities that can be assigned to the same technician on the same day. You can take care of the assignment either with automatic scheduling by routing or by assigning the activities manually using the Assignment Assistant. This reduces the durations of same-site activities, and improves the overall utilization of resources.

For both purposes at the same time: You can use activity bundling for both, information exchange and optimizing workload simultaneously. The 'same site/same technician/same day' concept applies, as the data collected from the forms is available to the activities bundled by the rule, but assigned to the same technician and for the same day.

Add an Activity Bundling Rule to Exchange Information

You can add an activity bundling rule, when multiple activities use the same form. The data collected in such a form is available for all activities, or activity segments bundled by the rule, regardless of whether the activities or segments are assigned to different days or shifts.

1. Click **Configuration** > **Bundling Rules**.
2. Click **Add Bundling Rule**.

3. Complete these fields:
    - **Label:** Enter a label for the activity bundling rule. APIs use this label to identify the bundling rule.
    - **Active:** Select the checkbox to make the activity bundling rule Active. The application calculates activity bundles only for the rules that have a status of Active.
    - **Name:** Enter a name for the activity bundling rule in the English language and other languages that are required by your organization.
4. To add the activity bundling keys, click **Add Key**.
    a. On the **Add bundling key** dialog box, select the activity property that you want to identify as the bundling key. Among the standard fields you can select appt_number, caddress, ccity, czip, customer_number, and aworktype. Among the custom properties you can select string, integer, and enum types of properties.

    Routing compares the values defined in the activity fields against the specified criterion. Activities are grouped together as a visit, only if the values of all activity bundling keys match the specified criterion. For example, if you select Work Order [appt_number] as the bundling key, Routing bundles all the activities that have this work order.

    b. Select **Take the entire value of short fields** to define the maximum limit of characters that's taken from the value of a field or property selected as the bundling key. Deselect this check box to define the maximum length manually.
    c. Enter the maximum length of the field or property to be considered as the bundling key in the **Length** field.

    This number must be between 1 and 64.
5. To add the associated forms to the activities, click **Add Forms**.
    a. Add all the forms that you want to associate with the activities that are bundled with the current bundling rule.
6. Click **Add**.

    All new activity bundling rules are created as case-insensitive.

    If visits exist in the application, and if the bundling keys are changed, then after recalculation, the visits that no longer match the keys are split into individual activities. Not Done status for a visit is defined as follows:
    - All the work orders in the visit have final statuses.
    - A 'not done' visit either contains a 'not done' work order or several work orders with 'completed' and 'cancelled/deleted' statuses.

Add an Activity Bundling Rule to Optimize Workload

When you create an activity bundling rule to optimize workload, activities that satisfy the rule are assigned to the same resource, so that the resource performs the activities in a single visit. You can achieve this either using automatic scheduling by Routing or by assigning the activities manually through the Assignment Assistant. This way you reduce the duration of same-site activities and improve the utilization of resources.

1. Click **Configuration** > **Bundling Rules**.
2. Click **Add Bundling Rule**.

3. Complete these fields:
    - **Label:** Enter a label for the activity bundling rule. APIs use this label to identify the bundling rule.
    - **Active:** Select the check box to make the activity bundling rule Active. The application calculates activity bundles only for the rules that have a status of Active.
    - **Name:** Enter a name for the activity bundling rule in the English language and other languages that are required by your organization.
4. To add the activity bundling keys, click **Add Key**.
    a. On the **Add bundling key** dialog box, select the activity property that you want to identify as the bundling key.

    Among the standard fields you can select appt_number, caddress, ccity, czip, customer_number, and aworktype. Among the custom properties you can select string, integer, and enum types of properties.

    Routing compares the values defined in the activity fields against the specified criterion. Activities are grouped together as a visit, only if the values of all activity bundling keys match the specified criterion. For example, if you select Work Order [appt_number] as the bundling key, Routing bundles all the activities that have this work order.

    b. Select Take the entire value of short fields to define the maximum limit of characters that's taken from the value of a field or property selected as the bundling key. Deselect this check box to define the maximum length manually.
    c. Enter the maximum length of the field or property to be considered as the bundling key in the Length field. This number must be between 1 and 64.
5. To create a bundling key to optimize the workload, select **Group same-site activities into a Visit**.

    Routing identifies future activities based on the bundling keys and schedules them to the same day and assigns them to the same technician. You can create only one bundling rule for optimizing workload.
6. Use the slider and set the lower and upper limits of ratio for the duration of bundled activities.

    This is the ratio of the average duration of activities that are part of a bundle (except for the first one) to the duration that's currently estimated for such activities. This ratio is applied to the original estimate to get the estimated duration of bundled activities. The ratio isn't applied to the estimated duration of the first activity of the bundle. The first activity continues to have the same duration as a similar standalone activity. You can also see the value calculated by the application based on the duration reported by the field resources. The final ratio that's applied to the estimated durations of the bundled activities, which isn't the first, is within the lower and upper limits set here. So, if the calculated ratio lies within the limits, that value is used. If not, then the limit closet to the calculated value is used.

    You can use the limits to override the ratio to be used for the duration of non-first bundled activities. To override, set both the lower and upper limits to the value that you want to use. Because, the application always respects the limits, it uses the value you've set. For example, if your desired ratio is 80%, then set both the lower and upper limits to 80% to use this always, regardless of what the calculated value is. Similarly, to disable this feature and to have the application behave the way it used to, set the lower and upper limits to 100%.

    For more information, see the Bundling of Activities section in the Using Routing guide.

7. Click **Add**.

    The activity bundling rule is added; you can't add anymore rules to optimize workload.

3 Configure the Display Settings

Glossary Entries

Use the Glossary to configure the default names of UI elements to your business needs. For example, instead of the default term for the Activity Status, *Completed*, you can use the glossary to configure the term to display as *Done*.

You can configure the description of a user-interface element, only if the element corresponds to a glossary item in the Oracle Field Service glossary.

The changes made to glossary references are global, that is, the change is consistent for all users. However, the same glossary entry might belong to different categories or sub categories. For example, the glossary entry, *Not Done* belongs to the categories, Activity Status, Activity History Operation, Notification Trigger Name, and Action Link. If you modify the glossary entry, *Not Done* that belongs to the category, Activity Status, then the change does not affect other categories.

> **Note:** The glossary entries for the Screen Configuration (Application screens and Collaboration and Identifiers) categories are configured for the selected user types.

The Glossary Visibility Profile permission that controls the access to the Glossary page for a User Type is set using the **Company Configuration** context in the **Screen Configuration, Application screens** section. Only User Types that have Read/Write access can modify the glossary.

These columns display on the Glossary page:

- **Category**: Displays the category and the sub category, if available, in the format, *<Category:Subcategory>*. For example, Activity: First Manual Operation.
- **Label/ID**: The label/ID of the glossary entry displays. If label is not available, the ID displays. You cannot change labels in the glossary.
- **Columns for each language**: The selected languages are displayed. See *Add an Active Language*.

You can click the text highlighted in red on any of the Language column to view the number of missing glossary entries.

When you update one of the missing glossary entries, the red highlight on the text box disappears and the count in the Language column is updated. If no entry is missing, the warning text on the column header disappears.

Click the **Search** icon in the search field to list the glossary entries. You can select a specific category from the drop-down list next to the search box and enter a term in the **Search** field to search for the required glossary entries.

By default, the original text for all glossary entries is displayed. When you modify the original text of a glossary entry and click **Save**, the modified text is overwritten. However, the original text is still visible, when you hover the mouse over the modified text.

How do I modify a glossary entry?

Oracle Field Service glossary items have a unique identifier referred to as placeholder IDs. The Placeholder ID that displays next to an UI element lets you identify the correct glossary item that you want to edit in the **Glossary** page. For example, you can use *Show* instead of *View*.

You can also modify the description of an UI element using an in-context editor, so that you need not access the **Glossary** page. This example explains how to modify the description of a UI element, View, using placeholders and in-context editor. To modify a glossary entry:

1. Select your user name (for example, Admin) at the top right corner.
2. To modify the description of each UI element using placeholders:
    a. Click **Preferences**.
    b. Select the **Show Placeholder ID** check box.
    c. Click **OK** and refresh the page.

       Each UI element that corresponds to an Oracle Field Service glossary item in the application displays an ID next to them.
    d. Select **Dispatch**,**Activities**.
    e. Make a note of the placeholder ID (for example, 8047) for the UI element, *View*.
    f. Click **Configuration**.
    g. Click **Displays**, **Glossary**.
    h. Enter the **Placeholder ID** in the search field and click the **Search** icon.

       The glossary entry displays.
    i. Select **English** as the language and enter the term, **Show** in the field.
    j. Click **Save**.

       The glossary entry is modified and you can view the original text, *View* when you hover the mouse over the modified term, *Show*.
3. To modify the description of each UI element using the in-context editor:
    a. Repeat steps 1 to 2.c from the above procedure.
    b. Select your user name (for example, Admin) and select **Glossary Editor is Off**.

       The in-context glossary editor is turned on.
    c. Select **Dispatch**, **Activities**.
    d. Select **View**.

       An **on-screen glossary** editor displays.
    e. Enter the term, *View* in the **English** field.
    f. Click **Save**.
    g. Deselect **Glossary Editor is Off** and the **Show Placeholder ID** check box from the **Preferences** page.
    h. Refresh the page.

       The modified description displays.

Export and Import Glossary Items

You can export the glossary entries to a .csv file to achieve these goals:

- Translate a list of glossary entries to one of the selected languages that is set using the Languages button.
- Modify a list of glossary entries.

> **Note:** It is recommended that you use a text editor to update the glossary terms. don't use Microsoft Excel, as it converts the **.csv** file from a comma-delimited file with quote qualifiers to a comma-delimited file without quote qualifiers.

You can simultaneously update a list of glossary entries and import the updated list into the application. This example explains how to export a list of glossary entries related to the Activity Hint Category, and import the modified entries into the application. To export glossary entries:

1. Click **Configuration**.
2. Click **Displays**, **Glossary**.
3. Select **Activity Hint** as the Category from the drop-down list.
   The entries related to Activity Hint display.
4. Click **Export**.
   The **Export** dialog displays and by default, the languages that display on the **Glossary** page are selected. You can also export the entries to any of the deselected languages. To add a language, see *Add an Active Language*.
5. Select the **Filtered** option to only export the entries related to the Category, Activity Hint. Or, select the **All** option to export all the glossary entries.
6. Click **Export**.
7. Save the file in the **.csv** format, for example, test.csv.
8. Open **test.csv**, modify the required entries in the **English (en-US)** and **Spanish (es-ES)** columns, and save the file.
9. Click **Import** on the Glossary page, select **test.csv**, and click **Import**.
10. Click **Save**.
    The modified entries display in the English and Spanish columns.

Add an Active Language

You can select the active languages, that is, the languages that you want to display on the **Glossary** page without accessing the **Company Language** setting. Based on your selections, the **Language** columns (drop-down lists that let you toggle among the selected languages) are updated.

> **Note:** You can only view two columns on the **Glossary** page.

To add an active language:

1. Select **Languages** from the **Glossary** page.
2. Click the **Plus** icon.
3. Select the language, for example, **Spanish** and click **Add**.
   The selected language displays in the **Languages** list.
4. Click **OK**.

Results:

The selected language, Spanish displays as an option in both the Language columns.

Edit Property Descriptions

You can edit the description for properties for each user type and for each page separately using these categories:

- Screen Configuration - Application screens

- Screen Configuration - Collaboration and Identifiers

Each category has a sub category that is associated with the respective page within Screen configuration. For example, the Activity fields sub category for export that belongs to the Screen Configuration – Manage category is associated with the *Activity fields for Export* page that belongs to the Screen Configuration – Manage category within the **Configuration, User Types** page.

> **Note:** If you share a page configuration across multiple user types, then the properties of that page configuration are also shared. So, any change to the description of a property of that page configuration, affects all user types.

Let's say you share the page configuration that belongs to the Administrator user type across the Technician and Field Engineer user types. The properties of the page configuration that belongs to the Administrator user type are also shared.
Assume that the **Activity fields for Export** page that belongs to the Administrator user type has a property named Work Order and the page is shared across the Technician and Field Engineer user types. When you edit the glossary entry for the Work Order property, the changes are also applied for the Technician and Field Engineer user types.

By default, the **Glossary** page displays all properties for each page within Screen configuration. If there are custom names for any of the user types, then the original and custom names for the property are displayed in a comma-separated format for each language.

Example of Editing a Property Description

This example shows how to add a custom name, Job Code for the Work Order property to the Technician user type. You can do this on the *Activity fields for export* page that belongs to the **Screen Configuration – Manage** category.

1. Click **Configuration** > **Glossary**.
2. Select **Screen Configuration – Manage** from the drop-down list and click the **Search** icon.
   The properties related to Screen Configuration – Manage display.
3. Click the **Edit** icon in the language column that is displayed for the Work Order property for the Screen Configuration - Manage: Activity fields for export category.
   If you have edited the property before, the original name and the user types to which the current name applies are displayed. If you have not edited the property so far, all the user types are displayed.
4. Click the **Plus** icon and select the user type, Technician.
   The **Edit Custom Names for User Types** page and the **Plus** icon display when there are custom names for user types. If there are no custom names for user types, the **Add** page displays when you click the **Edit** icon.
5. Click **Add**.
6. Enter the custom name, Job Code in the field.
7. Click **OK**.
   The custom name Job code displays with the original name Work Order, in a comma-separated format for each language.

Configure the Display Page

You configure the **Display** page to change the way the user interface appears to the end user. While you may retain the default settings for most of these settings, you can change a few settings during implementation based on your business needs.

The **Display** visibility profile permission controls the access to the **Display** page. You must set this permission for each user type that manages the Display settings. If you don't configure the permission or the visibility, the Display page is not visible to the user. If you select ReadOnly, Display is placed into a view only mode. If you select Read/Write for this setting, the user can manage Display. To configure the display settings:

1. Click **Configuration**.
2. In the **Displays** section, click **Display**.
   The **Display** page appears.
3. Complete these fields:

Field	Description
General	
First day of the week	The week that the working week begins.
Time input	The way time is entered in the application-whether it is chosen from a drop-down with fixed increments or is entered manually.
Allow application to be launched inside iframe	Lets you launch the application in an iFrame.
Enable password reset on Login screen	Displays the **Can't sign in** link on the **Login** page, which helps users reset their passwords. Resetting the password is a global feature and is available only for users assigned to an Internal Login Policy. This is not available for users assigned to LDAP, SAML, and OpenID Login Policies. Selecting this check box displays the **Email for password reset** field.
Email for password reset	The source from which you want to get the email address of the user, who wants to reset their password. This field includes custom properties that can be chosen as the source of the email address to which the recovery email is sent. The custom properties are displayed only if these conditions are satisfied: o Entity = User o Type = String o GUI = Text or Email
Remember User Name on Login Screen or use Biometrics ID	The control to display the **Remember my username** check box on the **Login** page. Selecting the **Remember my username** check box saves the user name and populates it automatically, when a user uses the same device and browser to log in to the application. This feature is available only for users who have the Internal and LDAP login policies, and not for users who have the SAML or OpenID Connect policies. If a user's authentication fails, the user name is not populated when the user logs in the next time. Users can save their fingerprint ID when they log in for the first time and then subsequently, log in using their fingerprint ID. However, the Enable Touch ID" (for iOS) and "Enable Fingerprint ID" (for Android) options have to be enabled on the device to use the fingerprint ID.
Mobile settings	

Field	Description
Number of activities per page	The number of activities or resources to appear on one page on the mobile device. Default value is 5.
Number of inventory per page	The number of equipment records to appear on one page on the mobile device. Default value is 10.
Number of days to view on the **Calendar** screen	The number of days to appear on the mobile device at a time. Default value is 14.
Idle time minimum on the Manage screen	The threshold under which idle time is not displayed on the **Time View**.
Field Resource Landing Page	The page that must be displayed to field resources, when they log in to the installed app.
Company time zones	
Time zones	The globally available times zones. Use the **Edit** icon to add the required timezones.
Company language	
Languages	The globally available languages. Use the **Edit** icon to add the required languages.
Login screen language	The language used on the **Login** page when accessing the application.
Travel time representation	The color for travel time, if a visual of travel time is desired on the Time and List views.
Quota settings	
Major Capacity Usage	On the Quota grid, quota and minutes used display in brown once used = X% (major) of initial quota. Enter the percent of quota that indicates major capacity usage. Expected duration comprises [……] % of quota.
Critical Capacity Usage	On the Quota grid, quota and minutes used display in bright red once used = X% (critical) of initial quota. Enter percent of quota that indicates critical capacity usage. Expected duration comprises [……] % of quota.
Show Planning	Whether a plan created in forecasting is available in the quota management page.
Alert settings	
Activity has not been started x minutes before the end of Service Window	The activity turns red and a Resource Tree warning appears based on the value set in this field. Enter the number of minutes preferred.
Activity has not been completed x minutes before the end of SLA Window	The activity turns red and a Resource Tree warning appears based on the value set in this field. Enter the number of minutes preferred.
Route has not been started x minutes after the start time of resource work day	A warning appears on the resource's record within the Resource Tree. Enter the number of minutes.
Activity has not been started x minutes after ETA	A warning appears on the resource's record within the Resource Tree. Enter the number of minutes.
Resource tree visualization	
Show assistants	Shows assistants on the Resource Tree.
Show teams	Shows teams on the Resource Tree.
Show activity/teamwork counters	Shows the count of activities or teamwork on the Resource Tree.
Map	

Field	Description
Fade resources	Whether a resource becomes transparent after geolocation data update.
Fade resource time	The number of minutes after geolocation data update after which a resource's time becomes transparent.
Hide resource time	The number of minutes after geolocation data update after which a resource's time is hidden.
Activity history	
Monitored activity fields	The list of activity fields to be monitored. If one of these fields (or properties) is changed, a record is inserted into a corresponding history table. Use the **Edit** icon to add the required activity fields.
Monitored inventory fields	The list of inventory fields to be monitored. If one of these fields (or properties) is changed, a record is inserted into a corresponding history table. Use the **Edit** icon to add the required inventory fields.
History user type	The user type to be used to build the identifiers of objects (activities, inventory, and service requests) that are to be logged into the history.

4. Click **Save**.
   The settings are saved.

Set Your Language

Oracle Field Service has 29 languages available to be set up as your preferred language. Manage the language setting specific to your company requirements.

> **Note:** A few terms (such as words used in report headers) may not get translated to the language selected as the company's preferred language. The languages Afrikaans, Arabic, French (Canada), Hebrew, Persian, and Spanish (Mexico) are not translated by Oracle and the login pages are in shown in English.

1. Click **Configuration** > **Display**
2. Under **Company Language**, click the pencil icon in the **Languages** field.

3. On the **Languages** page, click the plus icon and then select the languages that you want to add as preferred languages.

   These languages are supported:

   - English
   - Afrikaans
   - Arabic
   - Chinese (Simplified)
   - Chinese (Taiwan/Mandarin)
   - Czech
   - Danish
   - Dutch
   - Finnish
   - French (Canada)
   - French (European)
   - German
   - Greek
   - Hindi
   - Hebrew
   - Hungarian
   - Italian
   - Japanese
   - Korean
   - Norwegian
   - Persian
   - Polish
   - Portuguese (Brazil)
   - Romanian
   - Russian
   - Spanish
   - Spanish (Mexico)
   - Swedish
   - Turkish

     The remark, '* Oracle doesn't provide glossary translation.' indicates that the translations are not available for this language and you must add the translations by yourself.

4. Click **Add** and then click **OK**.
5. From the **Login Screen Language** drop-down list, select the language in which you want to display the login page.
6. Click **Save**.

   The selected language is set.

Themes

A theme defines the look and feel of the user interface. You can use the standard themes namely Classic, Vanilla, and Redwood. Or, you can create a theme based on your organization's branding colors.

View Themes

You can create custom Themes that use your own logos as headers in the user interface, including the Login page. In addition, you can define a custom theme color, which appears as the header. The Themes visibility controls the access to Themes. For each user type that manages Themes, set the Read/Write permissions. When you set the visibility to ReadOnly, the Themes page is grayed, and when you don't grant the visibility, the Themes page is not visible at all.

1. Click **Configuration**.
2. In the **Displays** section, click **Themes**.
   The Themes page appears and displays these fields:

Field	Description
Name	The name of the theme.
Default	Displays whether the theme is selected as the default theme. The default theme has a check mark next to it. When you click **Select default**, you can set whether all users or only new users will have this theme set as the default.
Active	Displays whether the theme is active. An active theme has a check mark next to it. The **Set enable** or **Set disable** actions determine whether the theme is active or not.
Actions	Displays the actions available for the Theme. These actions are available: o Edit – Allows editing the options for the selected theme. See the Add a Theme section for an explanation of the options. o Set default - Sets this theme as the default theme. You can set whether all users or only new users will have this theme set as the default. o Set enable - Enables a currently disabled theme. o Set disable - Disables a currently enabled theme. o Export – Exports the details of the theme to a zip file. The zip file can be used to import the theme into another Oracle Field Service instance. o Delete – Deletes the theme.

Add a Theme

You can create custom Themes to use your own logos as headers in the user interface and use your branding colors for the application page background, header, and the Submit button. The Themes visibility controls the access to the Themes. For each user type that manages Themes, set the Read/Write permissions. When you set the visibility to ReadOnly, the Themes page is grayed, and when you don't grant the visibility, the Themes page is not visible at all.

1. Click **Configuration**.

2. In the **Displays** section, click **Themes**.
   The **Themes** page appears.
3. Click **Add new**.
   The **Add theme** dialog box appears.
4. Complete these fields:

Field	Action
Name	Enter a name by which you want to identify the theme.
Logo tab	
Logo	Select the logo in .png format. This logo is used with pages of width 1024 and more, or between 320 and 768.
Logo for Login page	Select the logo in .png format. This logo is used in the login portal.
Color scheme	
Header color	Select the color for the application header. Click this field and select a color from the color editor. Or, enter the hexadecimal code for the color. The selected color is displayed in the preview section.
Page background color	Select the color for the application page. Click this field and select a color from the color editor. Or, enter the hexadecimal code for the color. The selected color is displayed in the preview section.
Submit button color	Select the color for the Submit button. Submit buttons across the application are displayed in this color. Click this field and select a color from the color editor. Or, enter the hexadecimal code for the color. The selected color is displayed in the preview section.

5. To reset the colors, click **Set default**.
6. Click **Save**.

Results:

The page background and the **Submit** button colors are applied to the pages that are mainly used by field resources, such as **Activity details**, **Inventory details**, **Activity list**, and forms. The colors won't be shown on these groups of pages:

- Pages on which the content takes the entire screen width, for example, Dispatch console, Manage, Maps, and Calendars.
- Configuration pages.
- Pages that have their own specific background, for example, About, Dashboard.
- Hints and context-menus.

Where is My Technician

Where is My Technician lets you send a URL to your customers, through which they track the status of their ordered service. Where is My Technician is available as a theme on the **Configuration** > **Themes** page. You can configure the Where is My Technician pages with your organization's branding and set whether your customer can track a technician on the map, see the technician's details, and provide feedback when the technician completes the job.

Note: Where's My Technician functionality is not available for Contingent Workers.

You can perform these tasks with the Where is My Technician feature:

- Send a tracking URL in the appointment confirmation and reminder emails
- Show the details of the appointment, service address, and day/time of arrival
- Show a custom name for technicians, for example, Mr. William or Will
- Show or hide the technician's photo
- Show or hide the technician's position on the map
- Show custom technician and customer location markers on the map
- Show the estimated arrival time of the technician
- Let customers track the technician's location in near real-time
- Allow or block providing feedback after a technician's visit
- Allow chatting through the Smart Chatbot
- Configure branding for the tracking web page
- Customize the text for the tracking page

How to Use the Feature?

The Where is My Technician feature is available if you have an Oracle Field Service Professional or an Oracle Field Service Enterprise subscription with Google Maps. The feature is not yet available for your subscriptions with Oracle Maps.

Where is My Technician is a theme that is available on the **Configuration** > **Themes** page. When you configure this theme, you can send a URL to your customers, which they can use to track the technician. When your customers open the tracking URL, the page refreshes automatically every five seconds to display the latest information. If you change the fields on the theme, the new fields display when the customer refreshes the tracking page. Your customers can view the technician's details from the time the technician is assigned to the activity, but they track the technician's route only when the technician is on the way to the activity. To track the technician's location on the map, we recommend that your customers use the Oracle Field Service Installed Application with location sharing enabled.

Although the Where is My Technician theme supports all types of activities, we recommend that you do not use it for segmentable activities. The Where is My Technician theme includes the Scheduled, Days before, On the way, Arrived, and Feedback pages. However, for your customers it is just one page and the information on the page corresponds to the status of the activity at that time:

- Scheduled: The activity is created in a bucket and the Service window/Delivery window is set.
- Days Before: A technician is assigned (and can be also changed) and the Service Window is known.
- On the Way: The technician has started the day (activated the route) or has finished (Completed, Not done, Suspended, or activity reordered) the previous activity and the time of arrival (ETA) is available. Be aware that when the 'En route' feature is enabled, the 'On the Way' status shows only for those activities that are in 'En route' status.
- Arrived: The technician has arrived and started the activity.
- Feedback: The technician has changed the activity to Complete or Not done.

After the feedback is submitted, the final message 'Thank you!' is displayed (you can configure the text on the 'Localization' tab). 'Thank you' is also displayed if an activity is canceled. Your customers can see the Where is My Technician page for non-scheduled activities as well, but without the date and time of service.

High-Level Steps to Use The Feature

To use the Where is My Technician feature, you must:

- Create a theme for Where is My Technician.
- Configure the theme with the required branding and other settings.
- Add a placeholder for the URL on your message text.
- Specify the theme label in the URL to determine the theme that you want to be accessed through the tracking link.

Related Topics

- Configure a Color for the En Route Status

Create a Theme for Where is My Technician

You must create a theme for Where is My Technician to add the details that you want to show your customers. You can create multiple themes such as themes according to the services you provide (for example, telephone services, computer repair services), themes based on regional languages, or themes based on the preferences (such as location tracking enabled, feedback enabled). Users with the Oracle Field Service Professional subscription can create a maximum of five themes. And, users with the Oracle Field Service Enterprise subscription can create a maximum of 25 themes.

1. Click **Configuration** > **Themes**.
2. Under **Where is My Technician**, click **Add new**.
3. On the **Add WMT Theme** page, enter a label for the theme.
   Later, you have to add this label to a message scenario to get the URL, so enter a meaningful label.
4. Enter a description for the theme.
5. Click **Add**.
   The **Edit theme** page appears. You can continue with creating the theme, or you can click **Save** and edit it later.

Configure the Where is My Technician Theme

You must configure a theme after you create it. You configure a theme to select a template, specify your branding details, select the tracking details, and decide whether you want to let customers provide feedback for the technician and the service.

Before you start

Before you add the **Feedback** page, ensure that you've created the custom properties to store the feedback comments and rating. You can create the custom properties on the **Configuration** > **Properties** page.

Here's what to do

1. Click **Configuration** > **Themes**.

2. In the **Where is My Technician** section, click **Edit** on the Actions icon for the Where is My Technician theme of your choice.
3. To add branding to the theme, click **Branding** and complete these fields:

Field Name	Action or Description
Theme description	Enter a description for the theme that helps you identify its purpose.
Template	Select the template that you want to use from Bright, Hero, and Minimal templates. Notice that the Scheduled, Days before, On the way, Arrived, and Feedback pages refresh with each detail that you add to the theme.
Main color	Click the hexadecimal number and select a color of your choice. Depending on the template you select, the Main color applies to the elements on the page and some text that must be highlighted. Some text is inverted based on the background color and the placement of the text. If the background is dark then the text can be white, if the background is light colored, then the text is black.
Background color	Click the hexadecimal number and select a color of your choice. This is the background color of the page. Your customers may access this page from their mobile phones and the screen width is limited, so choose the colors carefully. If you've selected the Hero template, then the **Background picture** field becomes available and you can upload a custom picture.
Company logo	Click **Browse** and select a file with the extension JPEG, PNG, GIF, TIFF, or SVG. You can select a file of maximum size 100 KB. This logo is displayed at the top of the page.
Company favicon	Click **Browse** and select a file with the extension ICO or PNG. You can select a file of maximum size 30 KB. This is the small icon is displayed on the web page header. It is typically a smaller image of your organization or product logo. You can configure the browser tab name in the **Company** field on the **Localization** tab. It will be shown next to the favicon.
Custom domain name	Enter the domain name that you want to use in the Where is My Technician URL. For example, https://wmt.example.com/k694jg. Here, k694g is the unique token. **Note:** If the Custom domain name field is empty, then the Where is My Technician URL can't be opened in an iFrame.

4. To specify attributes such as arrival time and technician's photo, click **Attributes** and complete these fields:

Field Name	Action or Description
Arrival time	Select one of these values to define the technician's time of arrival: ○ Do not display: Select this option to hide the arrival time on the Where is My Technician page.

Field Name	Action or Description
	○ Communicated Window, Delivery window, Service window: Select this option to let the application choose the available value according to the activity status, value availability, and their priority: - Communicated Window: ○ Delivery Window ○ ETA ○ Service Window ○ Value returned through an outbound response message - Delivery Window - Service Window You can configure the arrival time further using the {ARRIVAL_TIME_RANGE} place holder. For more information on the {ARRIVAL_TIME_RANGE} place holder on the Localication tab, see the Available Placeholders on the Localization Tab topic. ○ Communicated Window: Select this option to display the time you've informed your customer that the technician would arrive. The application doesn't update this value automatically. The options are: - Delivery Window - ETA - Service Window - Value returned through an outbound response message ○ Delivery window ○ Service window ○ ETA You can configure the 'ARRIVAL_TIME_RANGE' placeholder to configure the value that you want to use for Communicated Window. If the Delivery Window, Service window, or ETA is empty, then the arrival time isn't shown on the page.
Type of service	Select one of these values: ○ Do not display: Select this option to hide the type of service that the technician is going to perform. ○ Activity type: Select this option to display the activity type as the type of service.
Customer address	Select one of these values: ○ Do not display: Select this option to hide the customer's address. ○ Customer address: Select this option to display the customer's address on the Where is My Technician page. This field includes the Address, City, ZIP/Postal Code, and State fields. If any of these values is empty, then it isn't shown on the page.
Technician name	Select whether you want to display the technician's name or the credence. You can choose any custom resource property that has the GUI set as Text element. **Note:** The Where is My Technician functionality isn't available for Contingent Workers.
Show technician photo	Select the check box to display the technician's photo. If you don't select the check box, no photo is shown. Be aware that the photo available in the **Avatar** field of the **Resource Info** page is used as the technician's photo.

5. To add the map details, click **Map** and complete these fields:

Field Name	Action or Description
Customer position	Select one of these values: o Do not display: Select this option to hide the customer's coordinates on the map. When you select this option, the technician's position is also hidden. Use the **Customer address** field on **Attribute** tab to hide the customer's address on the page. o Exact: Select this option to display the exact position of the customer on the map. o Approximate: Select this option to display a bubble around the customer's location on the map.
Customer icon	Select an icon from the drop-down list or, click **Browse** and select a custom icon. This icon indicates the location of the activity. If you select an icon from the drop-down list, its color changes according to the color you've selected in the **Branding** tab. If you select a custom icon, you can also select the position of the icon on the map.
Technician position	Select one of these values: o Do not display: Select this option to hide the technician's coordinates on the map. o Show with driving track: Select this option to display the technician's driving track, while showing the exact position of the customer on the map. o Show without driving track: Select this option to display the technician icon without the driving track, when you've selected the customer position as 'Exact' or 'Approximate'. When you've selected the customer's position as Approximate, the technician icon is available till the technician hits the bubble on the map. After that the technician icon is hidden. If Google sends the navigation details and the technician has shared their location, Oracle Field Service uses that data. If the technician hasn't shared their location, or if Google hasn't sent the navigation details, Oracle Field Service uses the ETA (Start Time - Current-Time) to derive the estimated duration. The behavior is further clarified here: o Shows the ETA (expected time of arrival) from Oracle Field Service (StartTime - Current time), if Google hasn't yet sent the navigation details and ETA. In this case, only the customer icon shows on the map and ETA from Oracle Field Service. o Shows Google ETA as soon as it's available, then the route is available on the map, with the ETA from Google. In this case, the technician icon with route displays on map and ETA updates to Google's ETA. o If the technician becomes offline, the last position is remembered and shown. In this case, the user who opens the link sees the ETA to the technician's last position and as soon as the technician becomes online, the ETA is updated. This means that the ETA may be about 4 hours and may suddenly become about 20 minutes, because the technician's actual position is updated.
Do not show position	Enter the number of minutes for which you want to hide the technician's position after they complete the previous appointment or after they activate the route. The activity status of the previous activity can be Complete, Note done, Canceled, Suspended, or the activity is reordered. As soon as the set time is over, the technician icon is shown on the map. This helps you hide the coordinates of the previous customer or the technician's home location. This field is set to 0 (zero) by default, which means, the technician's position is shown immediately after the technician completes the previous appointment.
Technician icon	Select an icon from the drop-down list or, click **Browse** and select a custom icon. This icon indicates the technician's location. If you select an icon from the drop-down list, its color changes according to the color you've selected in the **Branding** tab. If you select a custom icon, you can also select the position of the icon on the map. You can use real car icons and show the car changing direction according to the route. Be aware that the anchor for these icons is in the center. If a technician doesn't share the location, or is offline for a long time, then only the customer's location is displayed on the map. If neither the technician's location nor the customer's location is available, only a blue map is displayed.

6. To change the text that's displayed on the Where is My Technician page, click **Localization** and complete these steps:
    a. Click **Locale** and select the locale based on which you want to display the date and time. For more information on the languages and locales supported, see Default Translations and Date-Time Format.
    b. In each field, enter the text that you want to display, based on your business requirements. These values are always displayed in English.
    c. Click the question mark icon to view the description and default text of the field.
    d. Place the cursor at the required position, click the question mark, and then click **Available placeholders**. The data field is inserted at the selected location. Let's say you want to change '{TECHNICIAN_NAME} is your technician.' to 'Your technician is '{TECHNICIAN_NAME}'. Delete the existing text and add 'Your technician is'. Place the cursor after 'is'. Click the question mark icon and then click '{TECHNICIAN_NAME}' under **Available placeholders**.
    e. Optionally, clear the custom text to view the default text.
7. To add the **Feedback** page, click **Feedback** and complete these fields:

Field Name	Action or Description
Enable feedback	Select this check box to let your customers send feedback. Your customers can see the **Feedback** page even after the appointment is completed. You can configure the duration for which the page is available using the **Allow offline sync and update activities after overnight within the following amount of hours** setting on the **Business Rules** page. The duration within which your customers can save the feedback is calculated as the sum of the values of the **Overnight work** and **Allow offline sync and update activities after overnight within the following amount of hours** settings on the **Business Rules** page and your organization's time zone difference. If the **Allow offline sync and update activities after overnight within the following amount of hours** setting isn't enabled, or the time range that's specified on the **Business Rules** page is over, then the **Feedback** page isn't displayed.
Feedback mode	Select how you want to receive the feedback. You can choose from Comment and Rating, Comment, and Rating.
Property for saving comments	Select the property that you want to use to store the comments. Use only string type of custom activity properties for comments.
Property for saving rating	Select the property that you want to use to store the ratings. Use only integer type custom activity properties that have the GUI as Text for ratings.
Localization	Change the text that you want to display on the **Feedback** page. For more information on this, see Step 6.

8. To provide more options to your customers on the Where is My Technician page, click **Interaction** and complete these fields:

Field Name	Action or Description
Enable Cancel	Select this check box to let your customers cancel the activity. Then, add the text for the confirmation page. **Cancel** is available for an activity that's in Pending status. **Cancel** is hidden as soon as the activity status changes to Started. For more information about how to use the feature for specific activity types, see the *Enable the Cancel Feature for Specific Activity Types* topic.
Enable chatbot	Select this check box to let your customers chat with a chatbot. Ensure that you've a license for Oracle Digital Assistant. Verify that your administrator has created a web channel and configured the chatbot flow in Oracle Digital Assistant. Get the values of Channel URI and Channel ID from Oracle Digital Assistant.

9. Click **Save**.
   Your settings are saved and the Where is My Technician theme is created.

Related Topics

- What placeholders are available on the Localization tab?

Enable the Cancel Feature for Specific Activity Types

You can configure the **Cancel** feature for specific activity types such as Repair and Maintenance, and let users cancel the activities themselves. Further, you can allow only the Repair type of activity to be canceled and not the Installation type. When you do this, the Installation type of activity does not show the **Cancel** button.

1. Create a Where is My Technician theme for the *Installation* work type and deselect the **Enable Cancel** check box.
2. Create a separate Where is My Technician theme for the *Repair* work type and select the **Enable Cancel** check box.
3. Create separate Message Scenarios for Installation and Repair using the corresponding theme labels. Add a blocking condition for Activity Type [aworktype] in the **Blocking Conditions** tab.

Add a Tracking URL to a Message Scenario

When your customers order a service, you notify them through a message that the service they have ordered is accepted. You add a URL to this message, using which your customers can view the details and track the technician assigned to the activity. For that, you must add a placeholder to the 'Body' of the message step and specify the 'Where is My Technician' theme label.

1. Go to **Configuration** > **Message Scenarios**.
2. Click **Modify** on an existing message step or create a new step.
3. Click **Patterns** and go to the **Body** section.
4. Add the placeholder {{WMT_URL:label_theme}} to the required position in the message body.
   Here, label_theme is the label of the Where is My Technician theme that you want to use. There can only be one theme used per activity. So, if you have used more then one theme label for the same activity in different message steps, the theme in the last delivered message is used. If the message step has a typo in the placeholder, then the URL is not created (you can see this on the Message page). If the placeholder contains a nonexistent theme label or extra symbols, then the default theme is applied for the generated URL.

   > **Note:** Make sure the placeholder {{WMT_URL:label_theme}} contains the double braces and doesn't have extra symbols (including spaces) between and after Label.

5. Click **Save**.
   The WMT_URL placeholder is replaced with a unique tracking URL, when the message step is launched. The URL consists of the domain and a secure token that is specific for the activity. For example, https://w.etadirect.com/a784hk596 where https://w.etadirect.com/ is the domain and a784hk596 is the secure token. This URL is available till the activity date and three days after. If the activity is rescheduled to a future date, you can use the 'Activity is moved' launch condition. Then, the URL is available starting from the new date. If your end-customer opens the URL after it expires, then they get the message, 'Oops. Seems that this URL is no longer valid and details are not available.' on the page. However, if the customer clicks an active URL for an activity in the past, 'Thank you!' is displayed.

Use Cases and their Launch Conditions

This table gives the launch conditions that you can use, when you create Message Scenarios to add the tracking URL for Where is My Technician.

Scenario	Launch Condition
Confirm a scheduled appointment	'Activity created' when an activity is scheduled on a bucket and is not yet assigned to a field resource.
Introduce a technician assigned to an appointment	'Activity created' when a Field resource is assigned to an activity or when an activity is re-assigned to another resource.
Remind about a service days before	'There is a specified number of days prior to activity' or other from the Reminders section to notify that the scheduled service date is approaching.
Notify if the technician has changed	'Activity created' if the activity is re-assigned to another field resource.
Notify if the service has moved to a future date	'Activity is moved' if the activity is rescheduled to a future date. Use this message to make a URL available starting from the day the activity is moved to.
Notify that the technician will arrive soon	'Next activity is about to start' if the technician has completed the previous activity and is on the way to the end-customer.
Request feedback when the technician has finished a service and left	'Activity completed', 'Activity not done', and 'Activity suspended' when you want to ask for feedback.
Resend message if the service or gateway fails	"Sending will time out in" and/or "Number of attempts on 'failed' status"
Cancel an activity	Activity is canceled. You must add a new Blocking Condition, Activity Type [aworktype].

Available Placeholders on the Localization Tab

This table gives the placeholders that you can add to the text on the **Localization** tab of the Where is My Technician theme.

Placeholder	When You Can Use	Values
{TECHNICIAN_NAME}	Available in all activity statuses except "notAssigned". Can be used for translations: • First line of status text shown when the activity is already assigned to a technician Default value: Will arrive between	Holm, Billy Mr. Billy Billy

Placeholder	When You Can Use	Values
	• Second line of status text shown when the activity is already assigned to a technician Default value: {ARRIVAL_TIME_RANGE} • First line of status text shown when the technician is on the way Default value: Arriving in about • Second line of status text shown when the technician is on the way Default value: {ETA} • Technician info text when the appointment is assigned Default value: {TECHNICIAN_NAME} is your technician • Technician info text when the technician is on the way Default value: {TECHNICIAN_NAME} is on the way • Technician info text when the technician has arrived Default value: {TECHNICIAN_NAME} has arrived • Feedback form ratio field title Default value: How was {TECHNICIAN_NAME}'s service?	
{ETA}	Available for "onTheWay" activity status. ETA is calculated based on Google data. If Google data is not available, then Oracle Field Service ETA is used. Can be used for translations: • First line of status text shown when the technician is on the way Default value: Arriving in about • Second line of status text shown when the technician is on the way Default value: {ETA} To use the {ETA} placeholder, you must ensure that the resource and your customer are in the same time zone.	2 hours 42 minutes less than 1 minute The ETA is always displayed in English.
{ARRIVAL_TIME_RANGE}	This place holder is applicable only if you select the 'Time notified, Delivery window, Service window' option for **Arrival time** on the **Attributes** tab. Available for "notAssigned" and "assigned" activity statuses and when delivery window or service window are not empty. Can be used for translations: • For "notAssigned" activities the arrival window is used according to the availability of these values and their priority: a. Time Notified: i. Service window ii. Value returned via Outbound response message b. Service Window Default value of the first line of the status text shown when the activity is ordered and isn't assigned to a technician yet: A technician will arrive between. Default value of the second line of the status text shown when the activity is ordered and isn't assigned to a technician yet: {ARRIVAL_TIME_RANGE}	8:15 AM - 8:45 AM

Placeholder	When You Can Use	Values
	• For the activities assigned to a technician, the arrival window is used according to the availability of these values and their priority: a. Time Notified: i. Delivery Window ii. ETA iii. Service Window iv. Value returned via Outbound response message b. Delivery Window c. Service Window Default value of the first line of the status text shown when the activity is already assigned to a technician: Will arrive between Default value of the second line of the status text shown when the activity is already assigned to a technician Default value: {ARRIVAL_TIME_RANGE} For more information about how to use 'Time Notified', see the How to Use 'Time Notified' topic.	

Related Topics

- How do I configure the Where Is My Technician theme?
- How do I use 'Communicated Window'?

How do I use 'Communicated Window'?

You can show **Communicated Window** on the {ARRIVAL TIME RANGE} placeholder. You can set the value for **Communicated Window** through a Message Step with the Outbound API using 'send_message'. If you set the value, it will be used on the Where's My Technician page, instead of the Delivery Window or Service window. If **Communicated Window** isn't populated, then Delivery Window or Service window is shown. You can choose to use ETA, Delivery Window, or Service Window as **Communicated Window**. For example, you can save the ETA, which you communicated to your customer the Where is My Technician page shows this time, even if the technician adjusts the previous activity. This way, the feature also prevents the application from updating the agreed time automatically.

1. Navigate to **Configuration** > **Message Scenarios**.
2. Open the message scenario that you've configured for Where is My Technician.
   If not configured, set the Recipient to **Customer** in the **Settings** Tab.
3. Select the **Customer notification time** field and select the value that you want to display for Communicated Window.
   You can select either Service window, Delivery Window, or ETA. You can set a custom window using the Outbound API ‘send_message’. For using ‘send_message’, see the Outbound API documentation.
4. Open the Where is My Technician theme and go to the **Localization** tab. Click the **{ARRIVAL TIME RANGE}** placeholder.
   {ARRIVAL TIME RANGE} is available only for "Not Assigned" and "assigned" activity statuses. The value you've selected for **Customer notification time** in the message scenario is shown on the Where is My Technician page.

If you've configured the **Communicated Window** field to receive the value from an outbound API response using ‘send_message’, it's displayed.
The {ARRIVAL TIME RANGE} shows the arrival window according to availability of these values and their priority:

> **Note:** If ‘Communicated Window’ is set with a custom window, this value isn't removed or changed if the activity is moved to another resource or bucket. You must consider this behavior in your design and make any necessary updates to the window according to your business process.

Page	Activity on the Bucket (Not Assigned)	Activity Assigned to a Technician (Assigned)
Days before screen	a. Communicated Window: - Service window - Value returned via Outbound response message b. Service Window	a. Communicated Window - Delivery window - ETA - Service window - Value returned via Outbound response message b. Delivery Window c. Service window

Use Notification Channels

You can send the Where is My Technician tracking details through emails that are generated using Message Scenarios, through email and SMS through gateway services, and through custom delivery channels. The custom delivery channels can be email or web-services that accept SOAP API requests.

1. To use the email notification channel with Message Scenarios:
    a. Click **Configuration** > **Message Scenarios**.
    b. Create or modify a message step.
    c. On the **Settings** tab, select Email for **Delivery Channel**.
    d. Select Customer for **Recipient**.
    e. Click **Patterns** and go to the **Body** section.
    f. Add the placeholder {{WMT_URL: theme_label}} (with double braces) at the point where you want to add the link.

       If you have created a separate theme to enable the Cancel option, remember to use it when required.
    g. If you are using a theme created for the Cancel option, then add a blocking condition for Activity Type [aworktype] in the Blocking Conditions tab.

       This excludes the required types of activities.
    h. Continue with creating or modifying the step.
    i. Click **Save**. When the Message Scenario is launched, the email is sent to the user.

2. To send an SMS using a third-party gateway service through Oracle Integration Cloud:
    a. Define a custom property (for example, X_WMT_MESSAGE) to store the tracking URL.
    b. Configure Oracle Integration Cloud to read the custom property for tracking URL and the customer's phone property. Configure it to send messages using third-party tools, such as, Twilio OIC Adapter or Oracle Cloud Integration.
    c. Click **Configuration** > **Message Scenarios**.
    d. Create or modify a message step.
    e. On the **Settings** tab, select Set Property for **Delivery Channel**.
    f. Select Customer for **Recipient**.
    g. Click **Patterns** and go to the **Body** section.
    h. Specify the property label (for example, X_WMT_MESSAGE) in the **Subject** section.
    i. Click **Save**. When the Message Scenario is launched, the SMS is sent to the phone number.

Related Topics

- Enable the Cancel Feature for Specific Activity Types

Verify Whether the URL is Generated for the Message Step

Sometimes, you may want to verify whether a message was generated with the tracking URL and sent to the customer. You can use the **Messages** button on the **Activity details** page to verify.

1. Configure the **Messages** button for the **Activity details** page.
2. Open the **Activity details** page for the activity for which the customer has to get the tracking URL.
3. Click **Messages**.
4. Use the Status, Delivery channel, Recipient, or Any filters.
   The messages that match the criteria appear.
5. Find the message step for which you want to verify the URL.
6. Click a line of the message step and verify the Body text of the message.
   The URL must be present.

View Activities Canceled Through the Where is My Technician Page

When your customer cancels an activity through the Where is My Technician page, you can determine that it is canceled by your customer, on the Activity details page.

1. Open the **Activity details** page for the activity that is canceled by your customer.
2. Go to the **History** tab.
3. Look for the line item that has WMT(customer) in the **User** column.

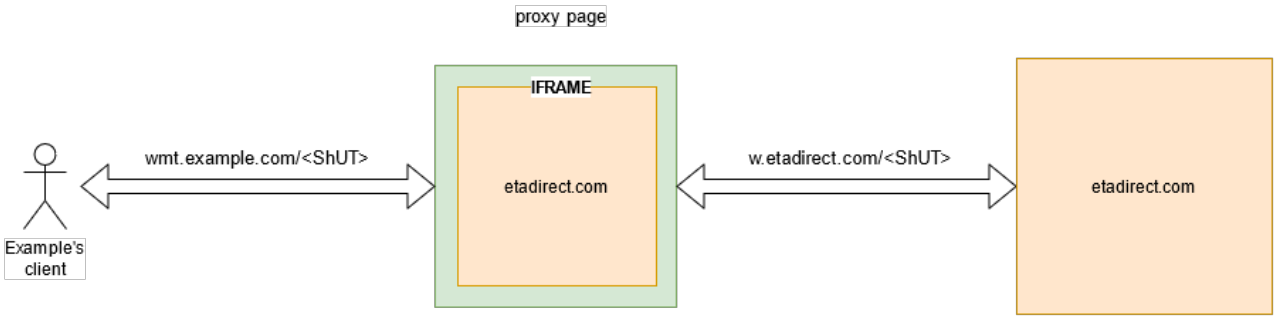
Configure a Custom Domain for the Where is My Technician URL

You can set a custom domain name to brand your Where is My Technician URL with your company name.

1. Add a domain name for the Where is My Technician theme.
    a. Click **Configuration** > **Themes**.
    b. Click the menu and then click **Edit** for the theme in which you want to add the custom domain.
    c. Click **Branding**.
    d. In the **Domain Name** field, type the name that you want to display in the Where is My Technician URL.
    For example, type <https://wmt.example.com/k694jg>, where <wmt.example.com> is the domain and <k694jg> is a unique token.

    > **Note:** If the Custom domain name field is empty, then the Where is My Technician URL cannot be opened in an iFrame.

2. Configure the HTTPS web server with a proxy page.
    a. Configure your web server to route all the requests to the index page.
    b. Add the index.html page to the root of the web server.
    For more information on an example of NGINX configuration, see *Example of NGINX Configuration* and for information on how to open the Where is My Technician URL with a custom domain in an iFrame, see *Example of How You Can Open a Where Is My Technician URL With a Custom Domain in iFrame*. This flowchart shows how a custom domain is opened in an iFrame:



Default Translations and Date-Time Format

Where is My Technician supports the default translations and date and time format for these languages:

Arabic locales:

Language	Locale	Date/time format
Arabic	United Arab Emirates Bahrain Algeria Egypt Iraq Jordan Kuwait Lebanon Libya Morocco Oman Qatar Saudi Arabia Sudan Syrian Arab Republic Tunisia Yemen	الخميس، ١٧ ديسمبر ٢٠٢٠ ٣:٢٤:٠٠ ص الخميس، ١٧ ديسمبر ٢٠٢٠ ٣:٢٤:٠٠ ص الخميس، 17 ديسمبر 2020 3:24:00 ص الخميس، 17 ديسمبر 2020 3:24:00 ص الخميس، ١٧ ديسمبر ٢٠٢٠ ٣:٢٤:٠٠ ص الخميس، ١٧ كانون الأول ٢٠٢٠ ٣:٢٤:٠٠ ص الخميس، ١٧ كانون الأول ٢٠٢٠ ٣:٢٤:٠٠ ص الخميس، ١٧ ديسمبر ٢٠٢٠ ٣:٢٤:٠٠ ص الخميس، ١٧ كانون الأول ٢٠٢٠ ٣:٢٤:٠٠ ص الخميس، 17 ديسمبر 2020 3:24:00 ص الخميس، 17 دجنبر 2020 03:24:00 الخميس، ١٧ ديسمبر ٢٠٢٠ ٣:٢٤:٠٠ ص الخميس، ١٧ ديسمبر ٢٠٢٠ ٣:٢٤:٠٠ ص الخميس، ٢ جمادى الأولى ١٤٤٢ هـ ٣:٢٤:٠٠ ص الخميس، ١٧ ديسمبر ٢٠٢٠ ٣:٢٤:٠٠ ص الخميس، ١٧ كانون الأول ٢٠٢٠ ٣:٢٤:٠٠ ص الخميس، 17 ديسمبر 2020 3:24:00 ص الخميس، ١٧ ديسمبر ٢٠٢٠ ٣:٢٤:٠٠ ص

Czech, Danish, German, Greek, and English locales:

Language	Locale	Date/time format
Czech	Czech Republic	čtvrtek 17. prosince 2020 3:24:00
Danish	Denmark	torsdag den 17. december 2020 03.24.00
German	Austria	Donnerstag, 17. Dezember 2020, 03:24:00
	Switzerland	Donnerstag, 17. Dezember 2020, 03:24:00
	Germany	Donnerstag, 17. Dezember 2020, 03:24:00
	Luxembourg	Donnerstag, 17. Dezember 2020, 03:24:00
Greek	Cyprus	Πέμπτη, 17 Δεκεμβρίου 2020, 3:24:00 π.μ.
	Greece	Πέμπτη, 17 Δεκεμβρίου 2020, 3:24:00 π.μ.
English	Australia	Thursday, 17 December 2020, 3:24:00 am
	Canada	Thursday, December 17, 2020, 3:24:00 a.m.
	United Kingdom of Great Britain and Northern Ireland	Thursday, 17 December 2020, 03:24:00
	Ireland	Thursday 17 December 2020, 03:24:00
	India	Thursday, 17 December, 2020, 3:24:00 am
	Malta	Thursday, 17 December 2020, 03:24:00
	New Zealand	Thursday, 17 December 2020, 3:24:00 am
	Philippines	Thursday, 17 December 2020, 3:24:00 am
	Singapore	Thursday, 17 December 2020, 3:24:00 am
	United States of America	Thursday, December 17, 2020, 3:24:00 AM
	South Africa	Thursday, 17 December 2020, 03:24:00

Finnish, French, Hindi, Hungarian, Italian, and Japanese locales:

Language	Locale	Date/time format
Finnish	Finland	torstaina 17. joulukuuta 2020 klo 3.24.00
French (European)	Belgium	jeudi 17 décembre 2020 à 03:24:00
	Canada	jeudi 17 décembre 2020 03 h 24 min 00 s
	Switzerland	jeudi, 17 décembre 2020 à 03:24:00
	France	jeudi 17 décembre 2020 à 03:24:00
	Luxembourg	jeudi 17 décembre 2020 à 03:24:00
Hindi	India	गुरुवार, 17 दिसंबर 2020, 3:24:00 am
Hungarian	Hungary	2020. december 17., csütörtök 3:24:00
Italian	Switzerland	giovedì, 17 dicembre 2020, 03:24:00
	Italy	giovedì 17 dicembre 2020, 03:24:00
Japanese	Japan	2020年12月17日木曜日 3:24:00

Korean, Dutch, Norwegian, Polish, Romanian, Russian, Swedish, and Turkish locales:

Language	Locale	Date/time format
Korean	Korea, Republic of	2020년 12월 17일 목요일 오전 3:24:00
Dutch	Belgium	donderdag 17 december 2020 03:24:00
	Netherlands	donderdag 17 december 2020 03:24:00
Norwegian (Bokmal)	Norway	четверг, 17 декабря 2020 г., 03:24:00
Polish	Poland	czwartek, 17 grudnia 2020, 03:24:00
Romanian	Romania	joi, 17 decembrie 2020, 03:24:00
Russian	Russian Federation	четверг, 17 декабря 2020 г., 03:24:00
Swedish	Sweden	torsdag 17 december 2020 03:24:00
Turkish	Turkey	17 Aralık 2020 Perşembe 03:24:00

Spanish locales:

Language	Locale	Date/time format
Spanish	Argentina	jueves, 17 de diciembre de 2020 03:24:00
	Bolivia, Plurinational State of	jueves, 17 de diciembre de 2020 03:24:00
	Chile	jueves, 17 de diciembre de 2020 03:24:00
	Colombia	jueves, 17 de diciembre de 2020, 3:24:00 a. m.
	Costa Rica	jueves, 17 de diciembre de 2020 03:24:00
	Cuba	jueves, 17 de diciembre de 2020 03:24:00
	Dominican Republic	jueves, 17 de diciembre de 2020 3:24:00 a. m.
	Ecuador	jueves, 17 de diciembre de 2020 03:24:00
	Spain	jueves, 17 de diciembre de 2020 3:24:00
	Guatemala	jueves, 17 de diciembre de 2020 03:24:00
	Honduras	jueves 17 de diciembre de 2020 03:24:00
	Mexico	jueves, 17 de diciembre de 2020 3:24:00
	Nicaragua	jueves, 17 de diciembre de 2020 03:24:00
	Panama	jueves, 17 de diciembre de 2020 3:24:00 a. m.
	Peru	jueves, 17 de diciembre de 2020 03:24:00
	Puerto Rico	jueves, 17 de diciembre de 2020 3:24:00 a. m.
	Paraguay	jueves, 17 de diciembre de 2020 03:24:00
	El Salvador	jueves, 17 de diciembre de 2020 03:24:00
	United States of America	jueves, 17 de diciembre de 2020 3:24:00 a. m.
	Uruguay	jueves, 17 de diciembre de 2020 03:24:00
	Venezuela, Bolivarian Republic of	jueves, 17 de diciembre de 2020 3:24:00 a. m.

Hebrew, Chinese, and Portuguese locales:

Language	Locale	Date/time format
Hebrew	Israel	17 6:24 ,2019 באוקטובר
Portuguese	Brasil	17 de dezembro de 2020 03:24:00
	Portugal	17 de dezembro de 2020 03:24:00
Chinese	Simplified	2019年10月17日 上午6:24
	Traditional	2019年10月17日 上午6:24

Example of NGINX Configuration

Use the sample code provided here to configure your web server to route all requests to the index page.

```
server {
 listen 80;
 server_name wmt.example.com;

 location / {
 root /usr/share/nginx/html;
 try_files $uri /index.html;
 }
}
```

Example of How You Can Open a Where Is My Technician URL With a Custom Domain in iFrame

Use the sample code provided here to configure the Where is My Technician URL with a custom domain name to open in iFrame.

```
<!DOCTYPE html>
<html>

<head>
 <title>WMT within iframe</title>
 <style type="text/css">
 html {
 overflow: auto;
 }

 html,
 body,
 div,
 iframe {
 margin: 0px;
 padding: 0px;
 height: 100%;
```

```
 border: none;
 }

 iframe {
 display: block;
 width: 100%;
 border: none;
 overflow-y: auto;
 overflow-x: hidden;
 }
 </style>
</head>

<body>
 <iframe id="wmt-chrome"
 src="#"
 frameborder="0"
 marginheight="0"
 marginwidth="0"
 width="100%"
 height="100%"
 scrolling="auto">
 </iframe>
</body>

<script type="text/javascript">
 document.getElementById('wmt-chrome').setAttribute('src', 'https://{custom_domain_name}' +
 window.location.pathname);
</script>

</html>
```

How can I get notified when negative feedback is submitted?

You can use this best practice to configure Oracle Field Service to notify dispatchers when your customers provide negative feedback on the Where's My Technician page.

Before you start

You must select the **Enable Feedback** check box on the **Feedback** page in the Where's My Technician theme for this procedure to work.

Here's what to do

1. Create a Message Scenario named manage_negative_feedback with the Launch Condition *Activity Completed*.

2. Create these message steps to verify the feedback value in the feedback property:
    a. Create the first verification scenario step.
        i. Click **Add new** in the **Scenario steps** section of the manage_negative_feedback Message Scenario.
        ii. Select Collaboration from the **Delivery Channel** drop-down list and Use static address in the **Recipient** drop-down list. You can also select Email.
        iii. Click **Add new** and select a helpdesk group, which is designated to manage feedback responses.
        iv. Select **Deliver to Helpdesk**.
        v. Select Time of event in the **Sending time** field.
        vi. Choose the period for feedback verification. For this, enter a value in the **Sending delay** field. After this delay, the message step verifies if there is a feedback response for the first time.
        vii. In the Patterns tab, configure the message text that is delivered to helpdesk operators. Specify the properties used for Rating and Comments. Use placeholders to add the details for the activity and technician. Ensure that you use the right format for custom properties. For example, Rating: {pr_wmt_rating}, Comment: {pr_wmt_comments}).
        viii. Configure the star rating level that triggers a message to the helpdesk operator. For this, add these Blocking Conditions:
            - First condition: Select Rating property, set the condition as Empty and Status as Failed. If there is no feedback value, the message is not sent to an operator.
            - Second condition: Select Rating property, set the condition as >2 (greater than 2) and Status as Failed.
    b. Add the next verification step, in case the feedback was not provided during the configured period of time.
    c. Add more steps the same way to check for feedback in 5,10, and 30 minutes.

Results:

Other Recommendations:

- Define who should manage the negative feedback responses. After defining a dispatcher or a group of dispatchers who will receive notifications of negative feedback, either create a new helpdesk group or use an existing one.
- Configure different helpdesk groups for different types of services or lines of business.
- Accept the chat to resolve the feedback issue. As soon as the Where's My Technician Feedback with 1 or 2 stars is submitted, a notification appears for the helpdesk group. All online helpdesk users are notified and can see it. When an operator clicks **Take chat** to deal with the issue, the notification is no longer available to the other operators.

Overview of Using Oracle Digital Assistant with Where is My Technician

You can integrate the Where is My Technician page with Oracle Digital Assistant to perform a variety of tasks in natural language conversations.

Some of the business scenarios you can cover are:

- Reschedule an appointment: Oracle Digital Assistant suggests the available time, asks the user for a reason, and confirms the rescheduling.
- Cancel an appointment: Oracle Digital Assistant asks a user for the reason of and confirms the cancellation.
- Leave Feedback: Oracle Digital Assistant thanks for a good rating and asks the reason for bad feedback.

- Share the good Feedback on company sites: Oracle Digital Assistant asks for posting good feedback on your organization's profiles such on Google, Twitter, Amazon, and so on.
- Notify a technician about the details: Oracle Digital Assistant can send a message from the user. This is saved as a note for the technician.

Note: The Sample skill is sample code and demonstrates how Oracle Digital Assistant can help users on the Where is My Technician page. It's neither maintained nor supported by Oracle as a licensed product.

Before You Begin with Oracle Digital Assistant

Before continuing with the next steps, you need:

- An Oracle Field Service instance that has the 'Where is My Technician' feature and the **Enable Oracle Digital Assistant** setting enabled for the feature.
- An Oracle Digital Assistant instance platform version 20.06 or higher.

Define the Skills You want to Use

Before you start configuring Oracle Digital Assistant, you must have a clear idea of the skills that you want to provide through the assistant.

This table provides the list of skills and their descriptions:

Skill	Description
Reschedule	The assistant suggests the available time, asks the user for a reason, and confirms the rescheduling. This Oracle Digital Assistant skill uses the time slots that are configured in Oracle Field Service. After the user (your customer) confirms, the activity moves to the technician's parent bucket with the selected time slot. It will be further routed.
Save reschedule reason	You can save the reason for reschedule to an activity property.
Cancel	The Assistant suggests to cancel an appointment and asks for the cancellation reason. After the user (your customer) confirms, the activity is cancelled.
Save cancel reason	You can save the reason for canceling an activity to an activity property.
Notification to Technician	If the user (your customer) sends a note to the technician through the assistant, it can be added as a note for the activity.
Feedback	If the activity status is completed, the user (your customer) can rate the service and share the feedback. If the user rates the service with stars on the Where is My Technician feedback page, the assistant can understand whether it is positive or negative based on the number of stars set.
Save Feedback in Oracle Field Service	You can save the feedback to an activity property in the application, regardless of whether the feedback is negative or positive.

Skill	Description
Share Feedback on external site	You can share the positive feedback on external sites. You can store the external link at the parent organization unit or the bucket level of the technician who performed the activity.

Configuration Steps

Here are the steps to configure Oracle Field Service to use Oracle Digital Assistant.

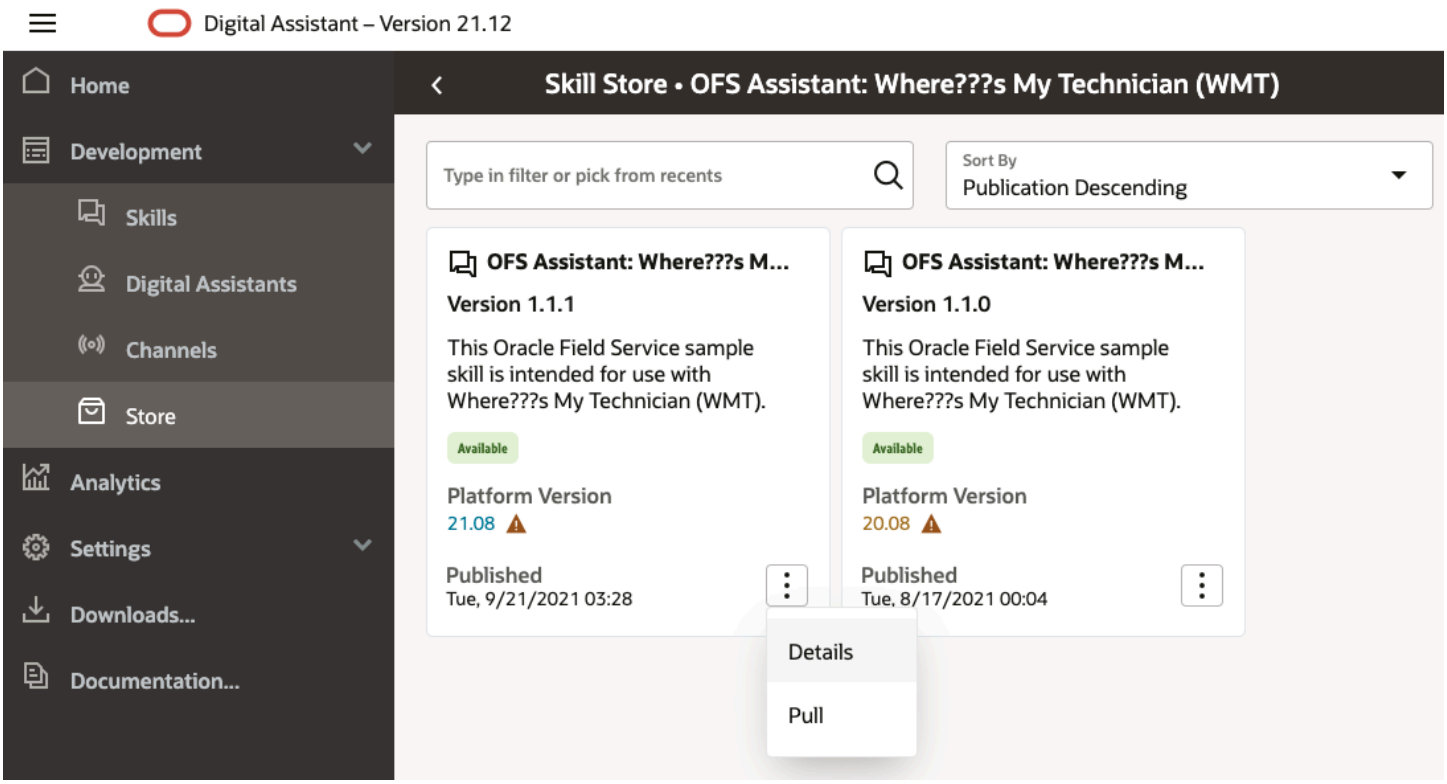
1. Configure Oracle Digital Assistant in the Where is My Technician theme.
    a. Pull the Skill from the Skill Store.
    b. Create a Web Channel in Oracle Digital Assistant.
    c. Add the Channel URI and ID to the Where is My Technician theme.
2. Configure Oracle Field Service API and permissions.
3. Configure the Oracle Digital Assistant skills.
4. Validate the integration.

Pull the Skill from the Skill Store

The first step to integrate Oracle Digital Assistant with the Where is My Technician page is to pull the OFS Assistant: Where's My Technician (WMT) skill from the Skill Store.

1. Log in to Oracle Digital Assistant.
2. Click **Development** > **Store**.
3. Select the "OFS Assistant: Where's My Technician (WMT)" skill and pull it.
   You can pull the skill either from the context menu or the skill details.

4. Find the required skill in the Development section of Oracle Digital Assistant.
   It is ready to be configured now. The Skill Store is as shown in this screenshot:

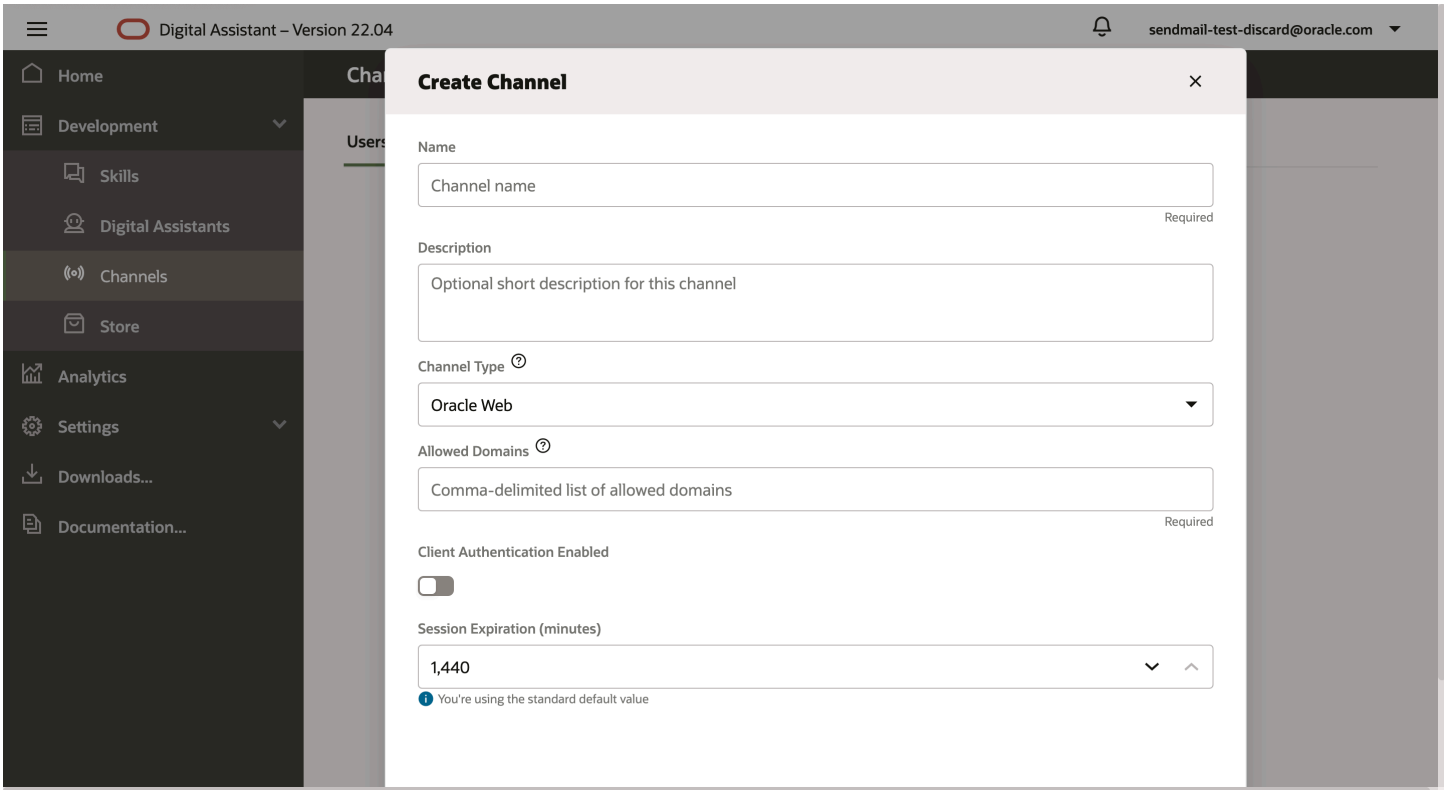


Create a Web Channel

A channel is the one on which you deploy a skill. It carries the chat back and forth from users on various messaging platforms to the digital assistant and its various skill bots. For Oracle Field Service you create a channel using Oracle Web. Oracle Web is a widget that comes with the Digital Assistant Client SDK and lets you run a skill in a web page.

1. Log in to Oracle Digital Assistant.

2. Click **Development** > **Channel** > **Add Channel**.
   For more information, see the Using Oracle Digital Assistant guide. This screenshot shows the Create Channel page:

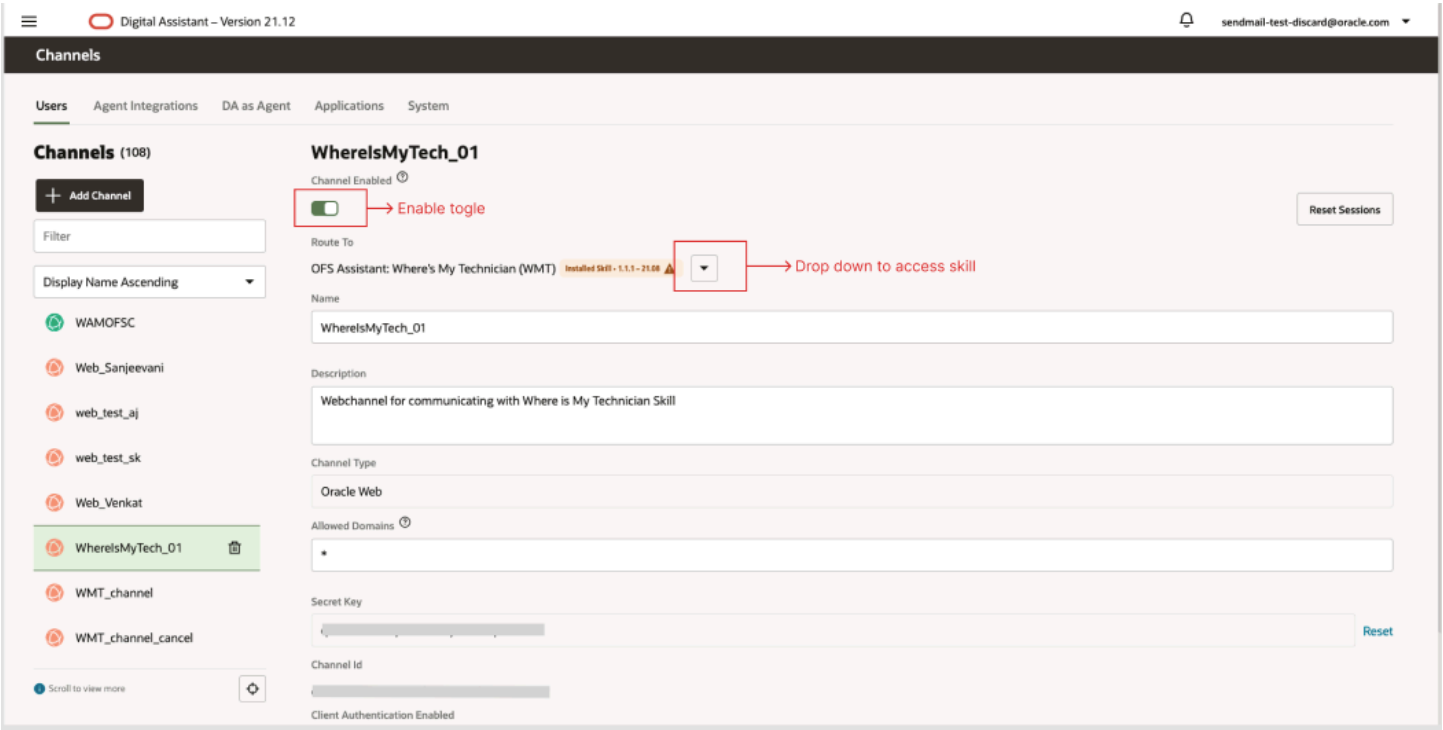


3. Use the values given in this table to configure the channel:

Field	Value
Channel Enabled	Yes
Route to	OFS Assistant: Where's My Technician (WMT) or the skill you have pulled from the Skill Store and imported.
Channel Type	Oracle Web
Allowed Domains	The domain name of your Where is My Technician page. Or, enter an asterisk (*) to allow all domains.
Client Authentication Enabled	No (toggle the button)

4. Click **Create Channel**.

5. Note down the Secret Key and the Channel ID generated on this page.
   This screenshot shows the newly created web channel:



6. On the channel page, under **Channels** in the left pane, select the skill you have imported.
7. Toggle the **Channel Enabled** button and enable the channel.
8. Note down the Channel ID for future reference.

Add the Channel URI and ID on the Where is My Technician Theme

You must enable Oracle Digital Assistant on the Where is My Technician theme to integrate and use it.

1. Log in to Oracle Field Service as an administrator user.
2. Navigate to **Configuration** > **Themes**.
3. Click **Add New** to create a theme or select a theme from the Where is My Technician section.
4. Click the **Interaction** tab.
5. Select the **Enable Oracle Digital Assistant** check box.
6. Enter the Channel URI and the Channel ID.
   Channel URI is the URL of the Where is My Technician page in **Oracle Digital Assistant** > **Channels**. You must use the complete URL (for example, xyz.com). Channel ID is also available on the **Oracle Digital Assistant** > **Channels** page. The Where is My Technician page supports several parameters that are used for skill configuration in Oracle

Digital Assistant. The values of these parameters are passed to the chatbot while opening a Where is My Technician URL.

WMT Page	Parameters passed to the ODA chat during chat initialization
Scheduled, Assigned, On the Way, Arrived or Feedback	○ activityId ○ activityType Send if the 'Show Activity type' feature is enabled for the Where is My Technician theme ○ resourceName ○ customerName
Feedback	Value from 1 to 5 is sent to the chat while submitting the feedback if the Rating is set up for Feedback.

Example of how to use the customerName and resourceName parameters to implement Oracle Digital Assistant skills:

```
component: "System.CommonResponse"
properties:
 metadata:
 responseItems:
 - type: "text"
 text: "Hi ${profile.customerName}! Your technician is ${profile.resourceName}"
```

Configure the APIs and Activity Permissions

You can either use an existing Application, or you can create an Application to add the details of the APIs that you want to access from the OFS Assistant: Where's My Technician (WMT) skill. You must also ensure that some specific features are selected for the activity types for which you create the skills.

1. Click **Configuration** > **Applications**.
2. Click the plus icon, add these details, and then click **Submit**:

Field Name	Description
Application Type	The type of application you want to create. Select **Applications using REST/SOAP API**.
Application Name	Name of the bot that you want to register.
Application ID	A unique ID of the application.

3. On the **Applications** page, click the application that you want to register on the left pane and complete these fields:

Field Name	Description
Application general info section	
Application Name	Name of the third-party application that you want to register. This field is populated automatically.
Application ID	A unique ID for the application. This field is populated automatically.
Active	Status of the Application. Inactive Applications don't authenticate or authorize anyone. When you make an active Application inactive, previously-issued access tokens don't work.

Field Name	Description
Token Service	Type of token service or identity provider the Application uses. Default is OFSC.

4. Select **Authenticate using Client ID/ Client Secret** under **Authentication** settings. Note down the Client ID and Client Secret that are generated.
5. Click **Add new** next to API access. Select Core API and Metadata API and click **Submit**.
6. Click the stack icon next to Core API and then click **Available entities**. Select these visibilities for these entities:
    - Select Read-Write for the Activity entity.
    - Select Read-Only for the Resource entity.
    - Select Read-only for the User entity.
7. Click the stack icon next to Metadata API and then click **Available entities**. Select these visibilities for these entities:
    - Select Read-Only for the Activity type entity.
    - Select Read-only for the Property entity.
8. Click **Save**.
9. To enable permissions for the activity types:
    a. Click **Configuration** > **Activity Types**.
    b. Click **Modify** against the type of activity for which you want to modify the permissions.
    For example, if you want users to cancel or reschedule only free maintenance activities, select the corresponding activity type.
    c. Select the Support of time slots, Allow reschedule, Allow move between resources features.
    d. Click **Update**.
    e. Repeat this for all the activity types that you want to use with the OFS Assistant: Where's My Technician (WMT) skill.

Create Custom Properties to use with Oracle Digital Assistant

To integrate with Oracle Digital Assistant and store data in Oracle Field Service from a conversation, you must create several activity and resource properties. These properties are also configured as default for all the flows in the skill. These properties are mapped to the skill custom parameters that are used for all the features. Your data will not be saved if you do not create these properties.

1. Click **Configuration** > **Properties**.
2. Click **Add new**.
3. Create these string properties:

Label	Entity	Type	GUI	Description
XA_ODA_CANCEL_REASON	activity	string	text	Used to save the reason for cancelation provided by the user
XA_ODA_RESCHEDULE_REASON	activity	string	text	Used to save the reason for rescheduling provided by the user
XA_ODA_FEEDBACK_COMMENT	activity	string	text	Used to save the Feedback Comment provided by the user

Label	Entity	Type	GUI	Description
XA_ODA_MESSAGE_2TECH	activity	string	text	Used to save a notification message from the User to the Technician
XR_ODA_EXT_REVIEW_URL	resource	string	text	Property defined for the resource. If you set this for the resource's parent (following the resource's hierarchy), the URL will be provided to the user to leave a review.

Configure the Authentication

You must add a Client credentials service to confgure the authentication between Oracle Digital Assistant and Oracle Field Service.

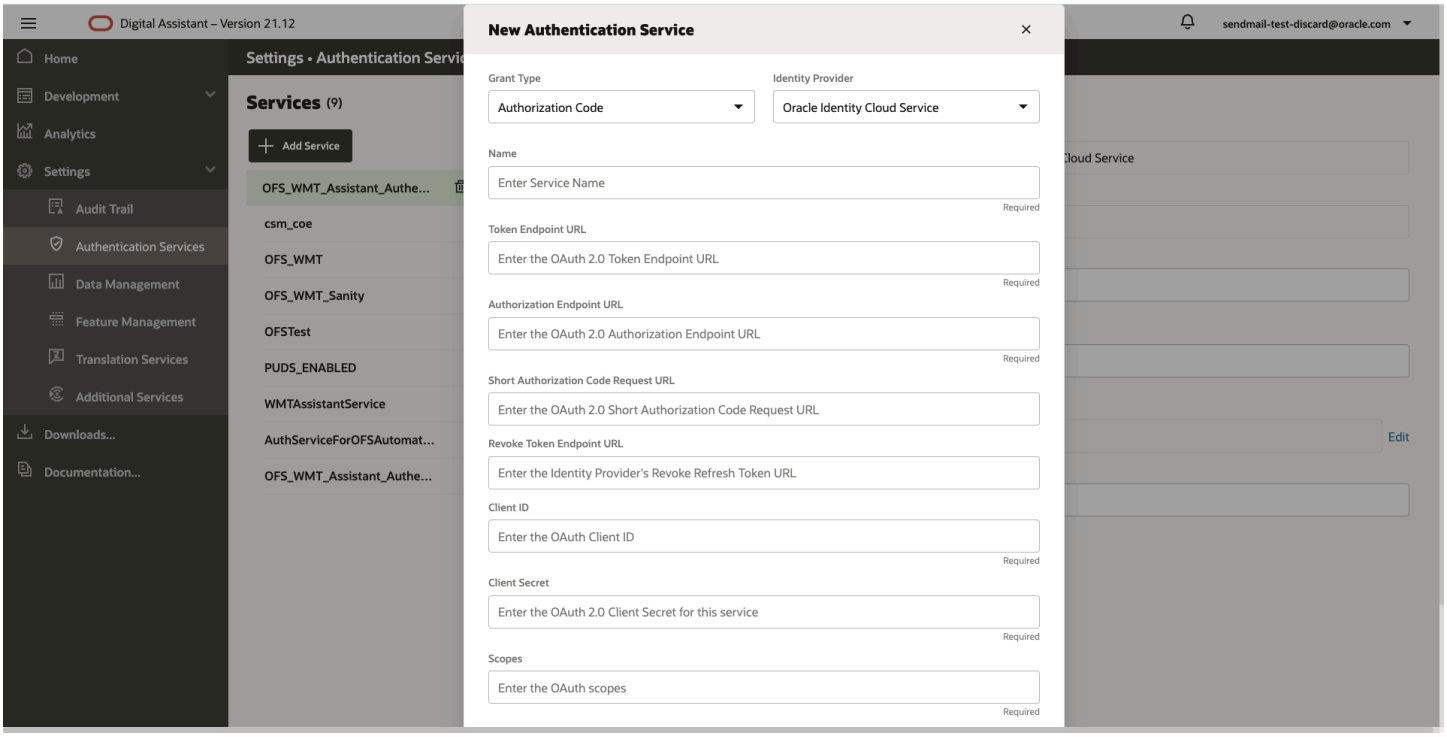
For more information on how to add a new authentication service, see the Using Oracle Digital Assistant guide.

1. Log in to Oracle Digital Assistant.
2. Click **Settings** > **Authentication Services**.
3. Click **Add Service**.
4. Use the values in this table to create the service:

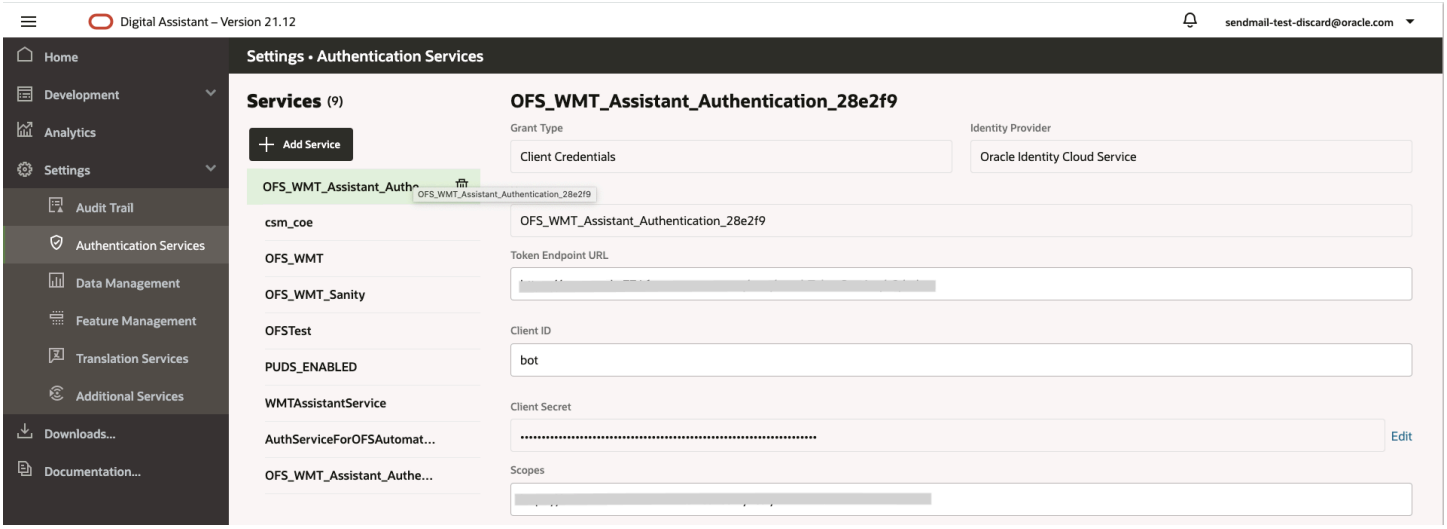
Field Name	Value
Grant Type	Client Credentials.
Identity Provider	Oracle Identity Cloud Service.
Name	A name by which you want to identify the authentication service.
Token Endpoint URL	The Identity Provider's URL for requesting access tokens in Oracle Field Service. For example <OFS API endpoint>/rest/oauthTokenService/v2/token. (The token end point URL is the URL used for getting access token for OFS REST APIs, explained on: https://sunrise0781.etadirect.com/rest/oauthTokenService/v2/token, where sunrise0781 is a sample instance name.)
Client ID	Client ID of Oracle Field Service of the application configured on the **Configuration** > **Applications** page for Oracle Digital Assistant and the Oracle Field Service instance name concatenated with '@'. For example. 'assistant@OFSinstance'. You can access the Client ID and Client Secret on the Oracle Field Service **Configuration** > **Applications** Where is My Technician Application page. You must have configured an application to access the OFS REST APIs as well.)
Client Secret	Client Secret of the Oracle Field Service application configured on the **Configuration** > **Applications** page for Oracle Digital Assistant.

Field Name	Value
Scopes	The scopes that must be included when Oracle Digital Assistant requests an access token from the provider. Add all the scopes that are required to access the resources. For example: '/rest'.

This screenshot shows the **New Authentication Service** page, where you can add the details of the client authentication:



This screenshot shows the authentication details for a Where is My Technician service:



Related Topics

- Configure the APIs and Activity Permissions

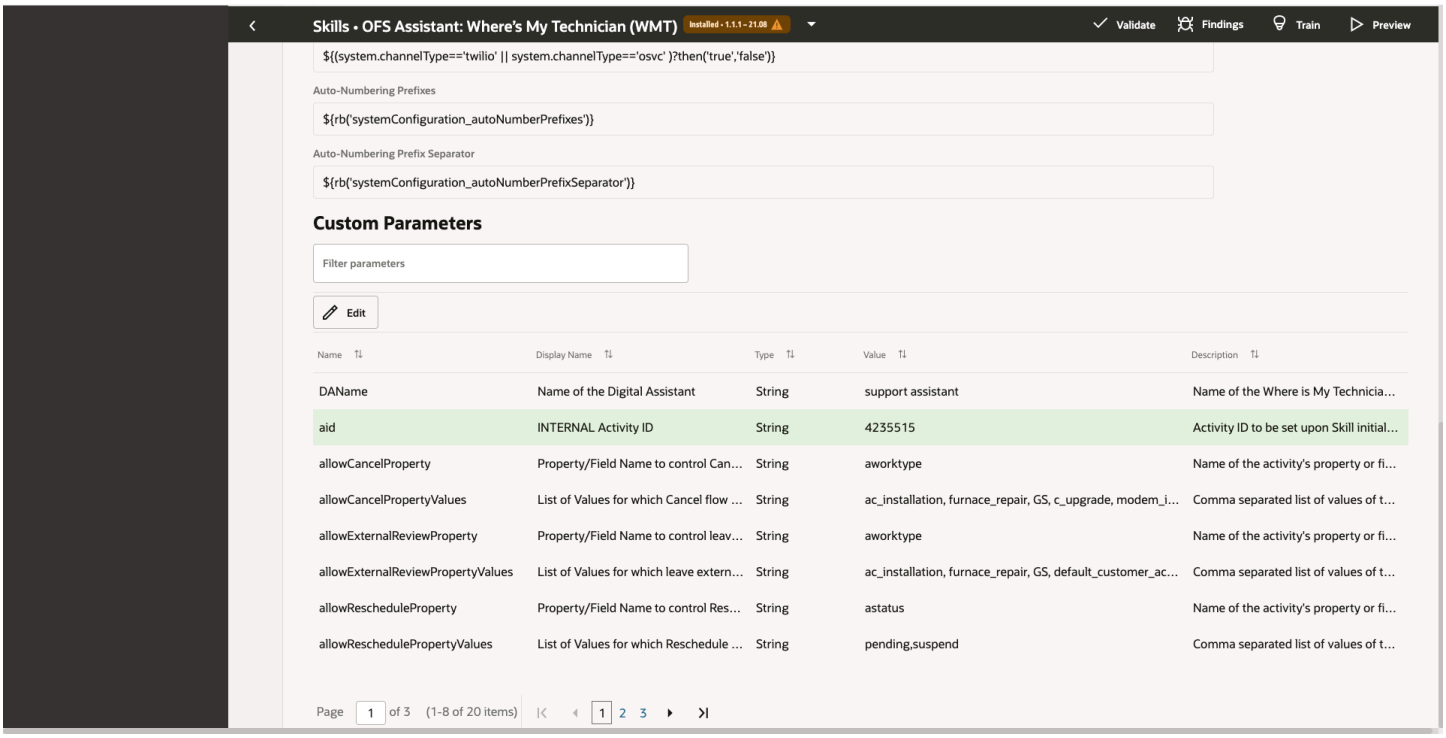
Feature Selection in the Skill

You can select or deselect the features with some restrictions configured for each customer. This helps to support business flows, restrict, and switch flows easily. The names of the skill custom parameters and their predefined values are provided in the table later in the topic. You can change the predefined values. This functionality is implemented as a pair of parameters for each feature. The Property parameter can contain the value of property or field in Oracle Field Service and the PropertyValue represents the value of this property or field.

For example, let's say an organization wants to provide cancellation only for troubleshooting activities, so the customer can undo their request easily, if the issue is resolved. The configurator must specify the activity type 'troubleshooting' as a value of the Oracle Digital Assistant parameter. The configurator can use these values:

- Use 'aworktype' as the value for allowCancelProperty. This means that an activity type defined in Oracle Field Service is used to validate the access.
- Use a value of 'troubleshooting' for allowCancelPropertyValues. This means that the assistant can help with canceling, only if the activity type is 'troubleshooting'.

In this case, the cancel option is unavailable in the chat for activities other the 'troubleshooting' type of activity. This screenshot shows the parameters required for Where is My Technician:



This table provides the custom parameters and their predefined values:

Feature	Oracle Digital Assistant Parameter Name	Predefined Values	Supported Oracle Field Service Property Type
Reschedule	allowRescheduleProperty	aworktype	string/enum/int/field
	allowReschedulePropertyValue	ac_installation, furnace_repair, GS	string/enum/int/field
Cancel	allowCancelProperty	aworktype	string/enum/int/field
	allowCancelPropertyValues	ac_installation, furnace_repair, GS	string/enum/int/field
Send Message to Technician	allowSaveMessageProperty	aworktype	string/enum/int/field
	allowSaveMessagePropertyValues	ac_installation, furnace_repair, GS	string/enum/int/field
Share Feedback on external site	allowExternalReviewProperty	aworktype	string/enum/int/field
	allowExternalReviewPropertyValues	ac_installation, furnace_repair, GS	string/enum/int/field

To disable a feature, add 'N/A' for both the parameters. Oracle Digital Assistant doesn't allow empty values in custom parameters.

The Feedback feature does not have a configured option to switch. You can deselect it in the configuration on the Where is My Technician theme page.

Other parameters that the skill uses:

Feature	Oracle Digital Assistant Parameter Name	Predefined Values	Description
All	DAName	Support assistant	Name used when Oracle Digital Assistant introduces itself in the conversations with the user.
All	dateFormat	EEE d MMM	Format of the dates used by the Skill when mentioning any dates in the conversations with the user. The format is based on *this specification*.
All	endPoint	Your Oracle Field Service REST API endpoint	You must configure the Oracle Field Service REST API endpoint to allow integration with an Oracle Field Service instance. For example <OFS API endpoint>/rest
Cancel	reasonDefaultValue	DEFAULT	The value that is set into the property configured for the "cancelReasonProperty" parameter, if

Feature	Oracle Digital Assistant Parameter Name	Predefined Values	Description
			the user doesn't provide a reason for cancellation.
Feedback	maxNegativeThresh	3	Integer value that is used to treat the rating provided by the user as Negative, if the rating is equal to or less than the value of this parameter. If not, the value is treated as Positive.
authenticationServiceName	authenticationServiceName	WMTAssistantService	Authentication service name provided at the time of configuring the service. Default value is given as an example.

Related Topics

- Before You Begin with Oracle Digital Assistant

Configure a Skill

You must configure a skill for users to start using it.

1. Log in to Oracle Digital Assistant.
2. Click **Development** > **Skills**.
3. Find and click the Where is My Technician skill.
4. On the skill page, click **Settings** > **Configuration**.
5. Under **Parameters**, change the value for the authenticationServiceName and endpoint parameters.
   The value for authenticationServiceName is available in the **Settings** > **Authentication Services** > **WMT authentication service** > **Name** field. The value for endpoint is available in the **Settings** > **Authentication Services** > **WMT authentication service** > **Token Endpoint URL** field.
6. Save the changes.

Configure your Welcome Message

You can implement a welcome message in your ODA skill to avoid providing an empty chat window when the user clicks on the chat icon. Use a hidden message ‘Hi’ which is auto-generated by Where is My Technician and sent to ODA to imitate the first message by end-user.

The hidden message is not visible on the page and matches the user's first message. The hidden message is sent only once in the 'Where is my technician' session and it doesn’t matter whether the message is changed during the session or to which page (Scheduled, Days before, On the way, Arrived or Feedback) it is sent. The message can be sent twice in the Feedback flow page. Refresh the browser page or open the 'Where is my technician' link on a new page to interrupt a session. If it is true, and the user opens the chat with the same 'Where is my technician' link, and a hidden message is sent again. You can configure the ODA skill with intents that can understand the message (that is, Hi) and perform actions.

1. *Add intent to your skill*.
2. Add some utterances and 'Hi' among them to the intent so that the 'Hi' message is understood.

3. *Initiate your intent in Dialog flow and set an action*.

```
metadata: Version: "1.0" main: true name: "YourName" context: variables: ... states: ... getIntent:
 component: "System.Intent" properties: variable: "iResult" transitions: actions: Greeting: "YourAction"
```

4. *Train your skill*.

How to identify the hidden message sent by WMT

Since WMT sends different parameters used for Skill configuration in ODA (which is described in the Add the Channel URI and ID on the Where is My Technician Theme topic), you must add a condition based on the 'activityId' value to the Dialog flow before OBotML part known as *'states'* to identify the source of the hidden message (in our case, WMT).

```
metadata:
 Version: "1.0"
main: true
name: "YourName"
context:
 variables:
...
 checkActivityId:
 component: "System.ConditionEquals"
 properties:
 variable: "profile.activityId"
 value: "null"
 transitions:
 actions:
 equal: "NonWhereIsMyTechnician"
 notequal: "IntegrationWithWhereIsMyTechnician"

states:
...

 IntegrationWithWhereIsMyTechnician:
 component: "System.Output"
 properties:
 text: "Hi ${profile.customerName}! Your technician is ${profile.resourceName}"
 keepTurn: true
 transitions:
 next: "done"

 NonWhereIsMyTechnician:
 component: "System.Output"
 properties:
 text: "Hello! I am not Where Is My Technician assistant."
 keepTurn: true
 transitions:
 next: "done"
```

Chat Notifications to Users

The Where is My Technician page allows you to initiate a chat with end-users. A notification badge is shown on the chat icon to the end-users. You can develop ODA skill which can send messages to end-user to suggest any help with the order (additional order details, promo codes, etc.) or ask for the feedback (if a customer does not want to enable feedback for the Where is My Technician page and wants to implement their custom survey).

Example of chat initiation skill

```
Response:
 component: "System.Text"
 properties:
```

```
prompt: "Hi, I'm your assistant. Do you need help with the appointment scheduled
for ${activity.value.date.date?number_to_date?string[dateFormat]}?"
```

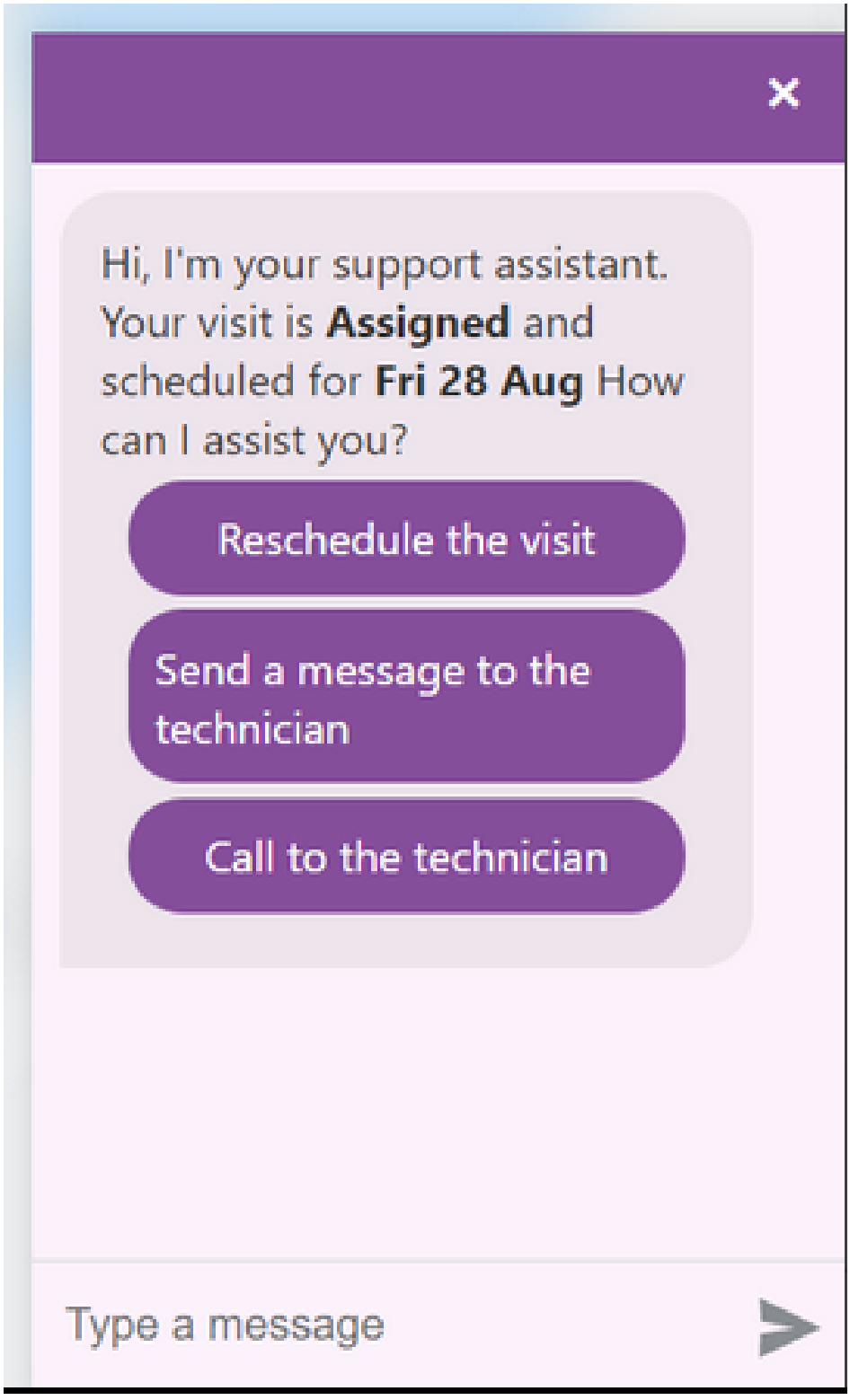
Related Topics

- Add the Channel URI and ID on the Where is My Technician Theme

Validate the Integration

After you integrate Oracle Field Service with Oracle Digital Assistant, you must validate that the integration is working correctly. If your goal is only to get the integration with Where is My Technician working, you can skip validating in Oracle Digital Assistant. Use the procedure to validate in Oracle Digital Assistant for debugging purposes.

1. To validate in Oracle Field Service and Where is My Technician, perform these steps after you configure the Where is My Technician theme and include the Message Scenarios:
    a. Initiate the change that triggers the message notification with a URL to Where is My Technician.
    b. Find the Where is My Technician URL (for example, from the email or the Messages tab of the Activity details) and navigate to it.
    c. On the Where is My Technician page, click the chat icon in the lower right corner.
    d. Notice the message sent by Oracle Field Service, with the options (skills) you have configured. You will not find the message if the integration is not successful.
2. To validate in Oracle Digital Assistant:
    a. Create an activity and assign it to a technician.
    b. Add the Activity ID in the Skill's Custom Parameter "aid".
    c. Run "Skill Tester" (play button on the top right corner on the Skill's details page).
    d. Send a test message.
    e. Notice that the test message is received. You will not receive the message if the integration is not successful. This screenshot shows the message that you receive:


Hi, I'm your support assistant. Your visit is **Assigned** and scheduled for **Fri 28 Aug** How can I assist you?
Reschedule the visit
Send a message to the technician
Call to the technician
Type a message

Assistant View for the Where is My Technician Page

You can change the default Where is My Technician theme or settings and apply the modified Where is My Technician theme to the Oracle Digital Assistant chat page. See *How do I configure the Where Is My Technician theme?*.

Feedback Flow

The assistant opens automatically on the Where is My Technician page if the Oracle Digital Assistant and Feedback flow are enabled for a Theme and the Rating set up is configured for the Feedback page.

You can develop ODA skills to implement a custom feedback scenario on the Where is My Technician page based on the rating. You can implement the following feedback scenarios:

- Give thanks for the good feedback.
- Ask for confirmation to post their feedback on the company site.
- Define a reason for the low score for a technician.
- Suggest scheduling another follow up to handle an issue.
- Connect a dispatcher to the chat to handle a situation directly.

Example of skill with positive and negative feedback

```
#Variable can be set as:
context:
 variables:
 rate: "string"
 setRate:
 component: "System.SetVariable"
 properties:
 variable: "rate"
 value: ${profile.rate}

#Example of how to switch depending on number of stars
completedActivityResponse:
 component: "System.Switch"
 properties:
 variable: "rate"
 source:
 values:
 - "1"
 - "2"
 - "3"
 - "4"
 - "5"
 transitions:
 actions:
 1: "negativefeedback"
 2: "negativefeedback"
 3: "negativefeedback"
 4: "positivefeedback"
 5: "positivefeedback"
#Positive feedback
positivefeedback:
 component: "System.CommonResponse"
 properties:
 metadata:
 responseItems:
 - type: "text"
 text: "Thank you for rating us high! Do you wish to provide additional feedback?"
 separateBubbles: true
 actions:
 - label: "Sure"
```

```
 type: "postback"
 payload:
 action: "Agree"
 - label: "Nothing to add more"
 type: "postback"
 payload:
 action: "SuccessBye"
#Negative feedback


 negativefeedback:
 component: "System.CommonResponse"
 properties:
 metadata:
 responseItems:
 - type: "text"
 text: "Thank you for your feedback. We are always looking to improve the way we do business with our
 customers. Do you willing to provide additional details?"
 separateBubbles: true
 actions:
 - label: "Problem remains unsolved"
 type: "postback"
 payload:
 action: "unsolvedProblem"
 - label: "Service was unappropriate"
 type: "postback"
 payload:
 action: "unappropriateService"
 - label: "Other"
 type: "postback"
 payload:
 action: "system.textReceived"
 variables:
 system.text: "Other"
```

Migration Rules

If the **Enable Oracle Digital Assistant** check box is enabled and the **Application ID** field is set before the 20B release for the Where Is My Technician theme on the Configuration page, then these fields are available on the Theme Configuration page after you upgrade to Update 20B:

- Application ID
- Channel URI
- Channel ID

You can set the new values of configured ODA channel in the **Channel URI** and **Channel ID** fields and delete the old Application ID value to apply the support of the Oracle Web Channel to the theme.

How can I create a custom filter?

Filters have two primary uses—first, filters narrow down lists of activities or resources within the workspace area, based on defined fields and values. These filters are used within the Time, List, and Map views, providing an ad hoc reporting capability. Second, filters within routing plans predefine the information that determines how routing distributes activities across available resources. These filters are commonly set up to differentiate the cost, or value of assigning certain jobs to certain resources, as well as determining the priority of certain types of activities.

The **Filters** visibility profile permission controls the access to the **Filters** window. You must set this permission for each user type that manages Filters. If you don't configure this permission or don't define the visibility for a user type, users of this user type cannot view the filters that you create. If you select ReadOnly, Filters is placed into a view only mode. If you select Read/Write for this setting, the user can manage Filters. To create a filter:

1. Click **Configuration**.
2. In the **Displays** section, click **Filters**.

   The existing list of filters appears. You can see a maximum of 500 filters from the currently available filters in your instance. If you have more than 500, use a combination of the options such as Find, Visible on screens, and Applicable to entity available on the **View** menu. Or, sort the list by ascending or descending values of the required column.
3. Click **Add New**.

   The Add filter dialog box appears.
4. Complete these fields:

Field	Description
Filter	The filter name that the users see. Enter the name in English and in all the languages that are active in the application.
Applicable for	The entity type (activity or resource) that the filter pertains to. The entity determines the table fields that can be selected when applying the filter conditions.
List/Time/Map/Daily	The views within which the filter is available.
Routing	Whether the filter is used within routing plans.
Restriction of Visible Activities	Whether you want to restrict filter activities from appearing if resource routes have not been activated or a working day has not yet begun. This configuration is related to the User Type. Once the filter is configured, apply the filter as a visibility restriction filter for user type.
User Types	The user types that the filter is available for. This field is displayed if you select the **List/Time/Map/Daily** check box. Use the arrow buttons to move the user types between the **Available** and **Selected** columns.

5. Click **Add**.

   The filter is saved.

What to do next

You must add conditions for the filter. If no conditions are added, the filter does not work.

How can I add a condition to a custom filter?

Filter conditions help you further narrow down the activity you want to search for. For example, you can have a condition to select activities based on work zones.

1. Click **Configuration**, **Filters**.

   The **Filters** page is displayed.
2. Locate the filter you want to add a condition to.
3. Click **Conditions** in the **Actions** column.

4. Click **Add New** at the top of the page.
   The **Add filter condition** dialog box appears.
5. Complete these fields:

Field name	Action
Field	Choose one or more activity or resource-based criteria on which to base the filter.
Dynamic	Select the box if you want the user to type a value for the field that the condition is for.
Conditions	Select one or more options to represent how the field selected above relates to the **Value** entry.
Value	These are the options that can be associated with the **Field** chosen for this condition. If multiple values are applicable for this condition to be met, then add them to the **Selected** column. From the list of available values, click to select and then click the >> button. The selected item moves to the **Selected** column. These rules apply to enumeration fields: o Any field and property used in the application can serve as a filter condition. o You must populate the value for the field and property other than enumerated fields manually. o The condition value supports CSV format, such as 1, 2, 3, 4,, "1,1,1", "2,s", and "(""test"")".

6. Click **Add**.
7. Navigate to the **Work Area** and verify that the filter is listed in the **View** drop-down menu.
8. Test the filter to ensure that it meets your requirements.

Delete a Filter Condition

When a filter condition is no longer needed, you can remove it from the application.

1. Click **Configuration**. Click **Filters** from the **Displays** section.
2. Find the filter that has the condition you want to delete from and click the **Conditions** link.
3. Select the check boxes next to the condition that you want to delete.
4. Click **Delete** above the list of conditions.
5. Click **OK**.

Delete a Filter

When you don't need a filter anymore, you can remove it from the application.

1. Click **Configuration**. Click **Filters** from the **Displays** section.
2. Select the check boxes next to the filters that you want to delete.
3. Click **Delete**.
4. Click **OK**.

Custom Forms and Plug-Ins

From a business perspective, Forms are paper documents that Field Resources fill in, while performing their work. From Oracle Field Service perspective, a Form is a pre-configured page that can be configured using data elements that exist only in the context of a Form.

Features of Forms:

- Administrators may create as many Forms as needed for the business.
- Forms are not User Type specific; they are independent pages that are connected to User Types pages through links that are configured on context layouts.
- After the Form is configured, all users see the same Form and capture the same data regardless of their User Type.
- The Form Field data elements, which can be added to forms are not associated or “bound” to a specific field or custom property.
- Forms are available only in Core Application, iOS and Android apps.
- Contents of a submitted Form cannot be changed, even if a related entity or Form configuration changes later.
- When a Form is submitted, all Form field elements, except those that have auto-calculated default values or values filled through predefined parameters are blank.
- Forms don't support links to any types of pages such as standard actions, plug-ins, or other forms.

Forms are represented in three ways in Oracle Field Service:

- A configuration page where all the required elements are added.
- A page on a mobile device or a computer where technicians and dispatchers fill in data.
- A submitted Form result that represents every sample of the completed Form. These results are available to users on separate pages and can be retrieved through APIs.

Provide Access to the Forms & Plugins Page

Users with access to the Forms & Plugins page can add and modify custom Forms and plug-ins.

1. Click **Configuration** > **User Types**.
2. Select the type of user for which you want to provide access.
3. Go to the **Screen configuration** tab.
4. In the **Main menu** tree, click **Configuration**.
5. Click **Click to Add** and select the **Forms & Plugins** check box.
6. Click **OK**.
7. Click **Forms & Plugins** and then click **Add new visibility**.
8. Select **Read-write** and click **Save**.
9. Click **Close**.
   All the users of the selected User Type now have access to the **Forms & Plugins** page.

How a Form is Configured

Here are the high-level steps to configure a Form.

1. Create the Form.
2. Configure the Form elements.
3. Add the Form to a page.

View the Forms and Plug-Ins in the Application

You can view the **Forms & Plugins** page to add a custom Form or a plug-in, and to export and import plug-ins.

1. Click **Configuration** > **Forms & Plugins**.
   The **Forms and Plugins** page opens and displays the default plug-ins, custom plug-ins and Forms. The page shows the number of action links that are configured for each Form and plug-in.
2. To see the list of buttons configured for a Form or plug-in, click the number.
   A context menu appears and displays the buttons that are grouped by the context layout structure name in which it's configured. Within every context layout structure name, the buttons are grouped by the user type name. You can click a button to open the appropriate editor and navigate to the position on the editor. The button is also highlighted the button in the Visual Form Editor or Context Layout Editor.
3. To add a new custom Form, click **Add Form**.
4. To add a new plug-in, click **Add Plugin**.
5. To export and import plug-ins, click **Export Plugins** and **Import Plugins** respectively.
6. To delete a Form or plug-in, click the actions icon and then click **Delete**.
   You can see the **Delete** option only if you haven't configured any buttons to the Form or plug-in. This means, you can delete only those Forms and plug-ins that show **Not Configured**.
7. To search for a specific Form or a plug-in, click **View** and select the required options.

Create a Form

You create a Form so that Field Resources can fill it to capture statutory or business data required for an activity. This is a custom form that's available only for your organization.

1. Click **Configuration** > **Forms & Plugins**.
2. Click **Add Form**.
   The Add Form dialog box appears.
3. In the **English** field, add a name for the Form in English.
4. Add the names in other required languages.
5. In the **Label** field, add a label for the Form.
6. Click **OK**.
   The Form is saved. The next step is to add elements to the Form.

Configure the Form Elements

After you create a Form, you must add elements to it. Form elements are the fields in which a Field Resource can display and capture the required data. Some form elements that you can add are date and time fields, barcode scanners, text boxes, and check boxes.

1. Click **Configuration** > **Forms & Plugins**.
2. Click the stack icon and click **Modify content** for the Form that you want to edit.

   The **Visual Form Editor** page appears and displays an accordion type panel with these options to help you add, edit, and search for elements:
   - **Available elements:** All the element types that you can use in this context are listed here. To add a new element, drag it from this section and drop it to the desired location on the form. You can also use the search option to search for an element within this section.
   - **Data fields:** All the data fields that you can use in this context across all element types are listed in this section. Drag an element from this section and drop it to the form, to add the data field with a preconfigured binding to the data source. You can also use the search option to search for a data field within this section.
   - **Fields in this layout:** All the fields you've used in the layout. Each field has an icon representing the GUI type of the element that's defined when you bind the field to a data source. The features of this section are:
     - Clicking an item scrolls the content to the appropriate item in the layout and highlights it without opening the context menu editor.
     - Clicking an item in the layout focuses the list to the appropriate item, if the panel is active (not collapsed).
     - If a field is present more then once in the content, you see a marker in a format (n / m). For example, (1 / 3) means first of the three occurrences. Clicking the marker takes you to the item on the layout.
     - The order in the list is according to the appearance on the configured form, top to bottom, left to right.
     - The search option lets you search for a field within this section.

   Another way to open this page is when you add the Form to a page. If you're configuring a page and there's a button that's configured to open a Form, then you can use the **Modify Form content** option. In this case, a new editor session is opened with the specified Form content. Ensure that you've saved all the changes to the page configuration before you click **Modify Form content**.
3. Drag the element that you want to add to the Form. For example, add a section, a text box, a check box, or a file element.

   Here are some special elements that you can add:
   - **Form Field:** Adds a field such as text box, list, check box and so on, to the Form. This type of fields exist on the Form only for presenting and gathering information. The data entered in Form fields will only be captured in a screenshot of the Form when the Form is Submitted. This data isn't stored in the application. However, data for other fields and properties is captured as normal.

     > **Note:** You must add an instance of a property, button, or field only once in a form. More than one instance of a field, button, or property on a form may lead to application error such as property not being saved or the action being denied.

   - **Barcode/QR Code/ NFC Tag Scanner:** Adds an icon to the Form, using which users can scan a barcode, a QR code, or an NFC tag. The embedded scanning functionality (that is, camera) on the resource's mobile device is used to scan the code. The results of the scan is populated automatically in the associated field. This option is available as part of the **Input** element. You can add the scanner any number of times on a

form. Before using the scan option, users must ensure that the Android and iOS app that's installed on their devices has access to the device's camera. In Core Application, Barcode/QR scanner is displayed as a text box.

> **Note:** When you add multiple scanner check boxes on a form or page, ensure that the section contains only the scanner check boxes and Text elements. If the section contains any other type of element, the scanner isn't triggered.

- **Date and Time:** Adds a date, time, or date and time field to the Form. The format of data in the data and time field is controlled by user settings. Specifically 'Time' (sudate_fid) and 'Date' (sudate_fid) user fields. The data captured from 'Date', 'Time', and 'DateTime' components is stored and exposed through the 'formSubmitted' event of Events API in a predefined format. Date and Time are form fields and not available for binding to a custom property. The formats are:
  - yyyy-mm-dd for 'Date'
  - HH:mm for 'Time'
  - yyyy-mm-dd HH:mm for 'DateTime'

  Integrators must convert data into other formats, if required.
- **Hidden value:** Adds a field to:
  - Include calculated values, which aren't required to be displayed when the Form is filled.
  - Include prepopulated values by open parameters. The values for these parameters are configured on the Form button. When the user opens the Form, these values are populated on the Form.
  - Use in other expressions, whose values will be included into the submitted Form data with the values of all other Form elements.

4. In the **Data binding** section, bind the elements to appropriate entities and fields:
   a. Click the Form field drop-down list and select the entity and start entering the entity name that defines the data source.

      The application displays only those fields that contain the entered text in their label or caption.
   b. Select the field that you want to define as the data source.

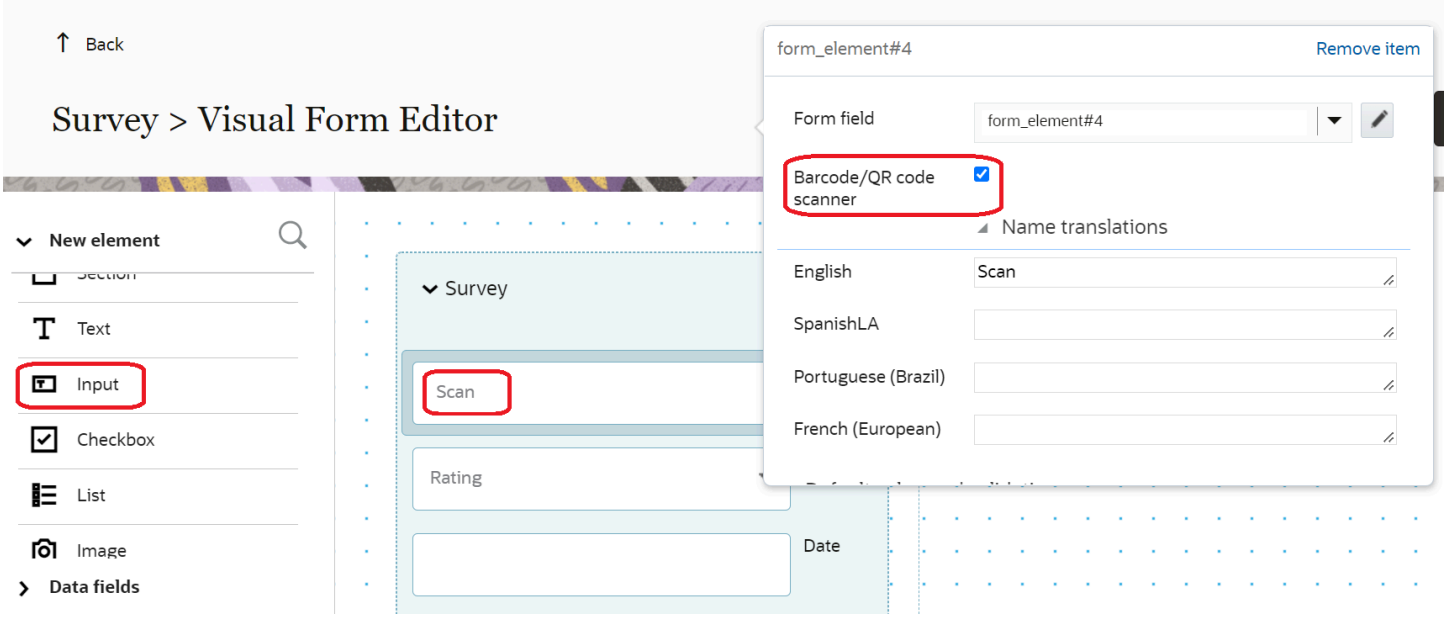
      The application populates the Type field automatically, based on the field you select as the data source. If you don't bind your field to any entity, then you can use the text as a form field label.
   c. Optionally, click the pencil icon. In the **Data field** list, select the specific field that you want to associate with the selected element.

      If the **Show only fields appropriate for element type** check box is selected, only the fields that are appropriate for the selected entity and the element type are displayed. If the check box isn't selected and a different type of field is selected, the element type is changed accordingly. For example, if your element type is Input and you select Activity Type [aworktype], then the element type is changed to the one that the Activity Type belongs to.
   d. Click **OK**.
5. In the **Visibility** section, configure the visibility settings.
   a. To change the visibility, click **Add new**. In the **Access mode** section, select the required visibility.
   b. To add any conditions to make the element visible, click the plus icon.
   c. Add the required condition and click **Save**.

   The visibility is Read-write (RW) by default.
6. In the **Translations** section, add the labels for the field in the required languages.

   The number of languages in this section is same as the number of languages you've configured on the **Configuration** > **Display** page. The application adds a label by default and you can change it here. You can use this

label in default expressions and in the visibility conditions of other Form items. Further, you can use this label to refer to the submitted values in APIs. Here's the screenshot that shows Form elements:



7. To view the form as your end-users see it and to verify upcoming configuration changes, click **Preview**.
   The preview includes all fields, except those that are Read-Only and don't have any data currently. Within the form preview:
   - You can enter values into the required and optional fields.
   - Any default values that are configured are calculated and displayed in the fields.
   - Any configured visibility conditions are applied.
   - Any validation rules that are set up are applied and the relevant validation messages are triggered.
   - Any regular expressions configured for custom properties validate the data you've entered and trigger error messages, if necessary.
   - The preview includes the saved and unsaved changes.
   - The data you enter while viewing the preview is saved and displayed the next time you open the preview.
   - You can clear the data you had entered in the preview page and start again, using the **Start Over** button.
   - Any visibility conditions configured for the **Submit** and **Dismiss** buttons are applied.
8. Click **Publish** on the **Visual Form Editor** page.
   The Form elements are published to the users of the selected user type. The next step is to add the Form to a context layout through a User Type page configuration.

Add a Barcode, QR Code, or NFC Scanner Field

You can add a barcode, QR code, or an NFC scanner field in a custom form to help field resources populate data from these scanners. The camera on the resource's mobile device scans the code and fills the field.

1. Click **Configuration** > **Forms & Plugins**.
2. On the **Forms & Plugins** page, add a new form or click **Modify Content** for the form to which you want to add the scanner fields.
3. Drag and drop an **Input** element.
   You can also configure these fields as barcode, QR code, or NFC scanner fields:
   - Product fields of type Text
   - Custom string properties with GUI defined as Text element
4. Complete these fields on the new element window:
   - Form field: Select the data source that you want to bind the new element. Click the drop-down list and select a field. Or, click the pencil icon, select the type of field, and the field.
   - Data entry: Select one of these options:
     - Manual: Select this option to type the value in the field. This is the default option.
     - Barcode/QR code scanning: Select this option to scan a barcode or QR code.
     - NFC scanning: Select this option to scan an NFC tag.
   - Name translations: Add the name translations for the element in the required languages.
   - Default value and validations: Add any default value or validation for the new element.
   - Visibility: Add a visibility for the new element. RW (Read-Write) is the default option.
5. Click **Close** on the new element window.

> **Note:** When you add multiple scanner check boxes on a form or page, ensure that the section contains only the scanner check boxes and Text elements. If the section contains any other type of element, the scanner is not triggered.

6. Click **Save** on the form Visual Form Editor.
   The scanner fields are displayed with a special icon. In the browser application, these fields are displayed as text boxes.

Fields that Cannot have the Barcode/QR Code Scanner Option

The **Data entry** field is not available for these fields on the Visual Form Editor:

Activity fields

These auto-calculated fields:

- Access Schedule [access_schedule]
- Access Hours [access_hours]
- Compliance Alerts [activity_compliance]
- Alerts [activity_alerts]
- SLA End [sla_window_end]
- SLA Start [sla_window_start]
- Traveling Time [travel]
- Resource ID [pid]
- Time Slot [time_slot]

These fields are not auto-calculated (but contain specific data):

- Points [apoints]
- Coordinate X [acoord_x]
- Coordinate Y [acoord_y]
- Duration [length]

These fields are not auto-calculated:

- Name [cname]
- Work Order [appt_number]
- Cellular Phone [ccell]
- Email [cemail]
- Phone [cphone]
- Account Number [customer_number]
- State [cstate]
- ZIP/Postal Code [czip]
- City [ccity]
- Address [caddress]

These auto-calculated fields:

- First Manual Operation [first_manual_operation]
- First Manual Operation Interface [first_manual_operation_interface]
- First Manual Operation Performed by User [first_manual_operation_user_id]
- First Manual Operation Performed by User (Login) [first_manual_operation_user_login]
- First Manual Operation Performed by User (Name) [first_manual_operation_user_name]
- Auto-Routed to Date [auto_routed_to_date]
- Auto-Routed to Resource [auto_routed_to_provider_id]
- Auto-Routed to Resource (Name) [auto_routed_to_provider_name]
- Activity Time of Assignment [atime_of_assignment]
- Activity Time of Booking [atime_of_booking]
- Capacity Categories [activity_capacity_categories]
- Coordinate Status [acoord_status]
- Date [date]
- Start - End [eta_end_time]
- Delivery Window [delivery_window]
- End [end_time]
- Time Notified [time_delivered]
- Work Zone [aworkzone]
- Activity ID [aid]
- Activity status [astatus]
- Start [ETA]

- Service Window [service_window] [service_window]
- Travel estimation method [travel_estimation_method]

Inventory fields

These auto-calculated fields:

- Changed Inventory ID [inv_change_invid]
- Resource Id [inv_pid]
- Activity Id [inv_aid]
- Inventory Id [invid]
- Inventory pool [invpool]

These fields are not auto-calculated (but contain specific data):

- Quantity [quantity]

Resource fields

These auto-calculated fields:

- ID [pid]
- Working days left for reported data to start impacting duration estimations [skip_days_for_stats]
- Reactivated [reactivated]
- On-call Calendar [oncall_calendar]
- Work Zones [resource_workzones]
- Effective Work Skills [resource_effective_workskills]
- Time slots [resource_time_slots]
- Capacity Categories [resource_capacity_categories]
- Work Skills [resource_workskills]
- Calendar [calendar]
- Queue status [queue_status]
- Total [total]
- Pending [pending]
- Alerts [alerts]

These fields are not auto-calculated:

- Name [pname]
- External ID [external_id]
- Email address [email]
- Phone [pphone]

Service request fields

These auto-calculated fields:

- Created [srcreated]
- Activity [appt_ident]
- Request Id [srid]

- User Id [sr_uid]
- Resource Id [sr_pid]
- Activity Id [sr_aid]
- Inventory Id [sr_invid]

These possibly auto-calculated fields:

- User [uname]
- Date [srdate]

User fields

These auto-calculated fields:

- User ID [uid]
- Registered [sucreated]
- Failed login attempts [login_attempts]
- Blocked to [login_blocked_to]
- Last login [last_login]
- Last password change [last_password_change]
- Updated [suupdated]
- Main Resource [main_resource_id]

These fields are not auto-calculated (but contain specific data):

- Refresh Rate [refresh_rate]
- Mobile Resource Count [mobile_provider_count]
- Mobile Activity Count [mobile_activity_count]
- Mobile Inventory Count [mobile_inventory_count]
- Collaboration Group [collab_assigned_user_group]
- Operator of Helpdesk [collab_operator_helpdesk]

These fields are not auto-calculated:

- User name [uname]
- Login [ulogin]
- Password [password]

Properties that You can Use with Forms

You can use native and custom properties for activity, inventory, resource, and user entities.

Some of the features of using properties with Forms are:

- You can configure the properties as read-only, read/write, or mandatory.
- You can use the properties within visibility conditions, formulas, default values, and validation rules.
- Values for the properties can be auto-calculated, or entered by users.

- End users can view and modify the values of the properties within the Forms.
- You can view the values of the properties when you view a submitted Form on the **Forms History** page.
- You can get the values of the properties through the *formSubmitted* events of the Events API.

Where Can Forms Be Used

You can open Forms from these pages:

- Activity details and Inventory details: You can open Forms from the links in the action bar and buttons inside the content.
- Activity list, Inventory list, Forms history, User options, Print route: You can call Forms from the links in the action bar.
- Dispatch console: You can open Forms from the links on the activity hint.
- Pages containing resource tree: You can call Forms from the links on the resource hint.
- Time view, List view: You can add Forms to the action menu.

You cannot access Forms from activities that are part of a series of mass/repeating activities. When you start such an activity it becomes a regular activity and then you can access the associated Forms.

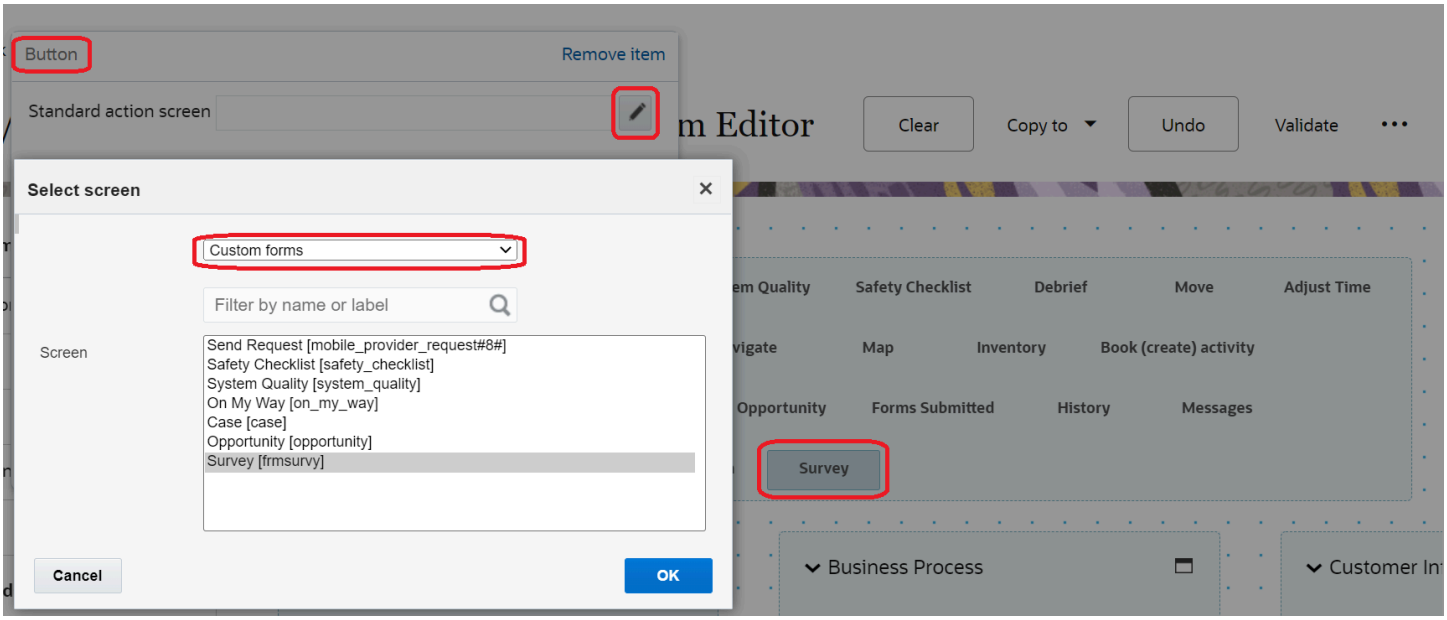
Forms relate to the entities from which they are opened and submitted. In other words, if a Form is submitted in the context of an activity, then it remains connected to the activity. Users can view Form submission results from this specific activity. The same idea applies to inventory and resources contexts.

> **Note:** You cannot add buttons to context layout structures that are responsible for changing the state of an activity, simultaneously with submitting data. Some of the context layout structures where you cannot add buttons are Add activity, Not done activity, Install inventory, and End activity. Further, you cannot remove or change the visibility of the two predefined buttons on these pages: Dismiss and Submit. This is to preserve the data integrity within transitions between states.

How can I add the custom form to a page?

You add a custom form to a context layout page, so that Field Resources can open and fill it.

1. Click **Configuration** > **User Types**.
2. Select the type of user for which you want to add the Form.
3. Click **Screen configuration**.
4. Find and click the page to which you want to add the Form.
   The **Visual Form Editor** page appears.
5. Drag-and-drop the **Button** element to the section from where you want to invoke the Form.
6. Click the button.
7. In the **Standard action screen** field, click the pencil icon and then select Custom Forms.
8. In the **Screens** list, select the name of the Form that you want to open and click **OK**.
   The label of the Form is displayed in the **Custom Forms** field, as shown in this screenshot:



By default all Forms have a visibility of Read-only.

9. In the **Visibility** section, add the conditions based on which the Form is visible.
10. In the **Parameters** section, add the values that you want the Form to be populated with:
    a. Click **Add new**.

       The **Add parameter** dialog box appears.
    b. Click **Entity** and select Form data.

       The Hidden value, Date, Time, and Date and Time elements added to the Form appear in the **Field name** list.
    c. Select an element in the **Field name** list.
    d. In the **Value** field, add the value that you want to be populated for the element.

       For example, let's say you have a field by name City and you want to populate it with New York. Select City in the **Filed name** list and enter New York in the **Value** field. Whenever a Field Resource opens the Form, New York is populated for **City**. In another example, let's say you want to populate today's date in a Date field. Select the Date field in the **Field name** list and enter 'today' in the **Value** field. Whenever a Field Resource opens the Form, today's date is displayed. Similarly, enter 'current time' in the **Value** field to display the current time in the Time field.
    e. Click **Save**.
11. In the **Translations** section, add a name for the Form.

    This name is displayed on the page from which the Form is invoked.
12. Click **Save** on the **Visual Form Editor** page.

    The Form is added to the selected page.

Call a Form From a Button or Link

Apart from adding a link to a Form on a page, you can add a link to open a Form from read-only pages such as the activity hint. This serves as a short cut to open the Form.

Follow the procedure described in the Add the Form to a Page topic.

> **Note:** You can configure the fields in the Form to populate values when Field Resources open the Form. You can use the **Parameters** section of the **Button configuration** page to pass the values that need to be populated. Further, using the **Parameters** section, you can also configure all the entities to populate values, although they are not present on the Form explicitly.

Launch a Custom Form Dynamically

If your business uses several form variations, for example, a form for a specific type of asset or activity, you need not configure a button for each form individually. Instead, you can configure a single button or workflow step to launch the relevant form dynamically. This is achieved by populating the appropriate form label into a designated label property while creating an activity. To start with, you must define a property that stores the unique form label.

The high-level steps to configure a dynamic form button or workflow step are:

1. Create a custom property to store the form label.
2. Link the property to a button or workflow step.
3. Populate the relevant form label into the property when creating a new activity (new activities are typically created through APIs).

Forms launched dynamically are supported in offline mode the same way as persistent forms. The application caches the forms for offline use, while loading the application at the beginning of the work day or while receiving updates for activities or inventory.

Oracle Field Service displays an error when you try to open a form that doesn't exist in the environment. For example, when an incorrect form label is populated into a dynamic form property. Further, dynamic form buttons and workflow steps are disabled when the linked dynamic form property is empty.

Create a Form Property to Store the Form Label

You must create a form property to store the form label, to launch forms dynamically.

1. Click **Configuration** > **Properties**.
2. Click **Add new**.

3. Complete these fields:
    a. **Entity:** Select the entity as activity or equipment. You can create a dynamic property only for these two entities.
    b. **Label:** Add a label for the form that aligns with the activity for which you're using the form.
    c. **Name:** Add a name for the form in the English language field and other required language fields.
    d. **Property type:** Select string. The dynamic property supports only string type of properties.
    e. **GUI:** Select Text element. The dynamic property supports only text elements.
4. Click **Add**.

Link the Form Property to a Button

If you wish to launch a custom form dynamically using a button, you must create a property to store the form label and then link the property to a button on the required page.

1. Click **Configuration** > **User Types**.
2. Select the type of user for which you want to configure a page that launches forms dynamically.
3. Click **Screen configuration**.
4. Find and click the page to which you want to add the form property.
   The **Visual Form Editor** page appears.
5. Drag the **Button** element to the section from where you want to launch the form.
6. Click the button.
7. Select **Form label is taken from property**.
8. Select the property that you've created using the Create a Form Property to Store the Form Label procedure.
   By default all forms have a visibility of Read-only.
9. In the **Visibility** section, add the conditions based on which the button is visible.
10. In the **Translations** section, add a name for the button.
    This name is displayed on the page from which the form is launched.
11. Click **Publish** on the **Visual Form Editor** page.
    The button is added to the selected page.

Related Topics

- Launch a Custom Form Dynamically
- Create a Form Property to Store the Form Label

Add the Form Property to a Workflow Step

If you wish to launch a custom form dynamically from a workflow step, you must create a property to store the form label and then link the property to the required workflow step. Perform this step after creating the form property to store the label.

1. Click **Configuration** > **Workflow Manager**.
2. Add a new workflow or edit an existing one.

3. Within the workflow, add a new step or modify an existing step.
4. In the **Add step** or **Modify step** dialog box, select **Forms**.
5. Select the **Form label is taken from property** check box.
6. Select the form property that you've configured earlier, in the **Property containing form label** field.
7. Complete the remaining fields as required.
8. Click **Add** or **Modify** and save the step configuration.

Related Topics

- Launch a Custom Form Dynamically
- Create a Form Property to Store the Form Label

Populate the Label into the Form Property of a New Activity

The next step in configuring a form to be opened dynamically is to populate the form label in a new activity. The best practice is to populate the dynamic form property through the create or update API calls for activity and inventory (POST activities or POST inventories APIs), instead of populating it manually.

Populating manually increases the risk of errors, including incorrect form labels. In addition, adding the label manually might impact offline use as the forms may not be cached before the field resources go offline.

View Form Submission Results

The **Forms Submitted** page (Formerly 'Forms history') collects all the form submission results. The **Forms Submitted** page for an activity gives all the form submissions for the activity. The **Forms Submitted** page for an inventory item provides all the forms submitted for an inventory item. Similarly, **Forms Submitted** available from the Activity list and User options provides a list of form submission results for a specific resource.

1. Click **Forms Submitted** for an activity, an inventory, or a resource.
2. Click one of these options:
    - **For This Activity:** This option is displayed when you open an activity that's a regular activity. Select this option to see the forms that are submitted for the current activity.
    - **For Related Activities:** This option is displayed when you open an activity that's part of a bundle of activities. Select this option to see the list of forms submitted by other users while working on other activities or activity segments from the bundle. This list contains only the submissions for the forms selected in the **Associated Forms** section while configuing the bundling rule.
3. Click any record.

   The specific form is displayed with the values that were entered at the time of submission.

   When a user submits a form, the application stores a snapshot of the values that the user has entered. The snapshot data remains unchanged, even if the corresponding entities and fields change later. In addition, except for the auto-calculated default values, or values filled through predefined parameters, the remaining field values are erased. Further, every time a user submits a form, the application creates a formSubmitted type of event. You can retrieve the details of individual submissions by subscribing to this event. See the REST API guide for more information.

   If a user submits a form for the current day activities (regular and non-scheduled) within the overnight work time, then the form is displayed on Forms Submitted according to the activity data retention policy (90 days by default). If

the form is submitted for the activities in the past, then it isn't displayed on Forms Submitted. For example, let's say a user submits forms to an activity on Monday and Tuesday. If the current route is Tuesday, then Forms Submitted doesn't show the forms submitted on Monday.

Lifecycle of a Form

From the time a user opens a Form on a mobile device to the time a Dispatcher views its submission results, a Form is viewed and processed in different ways.

The lifecycle of a Form is as described here:

- A user opens a Form on a device.
    - All Form field elements, except those that have auto-calculated default values or values filled through predefined parameters are blank.
    - Form elements bound to fields and properties inherit their values.
- The user fills in data and submits the Form.
- Data is stored:
    - All submitted data is stored as a Form snapshot.
    - Values of fields and properties bound to page elements are populated and saved separately.
- Data is available to customers:
    - On the user interface.
    - In an event of Events API.
    - As a Service request, if conditions match.
- User goes to step 1 if there is a need to fill the Form again.
    - All Form field elements, except those that have auto-calculated default values or values filled through predefined parameters are blank.
    - Form elements bound to fields and properties inherit actual values.

Export and Import Forms

You export the contents of a Form, so that you can import it and create a similar Form. You can use this feature especially when you want to transfer Forms between Oracle Field Service instances. The best practice is to import the configuration (properties, activity types, resource types, inventory types, user types, and so on) before you export or import a form.

1. Click **Configuration** > **Forms & Plugins**.
2. Click **Export** in the header.
3. On the **Export Forms or Plugins** dialog box, select **Export forms**.
4. Select the check boxes against the Forms that you want to export.
   A counter shows the total number of Forms available in the instance and the number you have selected.

5. Click **Export**.

   The selected Forms are saved as a compressed file (.zip file) in your designated download folder. Within the .zip file, each Form is available as a .json file.

6. To import a Form:
   a. Click **Import** and then click **Forms**.
   b. On the **Import forms** dialog box, drag-and-drop the .zip file that you have exported.

      The application validates the contents of the zip file and displays Errors, Warnings, or Notices. You cannot proceed with the import if there are errors. You can still import Forms that show warnings and notices. However, you might have to update the configuration of such Forms later.
   c. Click the arrow next to the Form with an error or warning and review it.

      Some of the possible errors are:
      - The file is not a zip archive.
      - The archive content is incorrect, for example, the archive doesn't contain mandatory files, or the JSON structure for a Form is broken.
      - The file size is more than 32 MB. If there are any other restrictions applied by your organization, they take precedence. For example, if your VPN server does not allow you to send files that exceed 16 MB, the file you upload must be less than 16 MB.
      - The label of the Form is empty.
   d. Fix the errors, if any and repeat steps a, b, and c.
   e. Click **Import**.

      If your .zip file contains new Forms, they are created and existing Forms are replaced. When all the Forms are imported, a message informing the successful operation is displayed. All newly updated items are displayed at the top of the **Forms and Plugins** page, and their update dates are highlighted.

Service Requests

A Service Request is a data collection element that collects data from Oracle Field Service. You can send this data to an external application using an Outbound API or use it in message scenarios. You can create a Service Request as part of a form submitted in Core Application or as a result of the Core API function “Create a service request”.

Support for Service Requests

Oracle continues to support Service Requests as an entity for forms. When you configure a field or property that belongs to the Service Request entity on a custom form, a Service Request is created in Oracle Field Service when you submit the form. You can send this Service Request through an Outbound API using the notifications engine. You can use the fields and properties that are of type Service Requests in message scenarios either as a variable within a message or as a blocking condition. When you submit a custom form with a Service Request field, the form is submitted and a Service Request object is created.

API Integration for Service Request Objects

If a submitted form has at least one field of Service Request type, then a service request object is created to provide backward compatibility. It means that when you submit such a form, an event is generated and you can retrieve it using the events API. If you have configured a message scenario with the 'Manual' launch condition, the message is also triggered.

High Level Steps to Use Service Requests

Here are the high-level steps to use the Service Request option.

1. Configure one or more service request types.
   You can do this by configuring values of the **Request Type** srtype field on the **Properties** configuration page. For example, create the enumeration property hit_type, with the values Initialize and Refresh.
2. Create a custom form, add the **Request Type** (srtype) field and the Service Request property.
3. Configure a button for the custom form on a page.
   For example, add the **Initialize** button to the **Edit/View Activity** Visual Form Editor and select Send Request in the list of custom forms.
   When a user clicks the **Initialize** button, the form that was associated with the button opens. The user may fill it with the relevant values and then click **Submit**. When you create a Service Request as part of a submitted form, Oracle Field Service creates the Service Request in the context of the page from which you open the form. In this example, the custom form and the Service Request will have the context of the activity, from which it is opened. You can then send the activity details to an external application.

   Similarly, if you want to collect the details of inventory, you must add the button to an inventory page, such as the Add to Required page.

Types of Plug-Ins

You can add a hosted plug-in, an external plug-in, or an external application as a plug-in. You can also use the standard plug-ins that are shipped with Oracle Field Service.

Standard Plug-In: A standard plug-in is available out-of-the-box in Oracle Field Service and is supported by Oracle. It contains the logic that covers specific business scenarios (for example, Debrief) and can support integrations with other Oracle products such as Service Logistics. You cannot change a standard plug-in.

Hosted Plug-In: A hosted plug-in is hosted in Oracle Field Service and uses the Plugin API to interact with Oracle Field Service. This means, if your plug-in consists only of HTML, CSS, and JavaScript files and doesn't contain server-side files, then you can host it in Oracle Field Service. No additional hosting is required. The plug-in framework handles the communication between the hosted plug-in and Oracle Field Service.

External Plug-In: An external plug-in is hosted elsewhere and communicates with Oracle Field Service through the Plugin API. You add only a link to the plug-in here.

External Application: An external application can be added as a plug-in and it will be opened as a web page in a new window, or the same window within Oracle Field Service.

How to Add, Host, and Configure a Plug-In

You can add a standard plug-in, host a plug-in, add an external plug-in, or add an application as a plug-in to extend your business processes.

For more information, see the Mobile Plug-In Framework guide.

The Navigate Action

The **Navigate** action is a pre-configured link that opens a native navigation app on mobile devices. The **Navigate** link appears only when the user is online, offline, and when activities have resolved coordinates.

These links are pre-configured:

- Android devices (browser user agent mask = *Android*) open a navigation application by geo: protocol for Android browsers.
- iOS devices (browser user agent mask = *(?:iPad|iPod|iPhone)*) open Apple Maps.
- All other devices (Browser user agent mask = *) open maps.google.com.

Modify the Navigate Action

You can modify the **Navigate** action, but note that changing this configuration could impact the users in the field. We recommend that you test the application properly before changing.

1. Click **Configuration** > **Forms & Plugins**.
2. Locate Navigate and click **Modify** in the stack menu.
   The **Modify plugin** dialog box appears.
3. Enter the **Native application name**, **Browser user agents mask** and URL.
4. Click **Save**.
   The new **Navigate** action is saved.

Workflows and How to Configure a Workflow

A workflow helps resources visualize the flow of steps while performing an activity. It guides resources through their work, and lets them see what steps are completed and what steps remain to be completed. You can use workflows with all type of activities, such as regular activities, mass and repeating activities, segmentable activities, and teamwork. You can create workflows through the **Workflow Manager** page. You can set the workflow for an activity through the user interface or through APIs. For more information about setting workflows for activities through APIs, see the *REST API for Oracle Field Service* guide.

To enable the feature, you must configure **Workflow Manager** as Read/Write on the **Configuration** context layout for the required User Types. The **Workflow Manager** page is added automatically to all User Types that can access the **Forms & Plugins** page.

Follow these steps to configure a workflow:

1. Add a workflow.
2. Add the steps to the workflow.
3. Add the workflow conditions and activate the workflow.

You do not need to associate a workflow with an activity manually. After you configure a workflow either through the **Workflow Manager** page or through the APIs and activate it, Oracle Field Service attaches it to the relevant activities dynamically.

Related Topics

- Associate a Workflow with an Activity

Add a Workflow

You can create a workflow to help resources visualize the flow of steps of an activity.

1. Click **Configuration** > **Workflow Manager**.
2. Click the plus icon (**Add new** button) in the left pane.
3. In the **Add workflow** dialog box, type a label for the workflow, in the **Workflow label** field.
4. In the **English** field, type a name for the workflow in the English language.
5. Add the name for the workflow in the other required language fields.
6. Click Add.

   The workflow is saved. All new flows are set as *Inactive* by default. This means that they are not available for resources until you change their status to *Active*. You can create a workflow and set it to *Active* right away, but the best practice is to review the workflow thoroughly, check its configuration, and only then enable it.

Add a Workflow Step

A workflow step is the page that you want to display at that step. This can be either a custom form, a plug-in, or a standard inventory action page. A step includes conditions that decide when a step is started or completed.

1. Click **Configuration** > **Workflow Manager**.

   The existing workflows are displayed.
2. Click the workflow for which you want to add a step.
3. Click the plus icon (**Add new** button) in the right pane.
4. Complete these fields on the **Add step** dialog box:

Field	Action
Open	Select one of these options: o **Forms:** Select the custom form that you want to display at this step. To display a form dynamically, select **Form label is taken from property** and select the form property that was created for this purpose in the **Property containing form label** field. o **Plugins:** Select the plugin that you want to display at this step. o **Standard action screens:** Select the standard inventory page that you want to display at this step. The options in the **Show completed when** section change based on the option you select here.

Field	Action
Position in workflow	Select the position of the step within the workflow. If you're adding the first step, 'First' is automatically populated. You can change the order of the steps on the **Workflows** page as well.
Name translations	Add the name of the step in the languages that you prefer. This name is displayed on the workflow panel.
Show available when	Select the visibility condition for the step. The condition can be based on a field or property, or a step in the workflow. This step is visible for end users only when the condition is satisfied. **Always available (no conditions)** means that a step is displayed for end users initially. Click the plus icon and select one of these options: ○ **Fields and Properties:** Click the plus icon. Select the field name and then select the condition it must satisfy. This is similar to adding the visibility conditions for user types. ○ **Workflow Step:** Click the plus icon. Select the custom form that you've selected for the current or an earlier step. Add the condition. This option lets you specify whether you want to display a step when a form selected in an earlier step is completed. **Default:** Form <form name> in (equal) submitted The *Submitted* option isn't available if you've selected a plug-in in the **This step will open** field.
Show completed when	Select the condition that decides a step as completed. The condition can be based on a field or property, or a step in the workflow. The step is marked as completed only when the condition is satisfied. Click the plus icon and select one of these options: ○ **Fields and Properties:** Click the plus icon. Select the field name and then select the condition it must satisfy. This is similar to adding the visibility conditions for user types. ○ **Workflow Step:** Click the plus icon. Select the custom form that you've selected for the current or an earlier step. Add the condition. This option lets you specify whether you want to mark a step as completed when the current form is submitted. **Default:** Form <form name> in (equal) submitted The *Submitted* option isn't available if you've selected a plug-in in the **This step will open** field.
Parameters	Use the **Parameters** section to prepopulate the fields on the form you're using with this step. This option is similar to the **Parameters** option when you configure a custom form using the Visual Form Editor.

5. Click **Add**.
   The step is added.
6. Click **Save**.
   The workflow is saved.

Related Topics

- Launch a Custom Form Dynamically
- Add the Form Property to a Workflow Step

Add a Workflow Condition and Activate the Workflow

A workflow condition associates a workflow with an activity. In other words, you can add a workflow condition to define the types of activities for which the workflow applies. If you do not add any condition, it implies that the workflow

applies to all activities. Oracle Field Service does not associate a workflow with any activity until you activate the workflow.

1. Click **Configuration** > **Workflow Manager**.
   The existing workflows are displayed.
2. Click the workflow for which you want to add a condition or activate.
3. Click **Actions** > **Modify**.
   The **Workflow Details** dialog box appears.
4. Add the workflow condition as a formula in the **Conditions** field.
   The workflow is applied to all the activities that satisfy the condition. For example, if you add 'activity.aworktype IN ('trouble_call')', the workflow is applied to all activities of type *trouble_call*.
5. To activate the workflow, click **Active**.
   The application applies the workflow to activities and resources only after you activate it.
6. Click **Modify**.
   The workflow condition is saved.
7. Click **Save**.
   The workflow is saved.

Edit a Custom Form within a Workflow

Sometimes, while working with a workflow you may notice that a custom form needs to be edited. You can edit a custom form through the **Workflow** page, without opening the **Forms & Plugins** page.

1. Click **Configuration** > **Workflow Manager**.
   The existing workflows are displayed.
2. Click the workflow to which the form is attached.
3. Click the context menu for the step to which the form is attached. Click **Edit Form**.
   The Visual Form Editor opens for the form.
4. Edit as required and click **Save**.

Tips to Configure Activity Pages for Workflows

There are some best practices that you can use to configure the **Activity details** page (**Edit/View activity** Visual Form Editor) when using workflows.

Here are the best practices:

- You must build this page from the information perspective, which means it should contain all the useful information that a resource might require in the field. That is, information about the environment, technical limitations, neighbors, links to useful knowledge on external resources, and so on.
- You must present all of the forms and plug-ins required for an activity within the workflow.
- Buttons on **Activity details** must lead to those pages that aren't a part of a workflow (that is, **Inventory list**, **History**).

- There is no strict relation between the visibility of the **Start activity** and **End activity** page and the completion of the workflow steps. You must configure the visibility conditions for these buttons separately on the **Edit/ View activity** Visual Form Editor.
- You can add inventory into a workflow as a plug-in that manages equipment. Workflow Manager doesn't support the standard inventory pages. Therefore, you must configure the inventory-related pages as buttons on the **Activity details** page.
- Keep the **Start activity** and **End activity** pages as simple as possible, so that resources spend very little time to perform these actions.

This helps the resource view the majority of pages they interact with while working on an activity within the workflow. This way, the workflow navigates the resource throughout the process of the activity. Everything else is side information that might be important, but cannot be considered as tasks that must be performed to finish an activity.

Associate a Workflow with an Activity

You can associate a workflow with an activity in two ways:

- **Using API:** The Oracle Field Service REST API supports the *Activity workflow* field within the *POST activities* and *PATCH activities* requests. For more information on how to use APIs for workflows, see the REST API for Oracle Field Service guide.
- **Based on workflow conditions:** Oracle Field Service calculates the activity workflows dynamically based on the workflow conditions you have created. This calculation works for only those activities in the *Pending* and *En route* status, where the workflows aren't specified using APIs. When a resource changes the activity status from *Pending* or *En route*, the application associates the workflow with the activity, saves the workflow label into the **Activity workflow** field and stops recalculation. Dynamic calculation works the same even when a workflow step is configured with default values and when the workflow is empty. You cannot change the workflow after a resource starts the activity.

Export and Import Workflows

You can migrate workflows from one instance to another to reduce the time taken to create it manually. When you export a workflow, only the steps are exported. You must first create the workflow name in the target instance manually, before importing the steps.

Prerequisites:

- Create all the required forms and plug-ins in the target instance.
- Create the custom properties used within the step conditions in the target instance.
- Configure the required enumeration values for fields such as 'Activity type' and 'Resource type'.

1. Click **Configuration** > **Workflow Manager**.
   The existing workflows are displayed.
2. Click the workflow that you want to export.
3. Click **Actions** > **Export**.
   The workflow is exported as a .json file.

4. Create the workflow in the target instance manually, as described in the Add a Workflow topic.
5. Click **Actions** > **Import**.
6. Browse and select the .json file that was created in Step 3.
7. Click **Import and Validate**.
   The workflow is imported and a log is displayed. If there are critical errors, the import is rejected. You can edit the workflow based on the errors and warnings and try importing again.

Use Cases to Configure a Workflow

Here are a couple of examples of how you can configure linear and non-linear workflows.

Example 1: Configure a non-linear workflow for an activity type

This use case shows how to configure a workflow where the order of the steps doesn't matter. This workflow is available for a specific activity type.

Preconditions:

- The workflow uses only forms, and you have configured all the forms.
- The workflow must work only for the 'Trouble Call' activity type.

Actions:

1. Add a new workflow and configure a condition using 'activity.aworktype IN ('trouble_call')'.
2. Add the workflow steps and point them to the forms that must be used within this workflow.
3. Accept the default conditions for all the steps.

Results: The workflow is displayed only for the activities of *Trouble Call* activity type. All the steps are displayed as available for technicians when they open the activities, and the technicians can complete the steps in any order.

> **Tip:** You can implement a new workflow based on the current configuration of the **Activity Details** page. For that, you must use the same forms that are configured on this page.

Example 2: Configure a linear workflow for a user type

This use case describes how to configure a workflow where the steps become available one after the other. This workflow is available only for a specific group of users.

Preconditions:

- The workflow uses only forms, and you have configured all the forms.
- There are four steps within the workflow called Safety checklist, Verify Order, Debrief, and Agreement.
- The workflow must work for the Technician user type.

Actions:

1. Add the new workflow and configure a condition using 'user.type IN ('technician')'.
2. Add 'Safety checklist' as the first step and accept the default conditions.
3. Add 'Verify Order' as the next step and specify the "Safety checklist is completed' condition in the **Show available when** section.

4. Add 'Debrief' as the next step and specify the 'Verify Order is completed' condition in the **Show available when** section.
5. Add 'Agreement' as the next step and specify the 'Debrief is completed' condition in the **Show available when** section.

Result: This workflow will appear to users assigned with the 'Technician' user type, and the steps will become available one by one:

1. The first step is available from the beginning.
2. The second step becomes available when the first one is completed.
3. The third step becomes visible when the second step is completed.
4. The last step becomes available when the third step is completed.

How to Add Install Required Inventory Workflow Step

You can use the installation of required inventory as a workflow step. The application checks when all the required inventory items are installed and show the corresponding step within a workflow as completed.

1. Click **Configuration** > **Workflow Manager**.
2. Click the workflow for which you want to add install required inventory as a step.
3. Click the plus icon (**Add new**) in the right pane.
4. Complete the fields on the **Add step** dialog box with the values given this table:

Field	Action
This step will open	Select Standard action screens.
Screen	Select Inventory [list_inventories].
Position in workflow	Select the position of the step within the workflow. If you are adding the first step, 'First' is automatically populated. You can change the order of the steps on the Workflow page as well.
Name translations	Add the name of the step in the languages that you prefer. This name is displayed on the workflow panel.
Show available when	Select the visibility condition for the step. The condition can be based on a field or property, or a step in the workflow. This step is visible for end users only when the condition is satisfied. **Always available (no conditions)** means that a step is displayed for end users initially.
Show completed when	**Required inventory in (equal) installed** is displayed by default. If you want the step to be completed when the resource completes the inventory checklist, add the condition **Inventory checklist in (equal) completed**.

5. Click **Add**.
   The step is added.
6. Click **Save**.
   The workflow is saved. When a resource marks the inventory checklist as complete, the step is marked as complete.

4 Configure Users and Security

Organizations

An organization is an entity comprising multiple people, tools, and vehicles that collectively operate as a unit toward a common goal. In other words, an organization is either a main company, a subdivision (Line of Business of an organization), or a third-party company that has a contract with the main company. An organization can have buckets, organization units, field resources, tools or vehicle associations.

An Organization can have buckets, organization units (Org Units), field resources, tools or vehicle associations. You must create an organization before adding any type of resource. There is one default organization and you can create additional organizations (in-house and contractor) to meet your operational needs. For example, if XYZ Inc., is the main organization, XYZ East Coast and XYZ West Coast could be subdivisions. The resources that are directly employed with the organization are known as in-house resources. The resources that are employed by a third-party company that subcontracts work are known as contractors. It is recommended that you create an organization for each contractor company. If the main organization cannot directly assign activities to contractor resources for legal reasons, it can assign activities to a bucket that contains contractors. Further, a field resource, tool or vehicle will automatically inherit the parent's Organization, while a bucket or organization unit can be changed to any defined Organization in the system.

Create, Edit, or Delete Organizations

An Organization is a main company, a subdivision (Line of Business of an Organization), or a third-party company that has a contract with the main company. An Organization can have buckets, Organization units, field resources, tools, or vehicle associations. You can create, edit, or delete Organizations.

1. Click **Configuration** > **Organization**.
   The **Organizations** page appears.
2. Click **Add New**.
   The **Add Organization** dialog box appears.
3. Enter the name of the Organization in the **Name** field. Enter the names in the corresponding language fields for languages other than English.
4. Enter a label for the Organization in the **Label** field.
   This label will be used as the Organization identifier in APIs.
5. Select the type of Organization from the **Type** drop-down list.
   The Organization type can be in-house or contractor.
6. Click **OK**.
   The Organization is added to the list of Organizations.

   > **Note:** You cannot add a new organization with the same label as an existing one, even if such an organization is deleted.

7. To edit an Organization, click the Organization on the **Organizations** page.
   The **Edit Organization** dialog box appears. Edit as required and click **Submit**.

8. To delete an Organization, click **Remove** on the **Organizations** page.
   You can remove only those Organizations that don't have field resources, tools, or vehicles assigned to them.

Login Policies

Login Policies determine the authentication method and options for users to access the application.

There are five types of authentication methods:

Authentication Method	Description
Internal	The internal authentication method (BasicHTTP) is a good solution for small companies with relatively few user credentials, which can be stored in the application database.
LDAP	The LDAP (Lightweight Directory Access Protocol) authentication method is similar to the internal method. The only difference is that the users' credentials are stored outside Oracle Field Service in an external LDAP server. This method can be used by companies that prefer to store their user data in an external server to increase security. When the LDAP authentication is used, the user enters their credentials into Oracle Field Service, which then passes them to the LDAP server for verification. To enable LDAP authentication, a software that supports LDAP v3 must be installed and configured on the customer's back-end server. Examples of such software are: Active Directory, OpenLDAP.
SAML	The SAML (Security Assertion Mark-Up Language) authentication method is an SSO method, involving authentication data exchange between the user, the service provider (SP) and the identity provider (IdP). The user wishing to access the services of the service provider has to pass the authentication by the identity provider, which asserts the user's identity to the service provider. The user's data is stored with the identity provider and is verified by the user's credentials. If the user authentication is successful, the service provider verifies the user's login policy and grants access to the application. One user can be associated with only one login policy and, therefore, its data can be stored with only one identity provider. The application supports SAML 2.0 protocol, therefore, you can use any SAML 2.0 identity provider. The identity provider details must be used in configuring the SAML Login Policy.
IDCS for Web SSO	You can use Oracle Identity Cloud Service (IDCS) as an identity provider for web SSO. This option helps customers store user credentials in a different store instead of Oracle Field Service. This option is part of the SAML authentication option, and you can upload the metadata as an XML file.
OpenID Connect	With the OpenID Connect authentication method, a user uses the account created with an OpenID Connect Identity Provider to log in to any website supporting the OpenID Connect authentication. The user registers the OpenID Connect URL with the OpenID Provider, which becomes the user's identifier. OpenID Connect can be a method of choice for companies preferring cloud data storage and using the same credentials to access multiple websites.

Generally, the authentication method used depends on the company's business principles and requirements. In most cases, a company uses one authentication method, although, use of several authentication methods within the same company is technically possible.

Application Instances or Environments

Oracle Field Service instances or environments include one production and two test instances provisioned as a part of your ordered service. The Production instance is dedicated to production use and test instances are dedicated to non-production use. You can expand the service with additional non-production instances subject to additional fees.

Instance Names

Each Oracle Field Service instance can have two names. The first name is provided by Oracle and is used for creating the instance and ensuring that this name is unique among all other Oracle Field Service instances. You cannot change this name and it remains reserved for the instance for its lifetime.

The other name typically indicates that the instance is dedicated to a certain business or a company. This name is called 'alternate name'. When you provision the instance, an alternate name is generated based on your customer account. You can change is name from the Service Console, which is available in the Cloud Portal under Field Service. All instance names are displayed on the **About** page of your instance and in the Cloud Portal Service Console.

Domains for Your Instances

Domains for a Production Instance

Each production instance might be supplied with several URLs depending on the provided alternate name and domain zones. These domains are always constructed from two parts:

- Either instance name (mentioned as the 'instance_name' parameter in the example below) or an alternate name
- Domain zones available for an instance

The standard set of addresses for any instance is:

- https://{instance_name}.fs.ocs.oraclecloud.com
- https://{alternate_name}.fs.ocs.oraclecloud.com

For legacy instances that are created before June 2021, domains are also registered within the etadirect.com zone. For example:

- https://{instance_name}.etadirect.com
- https://{alternate_name}.etadirect.com

You can check the instance provisioning date in the Cloud Portal to find out what domain zones can be used to access your instance.

Domains for Non-Production Test Instances

The rules for provisioning of end points for test environments are almost the same as that of production instances. The only difference here is that for tests the application automatically adds the suffix '.test' after the name. This logic is applied to easily distinguish between production and test environments. The example of an end point for a test instance is https://{instance_name}.test.fs.ocs.oraclecloud.com.

Domains Not Recommended

Oracle Field Service supports two centralized entry points:

- login.etadirect.com - to access from browser and installed apps
- api.etadirect.com - for integration using APIs

Oracle keeps these domains to support backward compatibility for customers who are already using them. However, these addresses aren't recommended for usage, because they can be served by any of the datacenters in the cloud causing additional redirects to a datacenter where target Oracle Field Service the instance is running. This might lead to:

- latency for processing of requests
- increased error rate
- issues with data residency

Based on this information, the best practice is to use a direct address to access an Oracle Field Service instance. If you are still using a not-recommended domain, you must change to using a direct instance address as soon as possible.

Before you Create a Login Policy

To create a new SAML or OpenID login policy, you must sign in to the instance using the URL you want to use for integration with your Identity Provider.

> **Note:** Typically, the default *Internal* login policy is included in the data that is loaded into an instance during its creation. We do recommend to always keep several admin users assigned with the user type referenced to the default *Internal* policy to access the instance in the event of issues with SSO or for creating or modifying login policies.

Next, configure the login policy settings and set up an application in your Identity Provider:

- For SAML, download the OFS metadata.xml file which contains the URL that you must use to access the instance. Use this file to configure the application in your Identity Provider.
- For OpenID, copy the OFS linkback URL and paste it into **Redirect URL** when you configure the application in your Identity Provider.

  You must use the URLs within the etadirect.com domain zone only for the instances that are provisioned before June 2021.

LDAP Connection Validation When Configuring Login Policy

This feature is implemented for those customers who have chosen Lightweight Directory Access Protocol (LDAP) for authentication.

This feature provides these improvements:

- Informs users about the need to configure the connection from two regional data centers where the environment can be deployed.
- Simplifies the LDAP connection check and notify integrators about any connectivity issues by providing these functions within the application.

When using the LDAP type of authentication, you must make some additional actions to set the connectivity properly. The application implements two types of connectivity checks for login policies using LDAP for authentication:

- Manual connectivity check (when adding, modifying or viewing a login policy)
- Automatic connectivity check (once a day)

For both types of connectivity checks, the application connects from both regional data centers over LDAP servers specified for a login policy and show the results in UI.

Manual connectivity check

The application runs a connectivity check when adding or modifying an LDAP login policy.

- You must populate all of the required fields for a login policy and then click the 'Check Connectivity and Add' / 'Check Connectivity and Modify' buttons. Then the application initiates a connectivity check from both regional data centers over all end points configured within the 'LDAP Server URL List' field.
- If the application was able to establish connectivity to all LDAP servers then the login policy settings are saved.

  Alternatively, if any issues occur, the application displays a page showing the detailed status of the connectivity check from each data center for each configured LDAP Server URL. This page also shows a warning message to set up connectivity at the earliest opportunity so as to save the login policy and establish a connection later.
- Check connectivity while not making any configuration changes

  Another option for integrators is to click Re-check after making the required changes. This prompts the application to run the connectivity check again. You can initiate the connectivity check without making any configuration changes. Click Check connection on the login policy page. The application initiates the connection over all LDAP Server URLs from both regional data centers and display the results.

Automatic connectivity check

The application automatically runs a daily connectivity check for each LDAP login policy by connecting to all LDAP servers from two regional data centers.

Connectivity Check Results:

- Accessing the overall status

  An overall status of the latest LDAP connectivity check is displayed on the login policy card that appears on the 'Login policies' screen. There could be two statuses:
- Connected to all LDAP server URLs

  This status implies that all LDAP servers could be reached from two regional data centers.
- Configure connection to all LDAP servers

  This status shows that the connection to at least one of the LDAP servers failed from either of the data centers.
- Configure connection to all LDAP server URLs Message

Viewing detailed report of connectivity check

A detailed report on the results for the last connectivity check are displayed on the login policy page.

From the detailed report:

- In case of positive results, the application shows a Connected to all LDAP server URLs message with the green check box icon.
- In case of connectivity issues, the application shows the connection status for each LDAP URL configured for the policy.

The login policy page also shows the date and time when the connection check was performed.

A deployment model of the application addresses the major security requirement that data cannot leave a geographical region where a company operates. To achieve this, the application is provided with two data centers in each region. Respectively, an environment can be deployed in either of these two data-centers and moved to another data center at any time; the most common reason for this migration would be as part of the disaster recovery procedure that is automatically triggered when the primary data center is impacted by some severe issues.

Related Topics

- How do I add a login policy for LDAP, SAML, or OpenID Connect authentication method?

How do I add a login policy for LDAP, SAML, or OpenID Connect authentication method?

Login policies determine the authentication method and options for users to access Oracle Field Service. The application includes a default login policy; you can add login policies for LDAP, SAML, and OpenID Connect authentication methods. You can also add multiple policies with multiple authentication methods.

Before you start

Before you implement OpenID Connect: Create or register Oracle Field Service as an application in your identity provider. Get the Configuration URL, Logout URL, Client ID, and Client secret from the identity provider. Further, define an attribute that will be used for the username.

Here's what to do

1. Click **Configuration**.
2. In the **Users and Security** section, click **Login Policies**.
3. Click **Add new**.
   The **Add Policy** dialog box appears.
4. Complete these fields:

Field	Action
Label	Enter a unique identifier label. For SAML login policy, enter only alphabets, numbers, and undersrores (_).
Policy name	Enter a name for this policy. Enter the name in English and in all the languages that are active in the application.
Authenticate using	Select the type of authentication method used for this login policy.
These fields are displayed for **Internal** authentication method:	
Max login attempts	Enter the number of invalid login attempts after which the user is blocked. When this field is set to 0 (zero), the feature is disabled. However, disabling this feature is not recommended for security reasons. Default value is 5.
Login block timer	Enter the number of minutes during which the user remains blocked after reaching the maximum number of invalid login attempts. Default value is 5 minutes.
Force password change after	Enter the number of days after which the user must change their password to access the application. When this field is set to 0 (zero), the feature is disabled.

Field	Action
	Note: If the customer's LDAP server allows setting the period of forced password change, it is recommended that the period set in the application is shorter than the one set on the LDAP server. This way, the password changes initiated by the application occur earlier than those initiated by the LDAP server which ensures correct and reliable performance.
User inactivity timeout	Enter the duration of the idle time after which the user is prompted to re-enter the password upon an attempt of any action in the application. Default value is 240 minutes.
Relogin timeout	Enter the period after which the user is prompted to re-enter the password regardless of whether the user was active or not. Default value is 480 minutes.
Max sessions	Enter the maximum number of simultaneous sessions allowed to the user. Default value is 3.
Min password length	Enter the minimum number of characters in the password. Default is 8.
Password must contain uppercase and lowercase letters	Select whether the password must contain alphabets. This option is selected by default.
Password must contain digits	Select whether the password must contain numbers. This option is selected by default.
Password must contain special symbols	Select whether the password must contain special characters and symbols. This option is selected by default.
Password must not contain personal details	Select whether the password must not contain personal details such as the user's first name or last name. This option is selected by default.
Password must differ from old password	Select whether the password must be different from a previous password. This option is selected by default.
Allow access only for certain IP addresses	Select whether you want to restrict access to specific IP addresses. By default, a login policy is created without any restrictions to the IP addresses from which the user may log in. Select the check box to enable the restriction. When this check box selected, the **Allowed IP address list** field appears, where you can enter the IP addresses that can access the application.
These fields are displayed for the **LDAP** authentication method, along with the fields listed earlier:	
LDAP server URL	Enter the actual host name or IP address of the LDAP server.
LDAP DN pattern	If you want to select the **LDAP server is MS Active Directory** check box, enter the part of the UPN (User Principal Name) common among the users. In this case the LDAP DN pattern must always contain the UPN pattern. UPN (User Principal Name) is a string of characters used to represent a resource available in Active Directory. It should be used when communicating with MS Active Directory servers. An example of this field value is %s@test.corp, where %s is a special placeholder to be substituted with the user's login. If the **LDAP server is MS Active Directory** check box is not selected, this field contains the common path to the LDAP tree for the users, their DN pattern. DN (Distinguished Name) is a string of characters used to represent a resource available in the LDAP directory. An example of this field value is cn=%s,dc=example,dc=com, where %s is a special placeholder to be substituted with the user's login in the application.
LDAP server is MS Active Directory	Select whether the LDAP server is a MS Active Directory.
These fields are displayed for the **SAML** authentication method:	
Specify SAML IdP	Select the way in which you want to select the SAML identity provider. The options are: o Upload metadata XML o Specify metadata URL o Oracle IDCS

Field	Action
	○ Manual populate
IdP Metadata XML	This field is displayed if you select **Upload metadata XML** in the **Specify SAML IdP** field. Click **Upload** to upload the XML file that contains the metadata details for the identity provider. If the uploaded file is incomplete, or does not contain the details in the proper format, the message, Cannot download metadata from the specified XML: XML parser error is displayed. Contact your Identity Service Provider to get this metadata XML. Ensure that the XML includes or conforms to this information: ○ Metadata XML must be in accordance with SAML 2.0 specifications. ○ The file contains "SAML Issuer" (parameter "entityID" of the node "EntityDescriptor"). ○ The file provides identity provider certificate (nodes "md:EntityDescriptor/md:IDPSSODescriptor/ KeyDescriptor/KeyInfo/X509Data/X509Certificate/").
IdP Metadata URL	This field is displayed if you select **Specify metadata URL** in the **Specify SAML IdP** field. Type the URL from which you want to take the SAML metadata details for the identity provider. If the URL is unresolved, the message, Cannot download metadata from the specified URL: no route to host is displayed.
IDCS Metadata XML	This field is displayed if you select **Oracle IDCS** in the **Specify SAML IdP** field. Click **Upload** to upload the XML file that contains the metadata details for Oracle IDCS. Contact your implementation consultant for more details on Oracle IDCS.
OFS Metadata XML	Click **Download** and select the domain that you want to use to redirect the requests from the identity provider to Oracle Field Service. The metadata file is downloaded to your computer and the address is displayed under **OFS Domain**. You must pair your identity provider with Oracle Field Service. Use the downloaded XML file to register Oracle Field Service with your identity provider.
Max sessions	Enter the maximum number of simultaneous sessions allowed to the user.
SAML issuer	Enter the identifier used to identify asserts from the Identity provider (IdP). It can be any string provided by IdP, not only URL. It is used for IdP and Service provider (SP) initiated connections.
SAML identity provider certificate	Enter the IdP public key used to sign requests.
SAML identity provider login URL	Enter the IdP URL to redirect to for login. It is needed only for SP initiated logins.
SAML identity provider logout URL	Enter the IdP URL to redirect to for logout. It is needed only for SP initiated logins.

SAML attribute containing username	Enter the SAML assertion attribute name where IdP must store the user name (login name for Oracle Field Service). Example:
	`[saml:Attribute Name="uid" NameFormat="urn:oasis:names:tc:SAML:2.0:attrnameformat: basic"] [saml:AttributeValue xsi:type="xs:string"]dispatcher[/saml:AttributeValue] [/saml:Attribute]`
	If it is empty then Oracle Field Service gets the user name from the Name Identifier element of Subject statement. Example:
	`[saml:Subject] [saml:NameID SPNameQualifier="https://sp.com/sp/module.php/ saml/sp/metadata.php/ default-sp" Format="urn:oasis:names:tc:SAML:2.0:nameidformat: persistent"]dispatcher[/saml:NameID] [/saml:Subject]`

These fields are displayed for the **Open ID Connect** authentication method:	
Max sessions	Enter the maximum number of simultaneous sessions allowed to the user.

Field	Action
Select linkback URL	Click **Select linkback URL** and select the domain that you want to use to redirect the requests from the identity provider to Oracle Field Service.
Configuration login URL	Enter the Identity Provider URL to start authentication.
Logout URL	Enter the URL to which the user is redirected after logout. It may be the URL for logout from the Identity Provider.
Attribute containing username	Enter the name of the OpenId attribute where the Identity Provider must store the user's name (login name for Oracle Field Service). Example: email.
Client ID	Enter the value of the field containing data from registered OpenID provider (for example, Client ID).
Client secret	Enter the value of the field containing data from registered OpenID provider (for example, Client Secret).

5. In your OpenID application, configure a link back URL. Use the URL displayed in this dialog box for the option that you have selected.

   Your Identity Provider uses this link to redirect users to Oracle Field Service upon successful login.

6. Click **Add**.

   A warning appears if any of the security parameters is blank. If not, the Login Policy is saved. The application generates the metadata based on the options you have selected. Use this metadata to link your identity provider with the instance. Note down the instance URL that you must use when setting up an external identity provider.

Sample metadata XML file for SAML identity provider:

```
<?xml version="1.0"?>
<md:EntityDescriptor xmlns:md="urn:oasis:names:tc:SAML:2.0:metadata" xmlns:ds="http://www.w3.org/2000/09/
xmldsig#" entityID="https://idp-saml.ua3.int/simplesaml/saml2/idp/metadata.php">
 <md:IDPSSODescriptor protocolSupportEnumeration="urn:oasis:names:tc:SAML:2.0:protocol">
 <md:KeyDescriptor use="signing">
 <ds:KeyInfo xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
 <ds:X509Data>
 <ds:X509Certificate>MIID7TCCAtWgAwIBAgIJANn3qP9lF7M3MA0GCSqGSIb3DQEBCwUAMIGMMQswCQYDVQQGEwJVQTEXMBUGA1UE
 CAwOS2hhcmtpdiBSZWdpb24xEDAOBgNVBAcMB0toYXJrb3YxDzANBgNVBAoMBk9yYWNsZTEYMBYGA1UEAwwPc3RzeWJvdi12bTEudWEzMScw
 JQYJKoZIhvcNAQkBFhhzZXJnaWkudHN5Ym92QG9yYWNsZS5jb20wHhcNMTUxMjI1MTIyMjU5WhcNMjUxMjI0MTIyMjU5WjCBjDELMAkGA1UE
 BhMCVUExFzAVBgNVBAgMDktoYXJraXYgUmVnaW9uMRAwDgYDVQQHDAdLaGFya292MQ8wDQYDVQQKDAZPcmFjbGUxGDAWBgNVBAMMD3N0c3lib
 3Ytdm0xLnVhMzEnMCUGCSqGSIb3DQEJARYYc2VyZ2lpLnRzeWJvdkBvcmFjbGUuY29tMIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCA
 QEAw4OFwuUNjn6xxb/OuAnmQA6mCWPY2hKMoOz0cAajUHjNZZMwGnuEeUyPtEcULfz2MYo1yKQLxVj3pY0HTIQAzpY8o+xCqJFQmdMiakb
 PFHlh4z/qqiS5jHng6JCeUpCIxeiTG9JXVwF1ErBEZbwZYjVxa6S+0grVkS3YxuH4uTyqxskuGnHK/
AviTHLBrLfSrbFKYuQUrXyy6X22wpzo
 bQ3Z+4bhEE8SXQtVbQdy7K0MKWYopNhX05SMTv7yMfUGp8EkGNyJ5Km8AuQt6ZCbVao6cHL2hSujQiN6aMjKbdzHeA1QEicppnnoG/
Zefyi/
 okWdlLAaLjcpYrjUSWQJZQIDAQABo1AwTjAdBgNVHQ4EFgQUIKa0zeXmAJsCuNhJjhU0o7KiQgYwHwYDVR0jBBgwFoAUIKa0zeXmAJsCuNhJj
 hU0o7KiQgYwDAYDVR0TBAUwAwEB/zANBgkqhkiG9w0BAQsFAAOCAQEAJawU5WRXqkW4emm+djpJAxZ0076qPgEsaaog6ng4MLAlU7RmfIY/
 l0VhXQegvhIBfG4OfduuzGaqd9y4IsQZFJ0yuotl96iEVcqg7hJ1LEY6UT6u6dZyGj1a9I6IlwJm/9CXFZHuVqGJkMfQZ4gaunE4c5gjbQA5/
 +PEJwPorKn48w8bojymV8hriqzrmaP8eQNuZUJsJdnKENOE5/asGyj+R2YfP6bmlOX3q0ozLcyJbXeZ6IvDFdRiDH5wO4JqW/ujvdvC553y
 CO3xxsorB4xCupuHu/c7vkzNpaKjYdmGRkqhEqBcCqYSxdwIFc1xhOwYPWKJzgn7pGQsT7yNJg==</ds:X509Certificate>
 </ds:X509Data>
 </ds:KeyInfo>
 </md:KeyDescriptor>
 <md:KeyDescriptor use="encryption">
 <ds:KeyInfo xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
 <ds:X509Data>
 <ds:X509Certificate>MIID7TCCAtWgAwIBAgIJANn3qP9lF7M3MA0GCSqGSIb3DQEBCwUAMIGMMQswCQYDVQQGEwJVQTEXMBUGA1
 UECAwOS2hhcmtpdiBSZWdpb24xEDAOBgNVBAcMB0toYXJrb3YxDzANBgNVBAoMBk9yYWNsZTEYMBYGA1UEAwwPc3RzeWJvdi12bTEud
 WEzMScwJQYJKoZIhvcNAQkBFhhzZXJnaWkudHN5Ym92QG9yYWNsZS5jb20wHhcNMTUxMjI1MTIyMjU5WhcNMjUxMjI0MTIyMjU5WjCB
 jDELMAkGA1UEBhMCVUExFzAVBgNVBAgMDktoYXJraXYgUmVnaW9uMRAwDgYDVQQHDAdLaGFya292MQ8wDQYDVQQKDAZPcmFjbGUxGDA
 WBgNVBAMMD3N0c3lib3Ytdm0xLnVhMzEnMCUGCSqGSIb3DQEJARYYc2VyZ2lpLnRzeWJvdkBvcmFjbGUuY29tMIIBIjANBgkqhkiG9w0B
 AQEFAAOCAQ8AMIIBCgKCAQEAw4OFwuUNjn6xxb/OuAnmQA6mCWPY2hKMoOz0cAajUHjNZZMwGnuEeUyPtEcULfz2MYo1yKQLxVj3pY0HT
```

```
 IQAzpY8o+xCqJFQmdMiakbPFHlh4z/qqiS5jHng6JCeUpCIxeiTG9JXVwF1ErBEZbwZYjVxa6S+0grVkS3YxuH4uTyqxskuGnHK/
 AviTHLBrLfSrbFKYuQUrXyy6X22wpzobQ3Z+4bhEE8SXQtVbQdy7K0MKWYopNhX05SMTv7yMfUGp8EkGNyJ5Km8AuQt6ZCbVao6cHL2h
 SujQiN6aMjKbdzHeA1QEicppnnoG/Zefyi/okWdlLAaLjcpYrjUSWQJZQIDAQABo1AwTjAdBgNVHQ4EFgQUIKa0zeXmAJsCuNhJjhU0o
 7KiQgYwHwYDVR0jBBgwFoAUIKa0zeXmAJsCuNhJjhU0o7KiQgYwDAYDVR0TBAUwAwEB/zANBgkqhkiG9w0BAQsFAAOCAQEAJawU5WRXq
 kW4emm+djpJAxZ0076qPgEsaaog6ng4MLAlU7RmfIY/l0VhXQegvhIBfG4OfduuzGaqd9y4IsQZFJ0yuotl96iEVcqg7hJ1LEY6UT6u6d
 ZyGj1a9I6IlwJm/9CXFZHuVqGJkMfQZ4gaunE4c5gjbQA5/+PEJwPorKn48w8bojymV8hriqzrmaP8eQNuZUJsJdnKENOE5/
 asGyj+R2YfP6bmlOX3q0ozLcyJbXeZ6IvDFdRiDH5wO4JqW/ujvdvC553yCO3xxsorB4xCupuHu/c7vkzNpaKjYdmGRkqhEqBcCqYSxd
 wIFc1xhOwYPWKJzgn7pGQsT7yNJg==</ds:X509Certificate>
 </ds:X509Data>
 </ds:KeyInfo>
 </md:KeyDescriptor>
 <md:SingleLogoutService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-Redirect" Location="https://idp-
saml.ua3.int/simplesaml/saml2/idp/SingleLogoutService.php"/>
 <md:NameIDFormat>urn:oasis:names:tc:SAML:2.0:nameid-format:transient</md:NameIDFormat>
 <md:SingleSignOnService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-Redirect" Location="https://idp-
saml.ua3.int/simplesaml/saml2/idp/SSOService.php"/>
 </md:IDPSSODescriptor>
 <md:ContactPerson contactType="technical">
 <md:SurName>Administrator</md:SurName>
 <md:EmailAddress>name@emailprovider.com</md:EmailAddress>
 </md:ContactPerson>
</md:EntityDescriptor>
```

Sample Metadata XML File for SAML Identity Provider

Sample metadata XML file for SAML identity provider:

```
<?xml version="1.0"?>
<md:EntityDescriptor xmlns:md="urn:oasis:names:tc:SAML:2.0:metadata" xmlns:ds="http://www.w3.org/2000/09/
xmldsig#" entityID="https://idp-saml.ua3.int/simplesaml/saml2/idp/metadata.php">
 <md:IDPSSODescriptor protocolSupportEnumeration="urn:oasis:names:tc:SAML:2.0:protocol">
 <md:KeyDescriptor use="signing">
 <ds:KeyInfo xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
 <ds:X509Data>
 <ds:X509Certificate>MIID7TCCAtWgAwIBAgIJANn3qP9lF7M3MA0GCSqGSIb3DQEBCwUAMIGMMQswCQYDVQQGEwJVQTEXMBUGA1UE
 CAwOS2hhcmtpdiBSZWdpb24xEDAOBgNVBAcMB0toYXJrb3YxDzANBgNVBAoMBk9yYWNsZTEYMBYGA1UEAwwPc3RzeWJvdi12bTEudWEzMScw
 JQYJKoZIhvcNAQkBFhhzZXJnaWkudHN5Ym92QG9yYWNsZS5jb20wHhcNMTUxMjI1MTIyMjU5WhcNMjUxMjI0MTIyMjU5WjCBjDELMAkGA1UE
 BhMCVUExFzAVBgNVBAgMDktoYXJraXYgUmVnaW9uMRAwDgYDVQQHDAdLaGFya292MQ8wDQYDVQQKDAZPcmFjbGUxGDAWBgNVBAMMD3N0c3lib
 3Ytdm0xLnVhMzEnMCUGCSqGSIb3DQEJARYYc2VyZ2lpLnRzeWJvdkBvcmFjbGUuY29tMIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCA
 QEAw4OFwuUNjn6xxb/OuAnmQA6mCWPY2hKMoOz0cAajUHjNZZMwGnuEeUyPtEcULfz2MYo1yKQLxVj3pY0HTIQAzpY8o+xCqJFQmdMiakb
 PFHlh4z/qqiS5jHng6JCeUpCIxeiTG9JXVwF1ErBEZbwZYjVxa6S+0grVkS3YxuH4uTyqxskuGnHK/
AviTHLBrLfSrbFKYuQUrXyy6X22wpzo
 bQ3Z+4bhEE8SXQtVbQdy7K0MKWYopNhX05SMTv7yMfUGp8EkGNyJ5Km8AuQt6ZCbVao6cHL2hSujQiN6aMjKbdzHeA1QEicppnnoG/
Zefyi/
 okWdlLAaLjcpYrjUSWQJZQIDAQABo1AwTjAdBgNVHQ4EFgQUIKa0zeXmAJsCuNhJjhU0o7KiQgYwHwYDVR0jBBgwFoAUIKa0zeXmAJsCuNhJj
 hU0o7KiQgYwDAYDVR0TBAUwAwEB/zANBgkqhkiG9w0BAQsFAAOCAQEAJawU5WRXqkW4emm+djpJAxZ0076qPgEsaaog6ng4MLAlU7RmfIY/
 l0VhXQegvhIBfG4OfduuzGaqd9y4IsQZFJ0yuotl96iEVcqg7hJ1LEY6UT6u6dZyGj1a9I6IlwJm/9CXFZHuVqGJkMfQZ4gaunE4c5gjbQA5/
 +PEJwPorKn48w8bojymV8hriqzrmaP8eQNuZUJsJdnKENOE5/asGyj+R2YfP6bmlOX3q0ozLcyJbXeZ6IvDFdRiDH5wO4JqW/ujvdvC553y
 CO3xxsorB4xCupuHu/c7vkzNpaKjYdmGRkqhEqBcCqYSxdwIFc1xhOwYPWKJzgn7pGQsT7yNJg==</ds:X509Certificate>
 </ds:X509Data>
 </ds:KeyInfo>
 </md:KeyDescriptor>
 <md:KeyDescriptor use="encryption">
 <ds:KeyInfo xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
 <ds:X509Data>
 <ds:X509Certificate>MIID7TCCAtWgAwIBAgIJANn3qP9lF7M3MA0GCSqGSIb3DQEBCwUAMIGMMQswCQYDVQQGEwJVQTEXMBUGA1
 UECAwOS2hhcmtpdiBSZWdpb24xEDAOBgNVBAcMB0toYXJrb3YxDzANBgNVBAoMBk9yYWNsZTEYMBYGA1UEAwwPc3RzeWJvdi12bTEud
 WEzMScwJQYJKoZIhvcNAQkBFhhzZXJnaWkudHN5Ym92QG9yYWNsZS5jb20wHhcNMTUxMjI1MTIyMjU5WhcNMjUxMjI0MTIyMjU5WjCB
 jDELMAkGA1UEBhMCVUExFzAVBgNVBAgMDktoYXJraXYgUmVnaW9uMRAwDgYDVQQHDAdLaGFya292MQ8wDQYDVQQKDAZPcmFjbGUxGDA
 WBgNVBAMMD3N0c3lib3Ytdm0xLnVhMzEnMCUGCSqGSIb3DQEJARYYc2VyZ2lpLnRzeWJvdkBvcmFjbGUuY29tMIIBIjANBgkqhkiG9w0B
 AQEFAAOCAQ8AMIIBCgKCAQEAw4OFwuUNjn6xxb/OuAnmQA6mCWPY2hKMoOz0cAajUHjNZZMwGnuEeUyPtEcULfz2MYo1yKQLxVj3pY0HT
```

```
IQAzpY8o+xCqJFQmdMiakbPFHlh4z/qqiS5jHng6JCeUpCIxeiTG9JXVwF1ErBEZbwZYjVxa6S+0grVkS3YxuH4uTyqxskuGnHK/
AviTHLBrLfSrbFKYuQUrXyy6X22wpzobQ3Z+4bhEE8SXQtVbQdy7K0MKWYopNhX05SMTv7yMfUGp8EkGNyJ5Km8AuQt6ZCbVao6cHL2h
SujQiN6aMjKbdzHeA1QEicppnnoG/Zefyi/okWdlLAaLjcpYrjUSWQJZQIDAQABo1AwTjAdBgNVHQ4EFgQUIKa0zeXmAJsCuNhJjhU0o
7KiQgYwHwYDVR0jBBgwFoAUIKa0zeXmAJsCuNhJjhU0o7KiQgYwDAYDVR0TBAUwAwEB/zANBgkqhkiG9w0BAQsFAAOCAQEAJawU5WRXq
kW4emm+djpJAxZ0076qPgEsaaog6ng4MLAlU7RmfIY/l0VhXQegvhIBfG4OfduuzGaqd9y4IsQZFJ0yuotl96iEVcqg7hJ1LEY6UT6u6d
ZyGj1a9I6IlwJm/9CXFZHuVqGJkMfQZ4gaunE4c5gjbQA5/+PEJwPorKn48w8bojymV8hriqzrmaP8eQNuZUJsJdnKENOE5/
asGyj+R2YfP6bmlOX3q0ozLcyJbXeZ6IvDFdRiDH5wO4JqW/ujvdvC553yCO3xxsorB4xCupuHu/c7vkzNpaKjYdmGRkqhEqBcCqYSxd
wIFc1xhOwYPWKJzgn7pGQsT7yNJg==</ds:X509Certificate>
</ds:X509Data>
</ds:KeyInfo>
</md:KeyDescriptor>
<md:SingleLogoutService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-Redirect" Location="https://idp-
saml.ua3.int/simplesaml/saml2/idp/SingleLogoutService.php"/>
<md:NameIDFormat>urn:oasis:names:tc:SAML:2.0:nameid-format:transient</md:NameIDFormat>
<md:SingleSignOnService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-Redirect" Location="https://idp-
saml.ua3.int/simplesaml/saml2/idp/SSOService.php"/>
</md:IDPSSODescriptor>
<md:ContactPerson contactType="technical">
<md:SurName>Administrator</md:SurName>
<md:EmailAddress>name@emailprovider.com</md:EmailAddress>
</md:ContactPerson>
</md:EntityDescriptor>
```

How do I set up the SSO authentication?

You must use the Service Provider initiated implementation method to have your users use SSO to sign in to iOS and Android installed apps. You can implement it using SAML or OpenID type of authentication.

These options are available to sign in using SAML or OpenID authentication:

- Use the full URL of login policy in browser application: To construct correct URL you must use the instance URL followed by the login policy label. For example, https://instance_name.fs.ocs.oraclecloud.com/login_policy_label/. Here, the instance name can be a name of your choice or automatically generated upon provisioning. The login policy label is configured manually and can be found on the **Login Policies** page. When you use this option, enter the full URL of the login policy in the browser address bar and the application redirects you to an Identity Provider for further authentication.
- Use the instance name and login policy label in installed apps: In the iOS and Android installed apps you must specify the instance name followed by the login policy label on the **Instance** page. Enter the name in the {instance_name}/{login_policy_label} format. When you do this and click **Next**, the application redirects you to an Identity Provider for further authentication.
- Configure the URL through the MDM configuration file: Use this approach for Android and iOS installed applications. Here you must specify a URL in the {instance URL + login policy label} format within the configuration file managed by the MDM settings. When you open the app, the app uses this URL to navigate you to your Identity Provider for authentication. Within the MDM file the instance, the URL must be in the format: https://{instance_name}.fs.ocs.oraclecloud.com/saml_idp/

  For example:

```
<?xml version="1.0" encoding="UTF-8"?>
<managedAppConfiguration xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:noNamespaceSchemaLocation="/com.mobileiron.onetouch/appconfig/appconfig.xsd">
 <version>123</version>
 <bundleId>com.oracle.ofsc.mobile</bundleId>
 <dict>
 <string keyName="instance.name_1">
 <defaultValue>
 <value>instance_name</value>
```

```
</defaultValue>
</string>
<string keyName="instance.url_1">
<defaultValue>
<value> https://{instance_name}.fs.ocs.oraclecloud.com/saml_idp/ </value>
</defaultValue>
</string>
</dict>
</managedAppConfiguration>
```

When you configure the SSO authentication, users must click **Sign in with SSO** on the **Sign in** page and follow the instructions.

Domains for Production Environments

Each production environment may have several URLs depending on the provided alternate name and domain zones. These domains are always constructed from two parts:

- either instance name (mentioned as the 'instance_name' parameter in the example) or an alternate name
- domain zones available for an environment

The standard set of addresses for any environment is:

- https://{instance_name}.fs.ocs.oraclecloud.com
- https://{instance_name}.fs.ocs.oraclecloud.com

For legacy instances that are created before June 2021, the domains are also registered within the etadirect.com zone:

- https://{instance_name}.etadirect.com
- https://{instance_name}.etadirect.com

> **Note:** Check the instance provisioning date in the Cloud Portal to find out what domain zones you can use to access the instance.

Domains for Test Environments

The rules for provisioning end points for test environments are almost the same as those for production instances. The only difference is that for test environments, the application automatically adds the '.test' suffix after the name. This logic is applied to easily distinguish production and test environments. The example of an end point for a test environment is https://{instance_name}.test.fs.ocs.oraclecloud.com.

Example of How the Authentication Works

Assume that your identity provider is configured to accept requests from acme.fs.ocs.oraclecloud.com to perform SAML authentication. Also assume that there's a user that uses ofsc-1e800d.fs.ocs.oraclecloud.com, which is another valid address of your instance.

When the user tries to sign in to the instance, the application replaces ofsc-1e800d.fs.ocs.oraclecloud.com with acme.fs.ocs.oraclecloud.com in the request to the identity provider, which lets this user authenticate to the environment.

Change from login.etadirect.com to the Instance URL

You must follow the concepts of safety and granularity when you change from the not-recommended login.etadirect.com entry point to the instance URL. Use the recommendations provided here for smooth transitioning.

1. Create a new SSO login policy and a new user type. You can also clone an existing user type to reuse an existing configuration.
2. Add the new policy to the new user type.
3. Assign at least one user to the new user type.
4. Create an application in your Identity Provider.
5. Test the authentication to your instance using the new login policy.
6. Move a small group of users to the new user type and test how it works in a production scenario.
7. Do one of the following:
    - Move all the users to the new user type.
    - Add the new login policy to an existing user type that has more users.
8. Depending on the task you have performed in the earlier step:
    - Remove the redundant user type that is no longer in use.
    - Or, move the test group back to the former user type and delete the user type created for testing purpose.

Configure User Types

Use user types to manage permissions and restrictions for all users. You can create user types for your business that correspond to your existing business roles. Each user type has a profile that defines security and display permissions, such as the user's login method, the ability to use certain functions, and access to menu items and properties. They may also include custom context layouts.

You assign each user exactly one user type. You can add or change user types at any time, and delete those which are no longer needed. You can also copy existing user type configurations to make new ones. This makes it easy to create multiple user types that share similar configuration settings.

For each page or function that you want to make available for a given user type, you set the visibility to **Read-only** or **Read-write**. If you don't define a visibility value, that page or function is hidden for that user type. Access to a page or tab automatically includes access to the actions on that page.

User-Type Settings

If your organization adds a new business role, you must create and configure a new user type for it. Similarly, if a business role is altered, you may have to modify the corresponding user type settings.

Changes to a user type assigned to Oracle Field Service Core Application users are applied shortly after they are saved on the **User Types** page. Changes to a user type assigned to Oracle Field Service Mobile for Android and iOS users are applied after the next synchronization.

User type settings fall into these categories, which appear as tabs:

- **General**

  These basic settings define the user type options with respect to resource types and other users, as well as the user type access to the application and to its functions.
- **Screen configuration**

  These settings define the pages, windows, context menus, and other elements visible to a certain user type and supports the context layout editor where the content, arrangement, and visibilities of each context are set.
- **Restrictions and Filters**

  These settings define the restrictions on the activities and fields that are visible to the users of the current type.

What settings are available for a user type on the General tab?

The first step in creating a user type is to define the general settings such as, user type name, access, and permissions.

This table describes the fields available on the **General** tab:

Setting	Description	Notes
User Type Info		
Label	A unique identifier of the *user* type.	Required. No spaces are allowed.
Name	A user-friendly name that describes the user type.	Required. Spaces are allowed.
Active	Indicates whether the user type is active.	Activating a user type simply makes it assignable to users. Inactive user types still apply to users that are assigned to them.
Login Policy	Defines the user authentication method to Oracle Field Service	None
Assigned resource types	Shows the *resource types* available for this user type.	To change the assigned resource types, click the pencil icon. You cannot remove a resource type if any users are currently assigned to this user type.
Can create users of these user types	Lists the user types that this user type can create.	Inactive user types are greyed out and cannot be created by this user type. Permission to create user types is reciprocal. For example, if user type Manager can create user type Dispatcher, user type Dispatcher can create user type Manager.

Setting	Description	Notes
		To change the user types this user type can create, click the pencil icon.
Can be created by users of following user types	Lists the user types that can create the current user type.	Inactive user types are greyed out. Permission to create user types is reciprocal. For example, if user type Manager can create user type Dispatcher, user type Dispatcher can create user type Manager.
Access Settings		
Allow access to web application	When enabled, users of the current type can use the unified Core Application to manage dispatch operations.	None
Allow access via installed application for Android	When enabled, users can access the application through the Oracle Field Service Mobile for Android application.	None
Allow access via installed application for iOS	When enabled, users can access the application through the Oracle Field Service Mobile for iOS application.	None
Permissions		
Maps	When enabled, the user can access the Map View on the **Activities**, **Quota**, and **Resource Work Zones** pages.	None
Enable GPS Telemetry	When enabled, the user's geopositioning information can be collected directly from the user's device.	None
Disable route activation when geolocation is not enabled on device	When selected, users can't activate the route if they haven't enabled the location settings on their device.	None
Limit location gathering to installed Android or iOS applications	When selected, Oracle Field Service collects the location details only for the installed applications. If you don't select this permission, the application collects the location details from all the interfaces that the field resource has logged in to.	Be aware that even if you select this option, resource positions can still be sent through APIs.
Allow user feedback	When selected, Oracle Field Service Android and iOS app users can see the Like and Dislike icons on either the My Route or Activity List page. Using these icons users can provide feedback about the app to Oracle.	None

Setting	Description	Notes
Enable Smart Location alerts	When enabled, the user can receive alerts on their mobile device whenever any compliance issues have occurred and have been identified by the SmartLocation module.	None
Use real-time traffic data	When enabled, the check box, **Show Traffic** is shown on the **Map** view. Users can select the **Show Traffic** check box to view the current traffic data in the selected route.	This option isn't available for Contingent Workers (set as 'Resource is a Contingent Worker' parameter in Manage, under Configuration, and Resource Types). The real-time update is available to users of Oracle Field Service Enterprise when Oracle Field Service Standard Map Cloud Service with Google Maps or Baidu Maps is part of your subscription.
Display Inventory using a table format	When selected, inventory is displayed in a tabular format. When not selected, inventory is displayed as a list, grouped by Inventory Type.	None
Allow access to required inventory	When enabled, the user can access the Required inventory functionality and perform all related actions.	The **Required Inventory** permission for Manage is implemented as visibility for the **Required Inventory** tab in the **Add activity** or **Activity details** context.
Parts Catalog	When enabled, the user can search for particular spare parts in the catalog using the standard search function.	None
Collaboration		
Collaboration	Select the check box to view the collaboration settings.	None
Allow inventory move via chat	In addition to chat functions, allows the user to transfer inventory via chat.	None
Allow image sharing via chat	In addition to chat functions, allows the user to share images via chat.	None
Allow activity move via chat	In addition to chat functions, allows the user to transfer activities via chat.	None
Allow Video Call	When enabled, the setting allows the user type to access the Video Chat functionality.	• Requires a subscription to Oracle Field Service Enterprise. • If the resource type is a Contingent worker, then the Video Chat isn't available even if the setting is selected.
Allow Video Call Feedback	When enabled, a user can provide feedback for the Video Call service.	None

Setting	Description	Notes
Activity Management		
Allow activity move between resources	When enabled, the user can move an activity from one resource to another	None
Allow activity move from non-scheduled pool to scheduled one	When enabled, the user can convert a non-scheduled activity to one that's scheduled.	None
Allow access to non-scheduled pool	When enabled, the user can access the pool of non-scheduled activities and perform actions to them.	None
Allow activity reorder inside the route	When enabled, the user can change the position of an activity in the route.	None
Allow activity reschedule/move to non-scheduled pool	When enabled, the user can move an activity to a different date or make it non-scheduled.	None
Allow activity deletion	When enabled, the user can delete an activity together with canceling it. Otherwise, a canceled activity remains in the application.	None
Ignore work zones/work skills mismatch on activity move	When enabled, the user can move activities to resources with work zones and/or work skills not matching those of the activity.	None
Allow repeating/mass activity creation	When enabled, the user can create mass and repeating activities.	None
Set action time	When enabled, the user can adjust the time for activity actions and route activation manually. When not enabled, the action time is logged as the current time.	None
Display the remaining Activity Time	When enabled, the activity work progress countdown is displayed.	None
Allow next activity selection on Complete	When enabled, the user completing an activity can select the next activity to start. Otherwise, only the next activity in the route can be started.	None
Display and allow adjustment of remaining Travel Time	When enabled, the Travel Time Countdown is displayed and the user can adjust travel time. Available values are: 5, 10, 15, 30, 45 minutes, 1 hour, 1 hour and 30 minutes, 2, 3, 4 and 8 hours.	None
Suggest activity by location	When enabled, displays the number of activities that are assigned in the same location for a technician. This information is displayed above the **Start** button on the **Resource Info** page.	The distance within which a location falls is determined by the **Resource is considered to be at the activity location if the distance to it is less than X meters** setting in the

Setting	Description	Notes
		SmartLocation/GPS section on the **Business Rules** page.
Resource Management		
Allow changes in working calendar	When enabled, the user can modify the working calendar of the resource.	None
Allow to move resources between Organization Units	When enabled, the user can move the resources to different organizations in the resource tree.	None

Screen Configuration Tab

This table describes the fields available on the **Screen Configuration** tab:

Setting	Description	Notes
Application screens	Includes the contexts used in the Core Application.	None
Collaboration and Identifiers	Includes the contexts used in Collaboration and the entity identifier contexts.	None
Plugin API	Includes the plug-ins used with activity, inventory, and resource properties. This context layout is deprecated with release 19A. Use the Forms & Plugins page to configure new plug-ins and migrate the existing plug-ins. When you finish migrating all the plug-ins, the Plugin API section will be removed.	None

Restrictions and Filters Tab

these table describes the fields available on the **Restrictions and Filters** tab:

Setting	Description	Notes
Hide all activities	Determines if the users will or will not be able to access any activities in the system after a certain time. When enabled, the administrator also has to set the time after which the activities are to be hidden.	None
Hide activity fields	Determines if the users will or will not be able to access certain activity fields after a certain time. The fields to be hidden are defined in the **Field restrictions** context accessible by clicking the **Activity fields** link. When enabled, the administrator also has to set the time after which the activity fields are to be hidden.	None
Filters restricting visible activities	Defines whether the users of the current type will be able to view the entire routes or only some activities. Setting the visibility restrictions	None

Setting	Description	Notes
	requires proper configuration of the applicable filters.	

Screen Configuration Settings

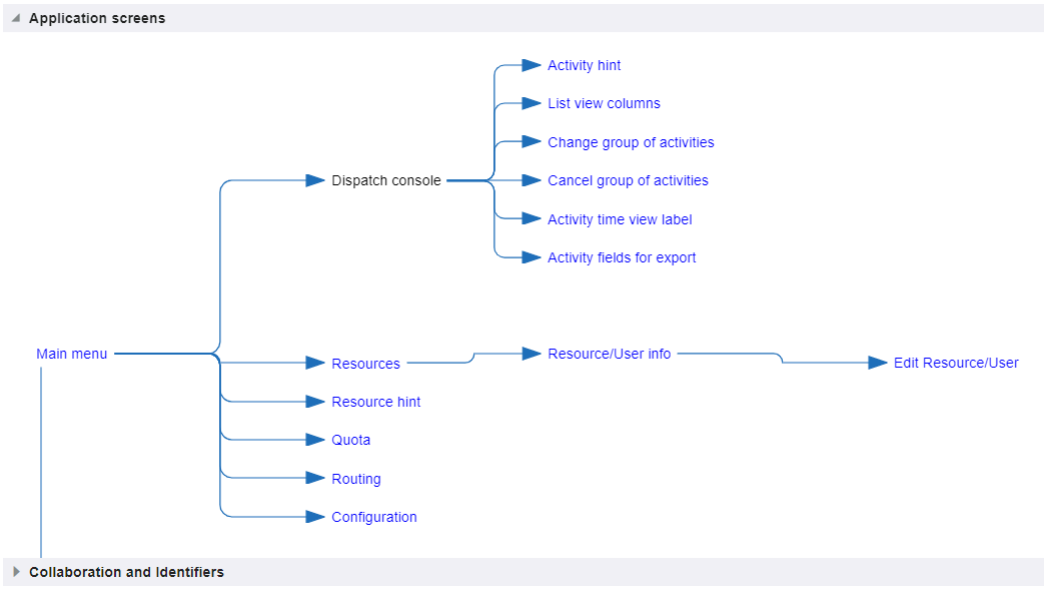
Screen configuration settings define the page, dialog boxes, context menus and other elements visible to a certain user type. They also support the context layout editor, in which the content, arrangement, and visibilities of each context are set.

The **Screen configuration** tab contains the list of all contexts available in Oracle Field Service. All contexts are split into three sections that correspond to their location in the application:

- **Application screens**: The contexts used in Core Application.
- **Collaboration and Identifiers**: The contexts used in Oracle Field Service Collaboration Service and the entity identifier contexts.

The **Screen configuration** tab is active when the **Allow access to web application** option is selected for the user type. The same settings also influence the availability of the configuration sections. If the **Allow access to web application** option is deselected for the user type, the **Application screens** section is collapsed and inactive.

The list of settings is organized hierarchically and shows the relationships between different contexts. All context names are links to the context layout editor pages. This screenshot shows the Screen configuration tab:



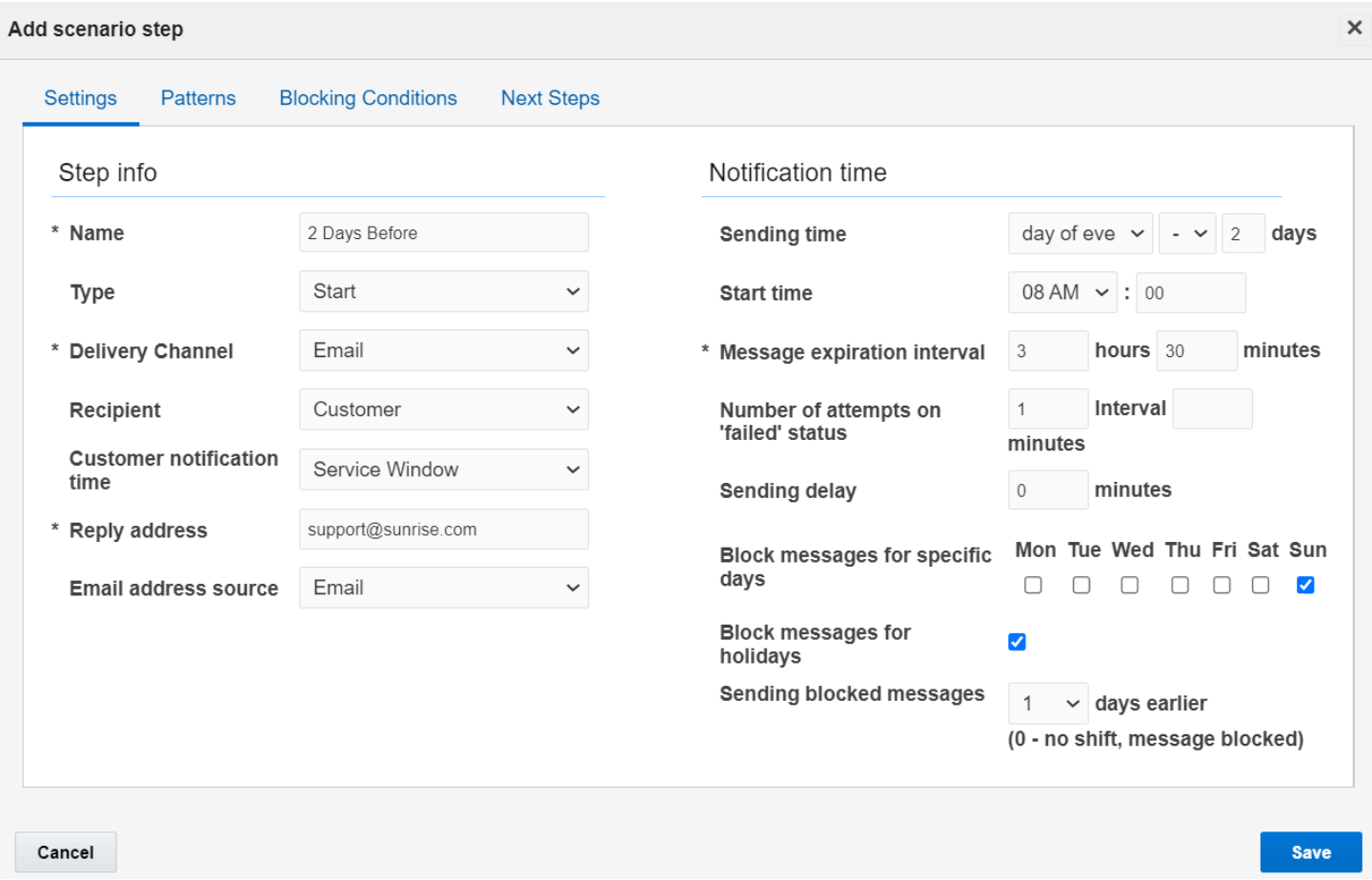
Note: Any settings configured in the **Application screens** section are retained if the **Allow access to web application** option is deselected afterward for the user type. If the access is allowed again, the same configuration settings apply again for the user type.

Links to new (not edited) or empty contexts are shown in red, while links to edited contexts are shown in blue. If you remove all elements from a context, its link color changes from blue to red to indicate that the context is now empty. If you create a user type without copying the settings of another user type, all contexts are shown in red. When configuring pages for a user type, the **Context layout structure** page provides an indicator to show that a property is configured. When you add an item to the **Layout structure** column of the page, it appears in red until you add visibility to the field. After you define a visibility for the item, it is no longer highlighted in the **Layout structure** column.

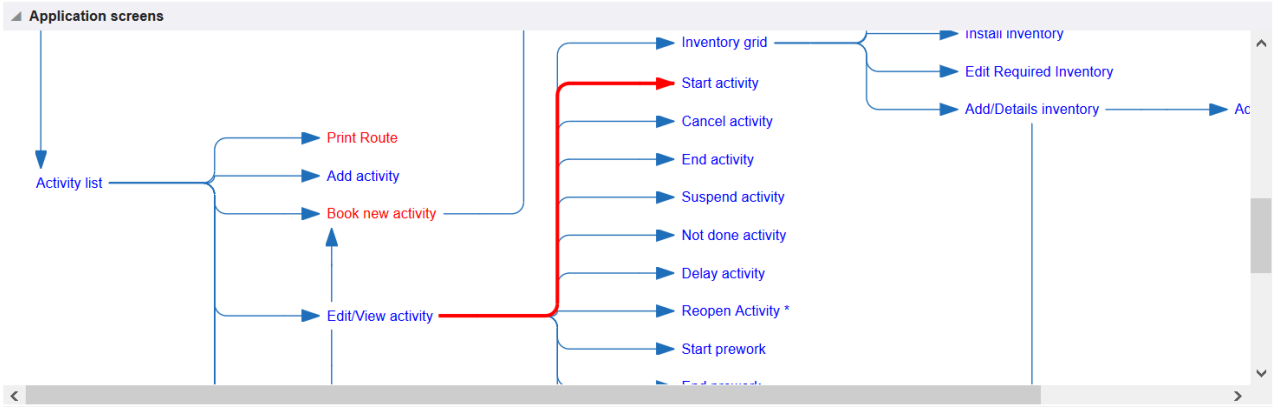
> **Note:** You can add or remove the Collaboration Group and Operator of Helpdesk properties from the context layout structure of the **Add/Edit User** context for each user type. After you update the properties in the **Add/Edit User** context, select a user from the **Resource Settings, Users** page and click **Modify** to view the updated properties.

The hierarchy of contexts starts from the **Main menu items** context defining the main menu items available or unavailable for the current user type. The configuration of the **Main menu items** context defines the menu bar elements visible or hidden for a particular user type. Each menu bar element opens a certain page and, therefore, provides access to its functionality. If a certain page has been made available for a user type, all users of such type have access to the entire functionality implemented on that page. Similarly, if a page has been made unavailable for a user type, all users of such type cannot use the functionality implemented on that page.

Changing the visibility of the **Message Scenarios** menu item to **Read-write** allows the user to view and edit all elements of a message scenario. With the **Read-only** visibility, they can only view them. This screenshot shows the **Settings** tab of the **View scenarios step**, which was set as read-only in the **Screen Configuration** page:



The links to contexts are connected with arrows showing the relation between the contexts. Hovering the mouse over an arrow highlights it in red for better visibility. This screenshot shows a highlighted arrow, which means you are hovering the mouse over that arrow:



Click a link to open the **Context layout structure** page and define the fields and actions of the context, and their visibilities for the user type. You can copy a context layout to another user type if the other user type uses the same or slightly modified layout of the same page or window. For this purpose, the **Context layout structure** page has the **Copy to** button, which opens the list of all user types in the application.

For the **form** type contexts, the link leads to the **Visual Form Editor** page, where you can edit context layouts in an easier and more transparent manner. You can delete the default Read/Write visibility on the sections and tabs in the Visual Form Editor. Additionally, Read/Write visibility is not added after migration. When the visibility condition for a property is mandatory and the property value is cleared, the value is set to null and the visibility is selected.

If you have shared the configuration for the current user type with one or more other user types, such user types are preselected in the **Copy to** list. If the user type selected in the list shares its configuration with other user types, such user types are automatically selected as well. The current context layout is applied to the selected user types. In this case it replaces the previous context layout settings, if any.

When a context layout is copied for another user type, only the current context is copied, while the rest of the configuration remains unchanged. When a context layout is copied, two separate identical context layouts are created. You can edit each layout independently without affecting the other one. However, if the destination configuration is shared with other user types, the current context layout is copied to all user types sharing the same configuration.

Context layout copying is confirmed with the message, Layout has been successfully copied. Closing the **Context layout structure** page returns the user to the **User types** page.

The **Collaboration and Identifiers** section contains the contexts falling under two groups:

- **Identifiers**: Includes the identifier contexts for activity, inventory and service request
- **Collaboration**: Includes all contexts related to the Collaboration module, as shown in this screenshot:

Note: Text formatting such as modifying the text size, bold/non-bold, italic, or coloring or properties is not supported.

Restrictions and Filters Page

The last step in creating a user type is to define whether you want to hide or show activities, activity fields, and activity filters.

This table describes the fields available on the **Restrictions and Filters** page:

Setting	Description	Notes
Hide all activities	Determines whether the users can or cannot access any activities in the system after a certain time. When selected, the administrator also has to set the time after which the activities are to be hidden.	None
Hide activity fields	Determines if the users can or cannot access certain activity fields after a certain time. The fields to be hidden are defined in the **Field restrictions** context. You can click the **Activity fields** link to access it. When selected, the administrator also has to set the time after which the activity fields are to be hidden.	None
Filters restricting visible activities	Defines whether the users of the current type can view the entire routes or only some activities. Setting the visibility restrictions requires proper configuration of the applicable filters.	None

Copy or Share a Page Configuration

When you want to create a user type that is similar to an existing user type, you can use the **Copy or share screen configuration** option. When you use this option, you select a different source of the page configuration for the current user type. In this case the current user type is dissociated from the shared page configuration.

1. Click **Configuration** > **User Types**.
2. Select an existing user type, which you want to be based on another user type.
3. Click **Screen configuration** > **Copy or share screen configuration**.
4. Select one of these options:

Option	Action
Use Screen configuration of {User Type}	Select this option to share the page configuration with one or more user types. Only one set of configuration settings exists, and any changes of the page configuration of one of the user types causes similar changes of the page configuration of other user types. In this case, sharing is inherited. That is, if the user type selected for sharing has been sharing its page configuration with other user types, the same page configuration will be used for all of them. The note underneath advises the user about the user types sharing the same page configuration.
Create Screen configuration as copy of {User Type}	Select this option to copy the page configuration from another user type. In this case, two independent sets of settings are created, and any changes apply only to the user type for which they are made. The note underneath advises the user about the user type whose page configuration will be copied.
Create empty Screen configuration	Select this option to clear the current page configuration. Only the settings of the current user type are cleared. If the page configuration had been shared with or copied from another user

Option	Action
	type previously, it is disconnected and a new independent page configuration is created. The note underneath advises the user that only the page configuration of the current user type will be cleared.

If you have created a user type as a copy of another user type and then shared the page configuration, the message, Screen configuration shared with: {User type} displays on the **Screen configuration** tab. When you share the page configuration with another user type, the same set of settings is used for both user types, and both user types refer to them simultaneously. A shared page configuration means that all context layouts and their visibilities are similar for all user types sharing them. If you modify the page configuration for one of the user types, the same changes are applied immediately to all other user types sharing it.

If a user type has an independent page configuration, you can replace with another by sharing or copying the page configuration of another user type. All user types with page configurations not related to those of other user types have the **Copy/share screen configuration** link. This link leads to the same page configuration options as are offered for changing the current page configuration. However, as the current screen configuration is not used elsewhere in the system, selecting any option removes it permanently. The note warns the administrator that the current configuration will be lost.

Configure the Main Menu

You can configure the main menu using the **Main Menu** context layout structure. The configuration affects the Supervisor view. The Manage, Maps, Calendars, and Resources menus are pre-configured for this layout and are available by default.

1. Log in to the application.
2. Click **Configuration** > **User Types**.
3. Select a User Type for which you want to add the main menu. Click **Screen configuration**.
4. Click **Application screens** > **Main menu**.
5. Click the **Click to add** button and add any item that you want to display on the main menu.
   New layout items are available as Read-Only.
6. Click **X** at the top-right corner.
7. Sign out and sign in to the application.
   The newly configured main menu appears.

How do I edit a Context Layout Structure?

Use the Context Layout Structure to configure the fields that appear on the application pages.

1. Click **Configuration** > **User Types**.
   The **User Types** page appears.
2. In the left pane, select the user type for which you want to edit the context layout.
3. Click **Screen Configuration**.
4. Expand **Application screens**.

5. Click the page for which you want to edit the context layout. For example, click **Activity hint**.

   The **Context layout structure** for the selected page and the selected user type opens. On this page, you can add or edit properties, actions, tabs, columns, and sections. Properties appear as fields and actions appear as buttons. Tabs, columns, and sections define the structure of the layout. You can also configure visibilities to properties and define the conditions under which the visibility settings are effective.

6. Follow these steps to add a property:
   a. Click the **Click to add** button.

      The **Add property** dialog box appears.
   b. Select the property that you want to add and click **OK**.

      If you add an enumeration property, the **Value visibility** section is displayed. When you configure pages for a user type, the **Context layout structure** page provides an indicator to show that a property is configured. When you add an item to the **Layout structure** column of the page, it appears in red until you add visibility to the field. After you define a visibility for the item, it's no longer highlighted in the **Layout structure** column.

      > **Note:** You must add an instance of a property, button, or field only once in a form. More than one instance of a field, button, or property on a form may lead to unexpected behavior such as property not being saved or the action being denied.

7. Follow these steps to configure the visibility for the newly added property:
   a. Click **Add new visibility**.

      The [property name] visibility dialog box appears.
   b. Select the access mode.
   c. To add a condition for visibility, click **Add new condition**.

      The corresponding fields appear.
   d. Select a property, select the condition, select the additional condition if available, and then click the tick mark.

      The condition can be equal, not in, empty, and so on.

      Example: If you've selected the property as activity status and the condition as equal, the additional condition can be suspended and pending.

8. Follow these steps to add the visibility for a value:
   a. Click **Add new** in the **Value visibility** section.
   b. On the **Value Visibility Settings** dialog box, select the values for which you want to set the visibility conditions.
   c. Click the plus icon and select the conditions under which you want to display the values and click **Save**.

      For example, let's say you want to show the cancelation reason Customer Request only for Free Service type of activities. Open the Cancel Activity context layout edit and click **Add new** in the **Value visibility** section. On the **Value Visibility Settings** dialog box, click **Select values** and select Customer Request. Click the plus icon, select Activity type [aworktype], in equal, and Free Service. After you save and publish this condition, Customer Request is available for selection only if the activity type being canceled is Free Service.
   d. Click **Publish** on the context layout editor.

9. Follow these steps to add an action:
    a. Click the **Click to add** button under **Actions**.
    The **Add action** dialog box appears.
    b. Select the action that you want to add and click **OK**.
    After adding the action, set visibility for it. Visibility is not set by default, so you must configure it for every field and action that you add.
10. Follow these steps to add a tab:
    a. Click a property and click **Group**.
    The **Add to group** dialog box appears.
    b. Enter the name of the group.
    c. Select one of these options and then click **OK**:

Option	Description
Section	Select this option to start a new section or block.
Tab	Select this option to start a new tab with the name provided earlier.
Predefined tab	Select this option to include a predefined tab. Select the tab from the **Tab** type drop-down list. Predefined tabs are the tabs available in the application by default.

11. Follow these steps to add a column or section:
    a. Select a property or an action and click **Add marker**.
    b. In the **Add marker** dialog, select **End of column** or **End of section**.
    c. Click **OK**.

Visual Form Editor

The Visual Form Editor is used to configure context layouts. After configuring a context layout, you must select the **Allow access to web application** check box for each user type to view the context in the application.

The Visual Form Editor includes an accordion type panel with these options to help you add, edit, and search for elements:

- **Available elements:** All the element types that you can use in this context are listed here. To add a new element, drag it from this section and drop it to the desired location on the form. You can also use the search option to search for an element within this section. When you want a Button to set a custom enumeration field or property (that is, a combobox), you must ensure that the enumeration value is 'active'. You can set the enumeration property as active on the **Modify Property** page. For example: Let's say you want to set a value = '10' through a button for the 'Level' property. You must first configure the corresponding value = '10' in the parameters section of the corresponding Visual Form Editor. You must ensure that the enumeration value of '10' is active.
- **Data fields:** All the data fields that you can use in this context across all element types are listed in this section. Drag an element from this section and drop it to the form, to add the data field with a pre-configured binding to the data source. You can also use the search option to search for a data field within this section.

- **Fields in this layout:** All the fields you have used in the layout. Each field has an icon representing the GUI type of the element that is defined when you bind the field to a data source. The features of this section are:
  - Clicking an item scrolls the content to the appropriate item in the layout and highlights it without opening the context menu editor.
  - Clicking an item in the layout focuses the list to the appropriate item, if the panel is active (not collapsed).
  - If a field is present more then once in the content, you see a marker in a format (n / m). For example, (1 / 3) means first occurrence of 3 in total. Clicking the marker takes you to the item on the layout.
  - The order in the list is according to the appearance on the configured form, top to bottom, left to right.
  - The search option lets you search for a field within this section.

You can define **Visibility** settings for each object of the form. Values with identical visibility settings are grouped and the grouping happens after the settings are saved. Also, using the **Translations** section, you can translate the text that displays on each object to any of the supported languages. By default, the Visual form editor displays these elements:

- **Header**: Displays the selected actions from the Actions object.
- **Footer**: Contains the default **Dismiss** and **Submit** buttons for a form. You can only define visibility settings for the **Submit** button.
- **Submit and Dismiss** buttons: Indicates the button that is visible for all forms.

Default Values and Validation Rules

You can configure string and integer fields to include default values and validation rules. This helps when your business needs some fields to be populated by default and some fields to be calculated automatically, based on the value of another field. Further, this function is allowed only for `string`, `int`and `enum`custom properties.

You can configure the fields and properties in these ways:

- Add a default value: A default value is an auto-calculated value of a field or property. This value is based on certain business rules and is dependent on the values of other fields and properties. The default value is represented as formula filled in the corresponding configuration field. For example, when a property is filled with a specific value, another property is filled with the current date or time.
- Add a validation rule: A validation rule is a restriction based on certain business rules and is dependent on the values of other fields and properties. A validation rule is represented as a formula filled in the corresponding configuration field. For example, the value entered for a property (property A) falls within a specific range (between values of property B and property C).
- Use a formula for configuring the visibility and the value visibility: The formula is based on certain business rules and is dependent on the values of other fields and properties. The formula for the visibility of the field and its value must be filled in the corresponding configuration field. It's possible to transform an existing visibility configured through a constructor to a formula. The application uses this formula for calculating visibility as the primary path and visibility from the constructor as the secondary path.

Note:

- If a default expression is configured with an empty value for a read-only field or property, it will NOT be hidden on the page. This means, the user will see the field or property name on the page, but it will not have any value.
- For read-only fields, default values take priority over calculated values.

Auto-Generated and Auto-Calculated Fields

Auto-generated and auto-calculated fields can have a visibility of Read-Only. Regardless of the configured visibility, the application displays such fields as Read-Only. Further, such fields are not available for selection on the **Context Layout Structure** page of add pages such as, 'Add activity' and 'Add inventory'. The fields that can be set only as read-only are as given in this table:

Entity	Field	Description
ACTIVITY	ETA	Estimated time of arrival
	acoord_status	Coordinate status
	acoord_x	Coordinate X
	acoord_y	Coordinate Y
	activity_alerts	Activity alert
	activity_capacity_categories	Activity capacity categories
	activity_compliance	Activity compliance
	activity_workskills	Activity work skills
	aid	Activity ID
	astatus	Activity status
	atravelarea	Travel area
	atype	Activity Type
	auto_routed_to_date	Auto-routed to date
	auto_routed_to_provider_id	Auto-routed to Provider ID
	auto_routed_to_provider_name	Auto-routed to Provider name
	aworkzone	Work Zone
	date	Date
	delivery_window	Delivery window
	end_time eta_end_time	Estimated end time
	first_manual_operation	First manual operation after the automatic operation
	first_manual_operation_interface	First manual operation done through the interface after the automatic operation
	first_manual_operation_user_id	First manual operation done by (user ID) after the automatic operation

Entity	Field	Description
	first_manual_operation_user_login	First manual operation done by (user's login) after the automatic operation
	first_manual_operation_user_name	First manual operation done by (user name) after the automatic operation
	service_window	Service window
	time_delivered	Time of delivery
INVENTORY	inv_aid	Activity Id
	inv_change_invid	Changed Inventory ID
	inv_pid	Resource Id
	invid	Inventory Id
	invpool	Inventory pool
REQUIRED INVENTORY	required_available_quantity	Quantity in Resource Pool
	required_model	Model
	required_quantity	Quantity
	required_type	Type
SERVICE REQUEST	appt_ident	Activity
	srcreated	Created
	srdate	Date
	srid Id	Request Id
	sr_aid	Activity
	sr_invid	Inventory Id
	sr_pid	Resource Id
	sr_uid	User Id
	uname	User
RESOURCE	alerts	(always hidden)
	calendar	Calendar
	oncall_calendar	On-call calendar
	pcapacity_bucket	Capacity area

Entity	Field	Description
	pending	Pending activity
	pid	ID
	pinitial_ratio	Initial ratio for activity duration
	p_rprid	Routing profile ID
	queue_status	Queue status
	reactivated	Reactivated
	resource_capacity_categories	Capacity categories
	resource_effective_workskills	Effective work skills
	resource_time_slots	Time slots
	resource_workskills	Work skills
	resource_workzones	Work zones
	skip_days_for_stats	Working days left for reported data to start impacting duration estimation
	total	Total
	pcolor	(always hidden)
USER	last_login	Last login
	last_password_change	Last password change
	login_attempts	Login attempts
	login_blocked_to	Login blocked to
	main_resource_id	Main resource ID
	mobile_activity_count	Mobile activity count
	mobile_inventory_count	Mobile inventory count
	mobile_provider_count	Mobile provider count
	show_placeholder_id	Show placeholder ID
	sucreated	Registered
	sustatus	Status
	suupdated	Updated
	uid	User ID

Limitations

These limitations exist for default values and validation rules:

- Work skills and work zones are not supported for default values and validation rules.
- Custom properties with the "Geolocation element" GUI is not supported for default values and validation rules.
- These limitations are applied to the configuration of expressions:
  - 2000 characters for configuring default values
  - 2000 characters for configuring validation rules
  - 4950 characters for configuring visibility as an expression

Supported Pages

You can configure default values and validation rules only on these Activity and Inventory pages:

Page	Label
Edit/View activity	mobile_activity_details
Cancel activity	mobile_cancel_activity
Delay activity	mobile_delay_activity
End activity	mobile_end_activity
End prework	mobile_end_prework
Not done activity	mobile_notdone_activity
Add activity	mobile_set_activity
Start activity	mobile_start_activity
Start prework	mobile_start_prework
Suspend activity	mobile_suspend_activity
Add/Details inventory	mobile_add_details_inventory
Deinstall inventory	mobile_deinstall_inventory
Install inventory	mobile_install_inventory
Send/View activity request	mobile_activity_request
Add/View inventory request	mobile_inventory_request
Add/View resource request	mobile_provider_request
Edit Required Inventory	mobile_add_edit_required_inventory

Supported Fields

You can configure default values and validation rules only on these fields:

Property name	Property label	Type	Entity	GUI
Account Number	customer_number	field	activity	text
Activity Type	aworktype	field	activity	combobox
Address	caddress	field	activity	text
Appointment Number	appt_number	field	activity	text
City	ccity	field	activity	text
Customer Email	cemail	field	activity	email
Customer Mobile Number	ccell	field	activity	phone
Customer Phone Number	cphone	field	activity	phone
Duration	length	field	activity	text
Inventory Type	invtype	field	inventory	combobox
Name	cname	field	activity	text
Points	apoints	field	activity	text
Quantity	quantity	field	inventory	text
Serial Number	invsn	field	inventory	text
Service Request Type	srtype	field	service request	combobox
State	cstate	field	activity	text
ZIP/Postal Code	czip	field	activity	text

Calculation Order

The result of a configured expression is calculated in this order:

1. Value (Number, String, variable, function, expressing in round brackets)
2. Special operators (BETWEEN, IN, CONTAINS)
3. Unary operators (NOT, -)
4. Multiplicative operators (*, /)
5. Additive operators (+, -)
6. Comparison operators (=, <>, <, >, <=, >=)
7. Logical operator AND
8. Logical operator OR

Configure Default Values and Validation Rules

When you configure fields on the **Visual Form Editor**, you can add a default value or a validation rule for fields and properties. You can also use formulas to configure visibility and visibility value.

1. Click **Configuration**.
2. Click **User Types** in the **Users, Security, Integration** section.
3. Click **Screen configuration**.
4. Expand the **Application screens** section and click the page that you want to change.
5. Select the field for which you want to add a default value or a validation rule. If the field isn't added to the context layout, drag it to the work area.

   By default, the field is assigned with a visibility of Read-Write (RW).
6. Follow these steps to change the default visibility:
   a. Click **Add New** in the **Visibility** section.

      The **Visibility settings** dialog appears.
   b. Select the required option in the **Access mode** section.
   c. To change the visibility based on a condition, add it in the **Conditions** section.

      You can add a formula to determine the condition for visibility. The conditions entered here are given priority over the visibility inherited by the field or property.

      > **Note:** When setting up the visibility for a specific property, you can't create a visibility condition based on the property itself. For example, suppose that you want to set up the visibility of the property "City" as Read Write. You can't set up a condition such as "City contains New York". Further, ensure that there are no circular dependencies. For example, the Customer Name field is displayed if the Customer Address field is filled and the Customer Address field is displayed if the Customer Name field is filled. Although the application doesn't display an error message when you configure such fields, the page on which the fields appear might not work properly.

   d. Click **Show conditions as formula** to view the conditions as a formula.

      These rules apply to showing conditions as formula:
      - If you click **Show conditions as formula**, the standard conditions constructor hides and a text area appears containing the auto-generated formula of the conditions.
      - If you don’t change the auto-generated formula, the formula isn't saved. **Show conditions as list** is shown, so you can switch back.
      - If you change the formula and it differs from the auto-generated content, **Show conditions as list** is disabled.
      - If you change the formula and save the changes, the next time this dialog opens with the formula without the **Show conditions as list** link.
7. Follow these steps to add a default value or a validation rule:
   a. Expand the **Default value and validation** section.
   b. Enter a value in the **Default value** field.
   c. Enter a validation for the value in the **Validation** field.

      You can use arithmetic operators, comparison operators, or functions to form the validation rule.
8. Click **Save**.

   The details are saved and enforced when a user edits the corresponding page the next time.

Language Expressions

The language containing operators and functions is used for configuring default values, validation rules, and visibility of fields and properties.

The "Default Values", "Validation Rules", and "Visibility" fields of Visual Form Editor only work with an enumeration property's index and not its actual value. You cannot use the value in functions such as if, concat, or in various operators. If feasible, you can try setting the same string for both, the value and index for the properties you must use in the "Default Values", "Validation Rules", and "Visibility" fields.

The language is described in this table:

Argument	Description	Usage Pattern	Use in		
			Default rules	**Validation rules**	**Visibility**
Variables, entities, and properties					
this	Value of current element	this > 100	No	Yes	No
entity.property entity. label `	Value of property of entity. Use for wrapping labels with spaces.	activity.aworktype = 1	Yes	Yes	Yes
White spaces and comments					
[space], [tab], [line break]	Assuming multiple white spaces as single space. Assuming white space as separator.	this + 100	Yes	Yes	Yes
/* Any comment */	Assuming comment block as single white space.	activity.PROP_A1 > 77 /* 77 - is predefined parameter */	Yes	Yes	Yes
Logical operators (case sensitive, operands will be converted to Boolean)					
OR	Logical disjunction	a OR b	Yes	Yes	Yes
AND	Logical conjunction	a AND b	Yes	Yes	Yes
Unary operators					
NOT	Logical not (operand will be converted to Boolean)	NOT (a AND b)	Yes	Yes	Yes
—	Arithmetic inversion (operand will be converted to Number)	- activity.PROP_A1 this * (- activity.PROP_A2)	Yes	Yes	Yes
Equal Comparison Operators (case sensitive for Strings). Operands will be converted to String					
=	Equal to	a = b	Yes	Yes	Yes
<>	Not equal	a <> b	Yes	Yes	Yes

Argument	Description	Usage Pattern	Use in		
Comparison Operators (case sensitive for Strings). Lexicographic ordering is used to compare strings. Use toNumber() for arguments if number comparison is needed.					
<	Less than	a < b	Yes	Yes	Yes
>	Greater than	a > b	Yes	Yes	Yes
<=	Less than or equal to	a <= b	Yes	Yes	Yes
>=	Greater than or equal to	a >= b	Yes	Yes	Yes
Arithmetic Operators (all operands will be converted to Number, any arithmetic operation with Infinity/NaN returns Infinity/NaN)					
+	Addition	a + b	Yes	Yes	Yes
-	Subtraction	a — b	Yes	Yes	Yes
*	Multiplication	a * b	Yes	Yes	Yes
/	Division **Division by zero:** Division by zero returns infinity, which will be converted to "" (empty string).	a / b	Yes	Yes	Yes
Additional Operators (case sensitive)					
string CONTAINS needle	Return true if `string`contains `needle` (operands will be converted to String)	this CONTAINS "A0" activity.PROP_A1 CONTAINS concat("-", this) NOT activity.PROP_A2 CONTAINS activity.PROP_A3	Yes	Yes	Yes
value IN (value1[, value2, [, valueN]]) maximum 1000 arguments	Returns true if `value`is equal to any `value1`... `valueN`(value will be converted to String)	this IN (1, 2, 3, 4) activity.PROP_A1 IN ("value1", "value2") NOT activity.PROP_A2 IN ("value1")	Yes	Yes	Yes
value BETWEEN (min, max)	Returns true if `value`is equal to `min`, equal to `max`or between them. The same as: value >= min AND value <= max (operands will be converted to Number)	1 BETWEEN (0, 100) NOT 200 BETWEEN (99, 100)	Yes	Yes	Yes
Functions (case sensitive)					

Argument	Description	Usage Pattern	Use in		
if(condition, value1, value2)	Function which returns value1 argument if condition is true and value2 argument if condition is false (condition will be converted to Boolean)	if(activity.PROP_A1 > 0, 1, 0)	Yes	No	No
now(string)	Returns current date in required format. View corresponding section for details	now("yyyy-MM-dd HH:mm:ss")	Yes	No	No
toNumber(value)	Formatting object to required number format	toNumber(activity.PROP_A1) toNumber("123.45")	Yes	Yes	Yes
toString(value)	Formatting object to string	toString(activity.PROP_A1) toString(123.45)	Yes	Yes	Yes
concat(string1, string2 [... ,stringN]]) maximum 20 arguments	Concatenate strings (all operands will be converted to String)	concat(this, "#", activity.PROP_A1)	Yes	Yes	Yes
toLowerCase(string)	String to lower case (operand will be converted to String)	toLowerCase(activity.PROP_A1)	Yes	Yes	Yes
toUpperCase(string)	String to upper case (operand will be converted to String)	toUpperCase(activity.PROP_A1)	Yes	Yes	Yes
empty(value)	Returns true if `value `is undefined or empty string or NaN or Boolean, false in all other cases	empty(activity.PROP_A1) NOT empty(activity.PROP_A2)	Yes	Yes	Yes

Data Type Conversion

This table describes the types of data used for validation rules and the way the application converts them:

	Number	String	Boolean	NaN	Infinity	Undefined
Number	NA	123 = “123” 1.5 >= “1.5”	1 = True 0 = True -10 = True	NA	NA	NA
String	“ ” — 0 “1asda” = 0 “1.5” = 1.5	NA	“ ” = False ”anything” = True “0” = True	NA	NA	NA

	Number	String	Boolean	NaN	Infinity	Undefined
	“2,3” = 0		“False” = True			
Boolean	True = 1 False = 0	True = “True” False = “ ”	NA	NA	NA	NA
NaN	NaN	“ ”	False	NA	NA	NA
Infinity	Infinity	“ ”	False	NA	NA	NA
Undefined	0	“ ”	False	NA	NA	NA

Examples of Validation Rules

Scenario 1: Report Gas Consumption

Let's say an activity contains information about gas consumption. There are three of types of consumption: predicted, actual, and removed. The 'predicted' amount of consumed gas is saved in the activity. When a Field Technician chooses to report the actual information about the consumed gas, then the difference between 'actual' and 'predicted' data must be calculated automatically. If the actual consumption exceeds the predicted consumption by more than 20 cubic meters and the conditions of the gas counter are good, then the 'Reporting notes' property is displayed.

Prerequisites: Let us assume that 'Predicted gas consumption', 'Actual gas consumption', 'Difference', 'Counter is not broken' and 'Reporting notes' string-type properties are configured in the application. And, there is the 'Counter is not broken' integer property with a check box on the GUI.

Configuration: Configure the expressions in the 'Default' field for the 'Difference' property. For example: activity.real_consumption-activity.predicted_consumption

Visibility: Set the visibility for 'Reporting notes' as Read/Write with the same formula as the condition: (activity.real_consumption-activity.predicted_consumption) >20 AND activity.counter_conditions=1

Scenario 2: Checking Ratio

A Field Technician has to enter the Upstream Signal-to-Noise ratio to complete an activity (it is mandatory). The range must not be seen and it has to be anywhere between +32 to 52 dBmV. When the Field Technician enters a value of 55dBmV, which is not in the range then the Field Technician must know that is not the range and has to try again. The Field Technician measures again and enters 51dBmV, which is in the range allowing to complete the activity.

Prerequisites: Let's assume that the Upstream Signal-to-Noise' property is configured in the application. The 'Upstream Signal-to-Noise' property is configured on the 'Complete activity' page as mandatory.

Configuration: Configure the expression in the 'Validation' field for the 'Upstream Signal-to-Noise' property. For example: this BETWEEN (32,52).

Configure the custom error message in the corresponding field to be displayed to the techician.

Processing Rules

This topic describes the rules based on which default values and validation rules are calculated.

Default value rules

For read-only fields and properties:

- Default value is always calculated for empty fields and properties.
- Default value is not calculated for not-empty fields and properties.
- Default value is recalculated every time a dependent field is changed, where dependent fields are fields used in the formula of the rule.

For read-write or mandatory fields and properties:

- Default value is always calculated for empty fields and properties.
- Default value is not calculated for not-empty fields and properties.
- Default value is recalculated every time a dependent field is changed, when the dependent fields are used in the formula of the rule.
- Default value stops calculated once it's manually changed on the open form.
- Default value stops calculated once it's submitted with not-empty value.
- Default value is not calculated for fields and properties with pre-filled values defined on the **Properties** configuration page.

Validation rules

For read-only fields and properties: Not applicable to read-only fields

For read-write fields and properties:

- Are used for read-write fields and properties.
- If a value of certain field or property does not match with the configured validation rule, then the form can be submitted.

For Mandatory fields and properties:

- Are applicable to mandatory fields and properties.
- If a value of certain field or property does not match with the configured validation rule, then the form cannot be submitted.
- For fields and properties where validation rules are not configured, the 'NOT empty' rule is automatically applied (current logic).
- For fields and properties where validation rules are configured, the system only uses that rules on the submission of the form. That is, if a validation rule states that a mandatory field 'IS empty' then it is submitted without a value. Similarly, if there is no validation rule, the field is mandatory.

Conflict Resolution

If a configured visibility rule contradicts with a configured default value, these rules are applied to resolve the conflict:

- for read-only fields and properties, the form is submitted and warning a message is displayed
- for mandatory fields and properties, the form is not submitted and an error message is displayed

Syntax for Default Values and Validation Rules

This topic describes the syntax to configure the default values and validation rules.

Naming of entities: Use these names to relate custom properties and product fields to required entities:

- activity - prefix for activity properties/fields. Example: activity.PROP_A1
- inventory - prefix for inventory properties/fields. Example: inventory.PROP_I1
- resource - prefix for resource properties/fields. Example: resource.PROP_R1
- user - prefix for user properties/fields. Example: user.PROP_U1
- request - prefix for service request properties/fields. Example: sr.PROP_SR1

Operators: All operators are case sensitive and must be used in the configuration as described in the "Language expression" section. Examples:

- activity.PROP_A1 = 100 OR activity.PROP_A1 = 200 - is correct
- activity.PROP_A1 = 100 or activity.PROP_A1 = 200 - is incorrect

Numbers and Strings: String-type values must be used in expressions in double or single quotes. For example:

- "string expression"
- "12345"
- 'single'

Escape sequences: The allowed string escape sequences are:

- \' – To escape ‘ within single quoted string
- \" – To escape “ within double quoted string
- \\ – To escape the backslash
- \n – To add line breaks between string
- \t – To add tab space

These escape sequences work with multiline properties only.

To ignore other escape sequences:

- \radasd => radasd
- \x123 => x123

To use integers in expressions, use them without of quotes. For example:

- 12345
- 6

Use float numbers with a dot as delimiter and without quotes. For example: 2.86954.

Properties and Fields

For properties and fields, the entity is given first followed by the label, and separated by a dot. If the label contains anything other than a to z, A to Z, 0 to 9, or underscore, wrap it with backticks. Examples:

- activity.PROP_A1 = 25
- activity.PROP_A1 <> activity.PROP_A2
- inventory.`LABEL WITH SPACE`

Functions in Language Expressions

Use functions in expressions in the format where the function's name is given first followed by the expression in brackets. Separate arguments by comma. All functions are case sensitive and must be used in the configuration as described in the "Language expression" topic.

Examples for functions are:

- toNumber("string expression")
- if(activity.PROP_A1 > 10, 15, activity.PROP_A2 + 200)
- toLowerCase(activity.PROP_A1) - is correct
- tolowercase(activity.PROP_A1) - is incorrect

‘if’ function

The function consists of three attributes separated by comma. The function represents this logic: if attribute 1 is <some value> then set <some value> else set <other value>. Example: if (activity.PROP_A1 > 0,15, activity.PROP_A2+200)

`now`function

The function can be set as now("format") where the format can be DATE, DATETIME, TIMESTAMP. Include the value of the format between double quotes, similar to strings. Examples:

- DATE - now("yyyy/MM/dd")
- DATETIME - now("yyyy/MM/dd hh:mm:ss tt")
- TIME - now("HH:mm:ss")

`toNumber`and `toString`functions

The rules described in the "Numbers and Strings" and "Properties and Fields" sections are applicable to the toNumber and toString functions. Examples:

- toNumber("12345")
- toNumber(activity.PROP_A1)
- toString(1245)
- toString(activity.PROP_A2)

'concat' function

The function can contain any number of operands separated by comma and placed in between brackets. Examples:

- concat("abc", 15,"cde")
- concat(activity.PROP_A1,activity_PROP_A2)

`toLowerCase`and `toUpperCase`functions

The functions are used to convert strings to lower or upper case. The functions contain only one operand placed in brackets. Examples:

- toLowerCase("ABCD")
- toLowerCase(activity.PROP_A1)

- toUpperCase("abcd")
- toUpperCase(activity.PROP_A1)

'empty' function

The function can be set with some field or property defined in brackets followed by the function. Examples:

- empty(activity.PROP_A1)
- if(empty(activity.PROP_A1),1000,activity.PROP_A2 +200)
- NOT empty(activity.PROP_A1)

Activity type groups

You can configure a group of activity types for default values, validation rules, and visibility fields and properties. It is configured in the format of activity.awortype_group = "LABEL", where the value defining a label of an activity type group is included in double or single quotes. Examples:

- activity.awortype_group = "internal"
- activity.aworktype_group IN ('customer', 'maintenance')

The now Function

The 'now' function returns the date and time in the resource time zone.

You can configure the function according to the format given in this table:

Format Character	Description	Example
d	Day of the month, 2 digits	1 to 31
dd	Day of the month, 2 digits, with leading zeros	01 to 31
H	24-hour format of an hour	0 through 23
h	12-hour format of an hour	1 through 12
HH	24-hour format of an hour, with leading zeros	00 through 23
hh	12-hour format of an hour, with leading zeros	01 through 12
M	Numeric representation of a month	1 through 12
m	Minutes	0 to 59
MM	Numeric representation of a month, with leading zeros	01 through 12
mm	Minutes, with leading zeros	00 to 59
s	Seconds	0 through 59
ss	Seconds, with leading zeros	00 through 59
t	Short uppercase Ante meridiem and Post meridiem	A or P

Format Character	Description	Example
tt	Uppercase Ante meridiem and Post meridiem	AM or PM
yy	A two digit representation of a year, with leading zeros	17
yyyy	A full numeric representation of a year, 4 digits	2017
z	The time zone offset	+0 to ±11
zz	The time zone offset, with a leading zero	+00 to ±11
zzz	The full timezone offset, with a leading zero	+00:00 to ±11:30

How do I configure a Context Layout Structure?

You can configure the Context layout structure for a page, when you want to change the visibility of fields, add conditions for visibility, or add more fields and buttons.

Let's say you want to create an Edit/View Activity form for the Edit/View Activity context, that belongs to the Administrator user type, with these objects:

- **Start** action.
- Special element, **Section**
- **Name** field.

This example explains how to configure the entities, namely, fields, actions, and special elements for the form.

> **Note:** Properties configured on the **Edit/View Activity** context (also known as **Activity Details** page) are ReadOnly, even if the property visibility is set to ReadWrite. To set the property visibility to ReadWrite, you must add the properties to a tab.

1. Click **Configuration**, **User Types** in the **Users and Security** section.
   The existing users display in the left pane.
2. Select **Administrator** from the left pane.
3. Select the **Screen Configuration** tab.
4. Expand **Application screens** and select **Edit/View Activity**.
   The **Visual Form Editor** displays.
5. To add the special element Section to the grid:
   a. Expand **New element**.
   b. Drag and drop **Section** to the grid to add a section to the form.
6. To add the **Name** field to the section:
   a. Expand **New element**.
   b. Drag and drop the Input element to the required position on the form.
   c. Click the element and in the **Activity field** drop-down list, select Address.

7. To add the Start action:
    a. Expand **New element**.
    b. Drag and drop Button to the required position on the form.
    c. Click the button and in the **Standard screen action** drop-down list, select start_activity.
8. In the **Name Translations** field, add a name for the new element in all the required languages.
   This name is displayed for the element on the form. If a user has selected a different display language, the name in the corresponding language is displayed for the user.
9. Click **Save** at the top of the form editor.

Results:

After you configure the entities for a form, log in to the application and view the configured form. If you add multiple Barcode/QR code scanner check boxes on a form or page, ensure that the section contains only the Barcode/QR code scanner check boxes and Text elements. If the section contains any other type of element, the barcode scanner is not triggered.

> **Note:** Visibility of tabs is the aggregated result of the configured visibility conditions for the child elements (for example, property, text). these rules apply:
> - The tab is visible and accessible, if at least one element is configured to be visible (for example, Read-write or Mandatory) or a Read-only element contains data.
> - The tab is not visible or accessible, if none of the configured elements is visible (for example, no Read-write or Mandatory property or Read-only element without data).
> - If a tab has all Read-Only elements, then the buttons are shown. If at least one element in the tab is Read-Write or Mandatory, then the buttons are not shown.
> - If a tab has been configured with visibility conditions, it will be displayed in accordance with those conditions ignoring inner elements.

Fields that cannot have the Barcode/QR Code Scanner option

The **Data entry** field is not available for these fields on the Visual Form Editor:

Activity fields

These auto-calculated fields:

- Access Schedule [access_schedule]
- Access Hours [access_hours]
- Compliance Alerts [activity_compliance]
- Alerts [activity_alerts]
- SLA End [sla_window_end]
- SLA Start [sla_window_start]
- Traveling Time [travel]

- Resource ID [pid]
- Time Slot [time_slot]

These fields are not auto-calculated (but contain specific data):

- Points [apoints]
- Coordinate X [acoord_x]
- Coordinate Y [acoord_y]
- Duration [length]

These fields are not auto-calculated:

- Name [cname]
- Work Order [appt_number]
- Cellular Phone [ccell]
- Email [cemail]
- Phone [cphone]
- Account Number [customer_number]
- State [cstate]
- ZIP/Postal Code [czip]
- City [ccity]
- Address [caddress]

These auto-calculated fields:

- First Manual Operation [first_manual_operation]
- First Manual Operation Interface [first_manual_operation_interface]
- First Manual Operation Performed by User [first_manual_operation_user_id]
- First Manual Operation Performed by User (Login) [first_manual_operation_user_login]
- First Manual Operation Performed by User (Name) [first_manual_operation_user_name]
- Auto-Routed to Date [auto_routed_to_date]
- Auto-Routed to Resource [auto_routed_to_provider_id]
- Auto-Routed to Resource (Name) [auto_routed_to_provider_name]
- Activity Time of Assignment [atime_of_assignment]
- Activity Time of Booking [atime_of_booking]
- Capacity Categories [activity_capacity_categories]
- Coordinate Status [acoord_status]
- Date [date]
- Start - End [eta_end_time]
- Delivery Window [delivery_window]
- End [end_time]

- Time Notified [time_delivered]
- Work Zone [aworkzone]
- Activity ID [aid]
- Activity status [astatus]
- Start [ETA]
- Service Window [service_window] [service_window]
- Travel estimation method [travel_estimation_method]

Inventory fields

These auto-calculated fields:

- Changed Inventory ID [inv_change_invid]
- Resource Id [inv_pid]
- Activity Id [inv_aid]
- Inventory Id [invid]
- Inventory pool [invpool]

These fields are not auto-calculated (but contain specific data):

- Quantity [quantity]

Resource fields

These auto-calculated fields:

- ID [pid]
- Working days left for reported data to start impacting duration estimations [skip_days_for_stats]
- Reactivated [reactivated]
- On-call Calendar [oncall_calendar]
- Work Zones [resource_workzones]
- Effective Work Skills [resource_effective_workskills]
- Time slots [resource_time_slots]
- Capacity Categories [resource_capacity_categories]
- Work Skills [resource_workskills]
- Calendar [calendar]
- Queue status [queue_status]
- Total [total]
- Pending [pending]
- Alerts [alerts]

These fields are not auto-calculated:

- Name [pname]

- External ID [external_id]
- Email address [email]
- Phone [pphone]

Service request fields

These auto-calculated fields:

- Created [srcreated]
- Activity [appt_ident]
- Request Id [srid]
- User Id [sr_uid]
- Resource Id [sr_pid]
- Activity Id [sr_aid]
- Inventory Id [sr_invid]

These possibly auto-calculated fields:

- User [uname]
- Date [srdate]

User fields

These auto-calculated fields:

- User ID [uid]
- Registered [sucreated]
- Failed login attempts [login_attempts]
- Blocked to [login_blocked_to]
- Last login [last_login]
- Last password change [last_password_change]
- Updated [suupdated]
- Main Resource [main_resource_id]

These fields are not auto-calculated (but contain specific data):

- Refresh Rate [refresh_rate]
- Mobile Resource Count [mobile_provider_count]
- Mobile Activity Count [mobile_activity_count]
- Mobile Inventory Count [mobile_inventory_count]
- Collaboration Group [collab_assigned_user_group]
- Operator of Helpdesk [collab_operator_helpdesk]

These fields are not auto-calculated:

- User name [uname]

- Login [ulogin]
- Password [password]

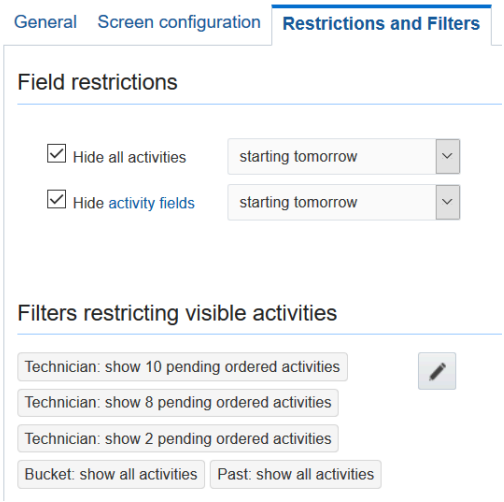
Restrictions and Filters

The **Restrictions and Filters** tab sets the restrictions on activities and fields visible to the users of the current type.

The **Restrictions and Filters** tab has two sections:

- **Field restrictions**
- **Filters restricting visible activities**

The **Restrictions and Filters** tab is shown in this screenshot:

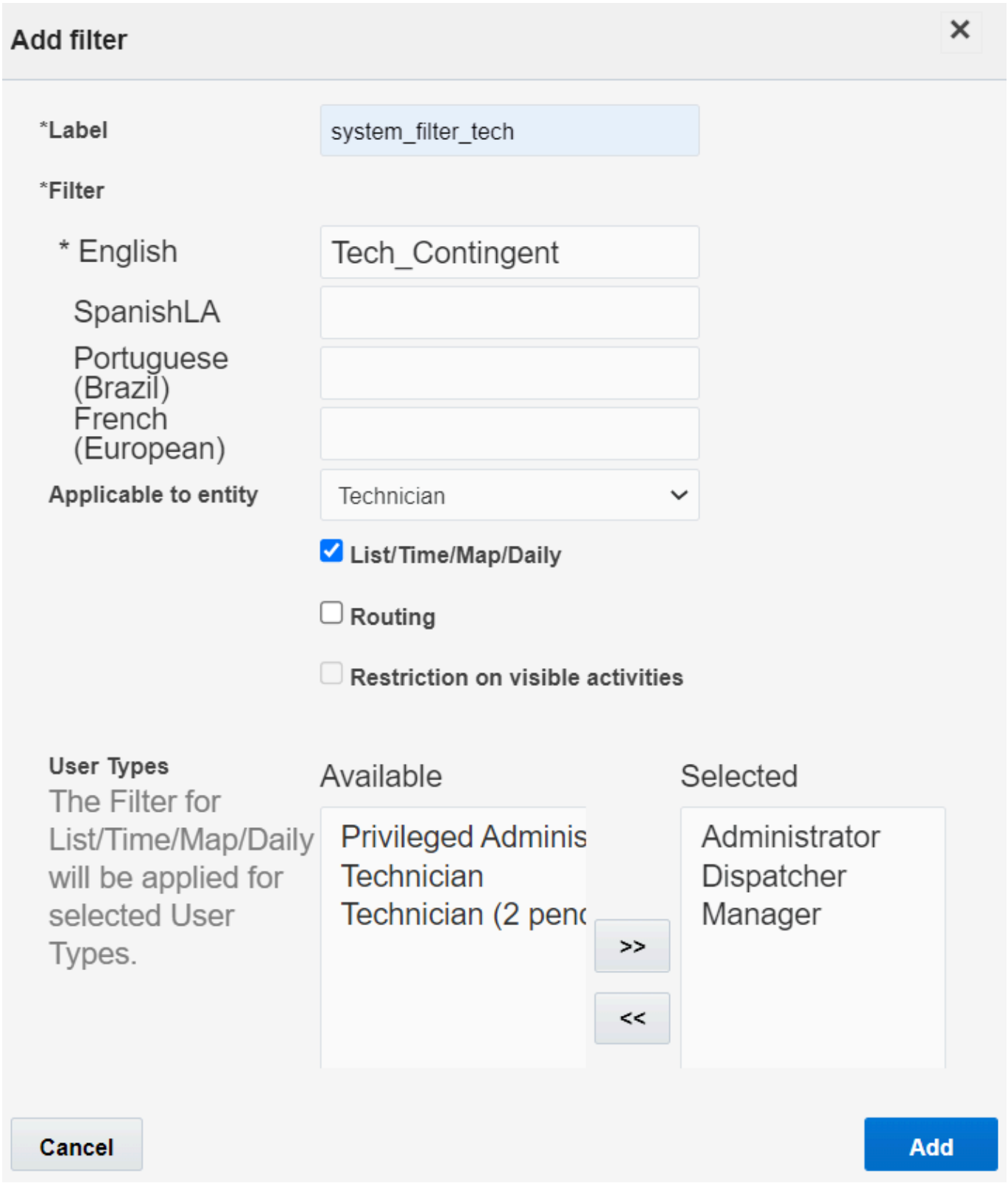


In the **Field restrictions** section, you define whether all activities and/or certain activity fields are to be hidden from the users of the current user type. There are two options in this section:

- **Hide all activities**: Determines whether the users can access any activities in the application after a certain time. When you select the **Hide all activities** option, you must set the time after which the activities are to be hidden. Two options are available:
  - **starting tomorrow**: If you select this option, all users of the current type can only access today's activities.
  - **starting day after tomorrow**: If you select this option, all users of the current type can access today's and tomorrow's activities. The users cannot see any activities beyond the selected time.
- **Hide activity fields**: Determines whether the users can access certain activity fields after a certain time. The fields to be hidden are defined in the **Field restrictions** context layout structure. You can click the **activity fields** link to access it. When you select the **Hide activity fields** option, you must set the time after which the activity fields are to be hidden. Two **Hide all activity fields** menu options are available:
  - **starting tomorrow**: If you select this option, all users of the current type can only access the selected fields of today's activities.
  - **starting day after tomorrow**: If you select this option, all users of the current type can only access the selected fields of today's and tomorrow's activities. The users cannot see the restricted activity fields beyond the selected time.

Options in the **Filters restricting visible activities** section define whether the users of the current type can view the entire routes, or only some activities. Before you set the visibility restrictions, ensure that you have configured the applicable filters correctly.

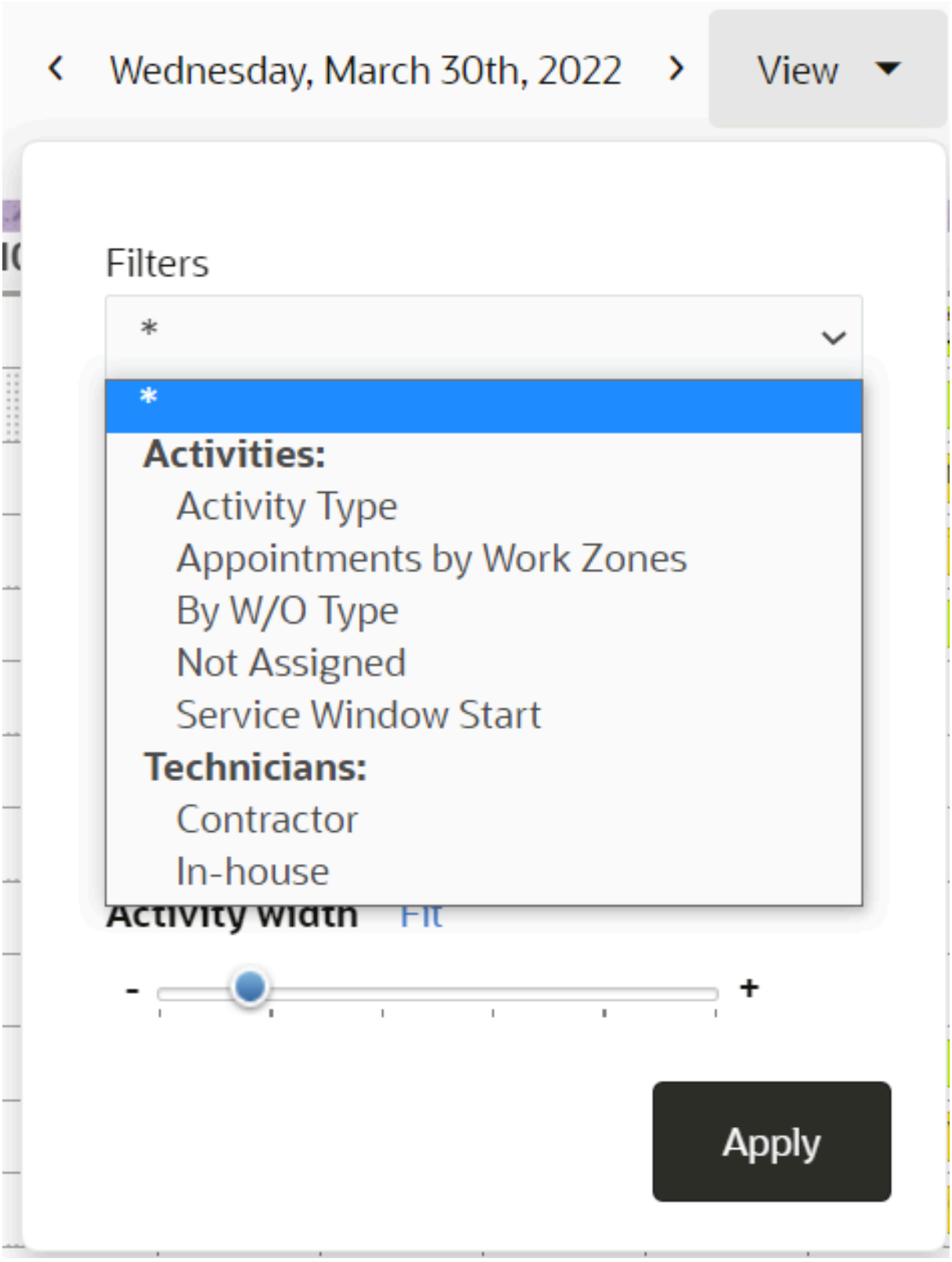
You must define a filter as applicable for the **activity** in the **Add Filter** window, to use it as a restriction on the visible activities. In addition, you must select the **Restriction on visible activities** option. Clicking **Add** displays the **User Types** page, where you can apply the current filter as a visibility restriction filter for the user type. This screenshot shows the **Add filter** dialog box with the **Applicable for**, **Restriction on visible activities** and the **Go to User Types screen to apply the current filter as visibility restriction filter for user type** fields highlighted:


Add filter
*Label
system_filter_tech
*Filter
* English
Tech_Contingent
SpanishLA
Portuguese (Brazil)
French (European)
Applicable to entity
Technician
List/Time/Map/Daily
Routing
Restriction on visible activities
User Types
The Filter for List/Time/Map/Daily will be applied for selected User Types.
Available
Privileged Adminis
Technician
Technician (2 penc
>>
<<
Selected
Administrator
Dispatcher
Manager
Cancel
Add

The filters you add then display in the list of available filters in the **Restrictions and Filters** tab of the user type configuration.

When you set a filter for a user type, all users of such type see only the activities defined in the filter settings, according to the conditions set in the filter configuration.

The **User Types** section of the filter does not apply when setting restrictions on the visible activities. The **User Types** section is inactive only when you select the **Restriction on visible activities** option. However, it is used in configuring the filter to be used on **List/Time/Map/Daily** pages. This screenshot shows the **Filters** menu:


Wednesday, March 30th, 2022
View
Filters
*
*
Activities:
Activity Type
Appointments by Work Zones
By W/O Type
Not Assigned
Service Window Start
Technicians:
Contractor
In-house
Activity Width
Fit
-
+
Apply

When you select the **List/Time/Map/Daily** option, the **User Types** section becomes active. The note in the **User Types** section suggests that the **List/Time/Map/Daily** filter is applied for the selected user types.

When you define a filter as a filter for **List/Time/Map/Daily** for a user type, it appears in the **View** menu on the **Activities** and **Daily** pages for the users of such type. The list includes only the filters configured as described earlier.

> **Note:** If you define a filter as applicable for both **List/Time/Map/Daily** and as a **Restriction on visible activities**, it works for two different groups of user types. The **List/Time/Map/Daily** filtering is available for the user types selected in the same filter configuration dialog box. However, the **Restriction on visible activities** is set for the user types for which this filter is selected in the **Restrictions and Filters** settings.

Add Access Schedule Fields

You add the Access Schedule fields to an activity to define the time or date range between which your technicians can access the equipment used for the activity, or the facility in which the activity must be performed.

To access the Access Schedule fields, add the Access Schedule (access_schedule) and/or Access Hours (access_hours) fields to the appropriate display context. While Access Schedule can be added in Read-Only and Read-Write mode, Access Hours can only have the Read-Only visibility. In most of the contexts (including activity-related pages, lists and hints, with the only exception of Activity details) the Access Schedule field also includes Access Hours if it is calculated.

Related Topics

- Add the Access Schedule Fields to a Page

User Management

How you configure and manage user types and individual users is dependent upon user-type settings.

User type settings affect the user management process. You should consider these points when configuring user types and individual users:

- These settings allow the user logging in under this user type to open the **Users** page and manage users.
- A user having access to the **Users** page can see the list of all users existing in the system. However, the user can modify only the users of types defined under **Can create users of these user types**. Users of other types have no buttons and cannot be included in group actions (that is, no check boxes are available to them).
- If no user types have been defined in the **Can create users of these user types** section, the user can see the users list but cannot modify existing user settings or add new users.
- A user is always related to one or more resources. The choice of resources for creating a new user is affected, on one hand, by the **Assigned resource types** setting in the **User Type** configuration and, on the other hand, by the **Users can be created at the level of this resource** feature of the resource type.
- When creating a new user type, the **User Type** field contains the list of user types defined in the **Can create users of these user types** field of the current user type.

Create a User Type

A user type is a template that specifies permissions and page configurations. These permissions and configurations are applicable to all the users of the user type. Oracle Field Service includes a default user type, you can create more user types based on your business requirements.

Before you start

You must be logged into Oracle Field Service as an administrator.

When you create a user type that isn't copied from an existing one, most of the options are disabled, so you must define the settings manually. When you use a copy, the new user type inherits all the settings from the copy.

Here's what to do

1. Open the **User Types** page.
2. Click the **+** icon at the upper left corner of the page.
   The **Add User Type** dialog box appears.
3. Enter a **Label** for the user type.
   This is a unique string identifier of the user type, which is used in APIs.
4. Enter a **Name** for the user type.
   This is a human-friendly name, which is displayed in the list of user types.
5. Optionally, choose an existing user type to copy settings from.
   a. Choose an existing user type from the available list.
   b. Optionally, click **Share screen configuration**.
      Choose this option if you want the new user type to have the same page configuration options as the copied user type. If you change a shared page configuration, the change applies to all user types that use the configuration.
6. Click **OK**
   The **User Type Settings** page appears.
7. Edit the user type values as necessary.
8. Click **Save**.
   Changes to a user type that's assigned to manage users are applied shortly after they're saved. Changes to a user type assigned to Oracle Field Service Mobile for Android and iOS users are applied after the next synchronization.

Delete a User Type

You can delete a user type only if there are no users assigned to it.

Before you start

You must be logged into Oracle Field Service as an administrator.

Here's what to do

1. Access the **User Types** page.
2. Select the user type you want to delete from the list.
3. Click the **-** icon at the upper left corner of the page.
   The **Confirm** dialog box opens.
4. Click **OK**.
   If the selected user type is assigned to any users, an error message displays indicating that the user type cannot be deleted. Else, the user type is deleted.

Export User Types

You export user types from one instance to another, to create users with all their settings, such as associated resource types, permissions, context layouts, and filters.

1. Click **Configuration** > **User Types** > **Export**.

2. Use the search option to search for the user types that you want to export. Or, click **Select All** to select all the users.
3. Click **Export**.

   An XML file containing the data of the user types you selected is generated. You can open or save this file. If you click **Export** without selecting any user type, the error message, 'Nothing to export' displays.

Import User Types

You can import user types from an XML file and the imported user types replace the existing user types, if any. However, be aware that you can import only the file that is exported from the same major version of Oracle Field Service. For example, if you are using Update 20D SU16, you can import a file that was exported from any release of Update 20D.

1. Click **Configuration** > **User Types** > **Import**.
2. Click **Browse** and choose the XML file that you want to import.

   You can import only XML files.
3. Click **Validate**.

   If you have selected a file of any other format other than XML, an error message appears. If you have selected an XML file, the application checks to ensure that its entities (such as resource types, permissions, and context layout items) are valid.

   > **Note:** You cannot import your own user type. Your user type must be imported by a user of a different user type. For example, if your user type is Admin1, you cannot import it. You can create another user type Admin2, and Admin2 can import Admin1.

   During the import process, a progress window displays this information:

   - The number in the **Import** column means that the number of imported items differs from the number of validated items.
   - A green check mark means that the number of validated items is identical to the number of imported items.

   The **User type import details** window displays the details of all successfully imported user types, user types imported with warnings, and user types that were not imported. Validation messages are as follows:

   - **Successfully imported**: The user type is imported successfully.
   - **Imported with warnings**:

     One or more entities is invalid, but the user type is imported.
   - **Not imported**: The user type is missing critical data and has not been imported.

Manage Users

You must first configure several user-type settings, so that a user type can create and manage other users.

1. On the **General** tab, do these:
   a. In **Can create users of these user types**, select all the user types from which users can be created.
   b. In **Access settings**, ensure that the **Allow access via web application** option is selected.
2. On the **Screen configuration** tab, do these:
   a. Ensure that the **Main menu** context includes the **Users** page with the read-write visibility.
   b. Ensure that the **Company Configuration** context includes the **User Types** page with the read-write visibility.

User Groups and User Permissions

User Groups and User Permissions are part of the tools used to manage Oracle Field Service Collaboration Cloud Service functionality settings.

User Groups are used to create roles, structure, and assign permissions. The user group list displays name and membership information, group description, and status. The User Permissions section provides a list of users that have access to Oracle Field Service Collaboration Cloud Service. For more information about User Groups and User Permissions, see the Oracle Field Service Collaboration Cloud Service User Guide.

5 Configure the Integrations

Integrate with Other Applications

Your organization may have different software applications to take care of different business aspects. You can integrate those applications so that when an event occurs in one application, the appropriate changes are performed automatically in the other application. You can integrate applications in two ways: through Integration Cloud Service (ICS) and through REST APIs.

Integrating using ICS

When you use ICS, you create an integration point in Oracle Field Service. When an event occurs in Oracle Field Service, it is sent to the appropriate application through ICS. For example, a company in the manufacturing sector may have an ERP application to take care of their stocks. The company can integrate the ERP application with Oracle Field Service, so that when a field technician installs or deinstalls an equipment, the stock is updated in both, Oracle Field Service and the ERP application.

Integrating using REST APIs

Use REST APIs to integrate third-party applications such as mobile apps. To let a mobile app access REST APIs on behalf of a user, you use the OAuth 2.0 authentication. To use OAuth 2.0 authentication, you must register the client application with Oracle Field Service. Then, your client application requests an access token from Oracle Field Service or other external token service providers such as, Oracle Identity Cloud Service. The client application then sends the token to the API that you want to access.

Integrate with ICS

Your organization may have different software applications to take care of different business aspects. You can integrate those applications, so that when an event occurs in one application, the appropriate changes are performed automatically in the other application. For example, a company in the manufacturing sector may have an ERP application to take care of their stocks. The company can integrate the ERP application with Oracle Field Service, so that when a field technician installs or deinstalls an equipment, the stock is updated in both, Oracle Field Service and the ERP application. One of the ways with which you can integrate the applications is through Integration Cloud Service (ICS). When you use ICS, you create an integration point in Oracle Field Service. When an event occurs in Oracle Field Service, it is sent to the appropriate application through ICS.

Note: Configure this integration only if you want to send events or data from Oracle Field Service to ICS.

1. Log in to Oracle Field Service.
2. Click **Configuration** > **Integration Cloud Service (ICS)**.
   The **Integration Cloud Service (ICS)** page appears.

3. To add a new integration, follow these steps:
    a. Click **Add new**.

       The **Add Integration Cloud Service (ICS) Access** dialog box appears.
    b. Add a name or description for the application for which you are creating the integration in the **End Point Label** field.

       If you are using multiple instances of an application, such as Production and Testing, you can create multiple access points for the application.
    c. Add the host name of the application for which you are creating the integration in the **ICS Domain** field.

       For example, if the URL is “https://integration-a12345.integration.us2.oraclecloud.com/integration/flowsvc/ofsccloudadapter/NAME/v01/" then ICS Domain is: “integration-a12345.integration.us2.oraclecloud.com”.
    d. Add the user name of the ICS user in the **ICS Username** field.

       This user must exist in ICS and have permissions to access the integration endpoint.
    e. Add the password for the user name in the **ICS Password** and **Confirm Password** fields.

       The user name and the password are used to authenticate with ICS when Oracle Field Service starts sending events to ICS.
    f. Click Add.

       The integration details appear on the **Integration Cloud Service (ICS)** page. Next, you must log in to ICS to add the connection details and map the required fields.
4. To modify an integration, follow these steps:
    a. On the **Integration Cloud Service (ICS)** page, click **Modify** for the end-point that you want to modify.

       The **Edit Integration Cloud Service (ICS) Access** dialog box appears.
    b. Edit the fields as required.

       You can edit all the fields, except for **ICS Domain.**
    c. Click **Submit**.
5. To delete an integration, on the **Integration Cloud Service (ICS)** page, click **Delete**.

   The application stops sending events and updates to ICS.

Can I open internal pages and plug-ins with direct URLs?

You can directly access internal pages such as Activity details, List view, or Inventory details within the Oracle Field Service Mobile for Android or iOS apps or Core Application, using specific direct URLs.

> **Note:** Use this feature only to launch Oracle Field Service on the browser or the app using external sources such as sms, emails, or other apps. Don't use this feature to navigate between pages within Oracle Field Service.

Based on the page that is accessed and the user type accessing the page, you can send the following parameters with the URL:

Name	Type	Description	Constraints
screen	String	Specifies the page that you want to access.	The following labels are supported: • activity_list

Name	Type	Description	Constraints
			• activity_by_id • start_activity • end_activity • cancel_activity • notdone_activity • suspend_activity • delay_activity • inventory_list • inventory_by_id • install_inventory • deinstall_inventory
date	Date	Specifies the date for the page that you want to access.	Date format is YYYY-MM-DD.
activityId	Number	Specifies the activity for the page that you want to access.	Valid activity ID is required.
resourceInternalId	Number	Specifies the resource for the page that you want to access.	A valid resourceInternalId is required. Mandatory, if you are navigating from the Supervisor page.
inventoryId	Number	Specifies the inventory for the page that you want to access.	Valid Inventory ID is required.

The order of the parameters is not important. Also, any unsupported parameters are ignored. The supported parameters, URLs, and accessible pages might differ based on whether the logged-in user has access to other users (such as supervisor, technician). In case, there are missing or invalid params or if the user doesn't have access to the page, then an error message is displayed.

<OFS_CORE_APP_URL> is the URL to access the following OFS Core App pages:

Activity List

The activity_list label allows you to access the Activity List page.

Supported Parameters

Name	Mandatory for Technician	Mandatory for Supervisor
date	No	No
resourceInternalId	No	Yes

Possible URLs

URL	Description	Applicable for Technician	Applicable for Supervisor
https://<OFS_CORE_APP_URL>/#screen=activity_list	Displays the Activity List page for today's date.	Yes	No
https://<OFS_CORE_APP_URL>/#screen=activity_list&date=2020-02-19	Displays the Activity List page for the date, 2020-02-19.	Yes	No
https://<OFS_CORE_APP_URL>/#screen=activity_ list&resourceInternalId=3000001	Displays the Activity List page of the technician with resourceInternalId 3000001 for today's date.	Yes	Yes
https://<OFS_CORE_APP_URL>/ #screen=activity_list&date=2020-02-19&resourceInternalId=3000001	Displays the Activity List page of the technician with resourceInternalId 3000001 for the date, 2020-02-19.	Yes	Yes

Activity Details

The activity_by_id label allows you to access the Activity Details page.

Supported Parameters

Name	Mandatory for Technician	Mandatory for Supervisor
activityId	Yes	Yes
date	Yes	Yes
resourceInternalId	No	Yes

Possible URLs

URL	Description	Applicable for Technician	Applicable for Supervisor
https://<OFS_CORE_APP_URL>/ #screen=activity_by_id&activityId=4225435&date=2020-02-20	Displays the details for activity with id 4225435.	Yes	No
https://<OFS_CORE_APP_URL>/ #screen=activity_by_id&activityId=4225435&date=2020-02-20&resourceInternalId=3000	Displays the details for activity with id 4225435.	Yes	Yes

Constraints

- The specified date must be the route date of the specified activity.
- For technicians, the activity must be assigned to the technician.
- For supervisors, the specified resourceInternalId must be assigned to the activity and the supervisor must have access to the technician.

Activity Actions

Page Label	Description
start_activity	Access the Start Activity page.
end_activity	Access the End Activity page.
cancel_activity	Access the Cancel Activity page.

Page Label	Description
notdone_activity	Access the Not Done Activity page.
suspend_activity	Access the Suspend Activity page.
delay_activity	Access the Delay Activity page.

Supported Parameters

Name	Mandatory for Technician	Mandatory for Supervisor
activityId	yes	yes
date	yes	yes
resourceInternalId	No	yes

Possible URLs

URL	Description	Applicable for Technician	Applicable for Supervisor
https://<OFS_CORE_APP_URL>/ #screen=<SCREEN_LABEL>&activityId=4225435&date=2020-02-20	Displays the specified Activity Action page for the Activity ID, 4225435.	yes	No
https://<OFS_CORE_APP_URL>/#screen= <SCREEN_LABEL>&activityId=4225435&date=2020-02-20&resourceInternalId=3000001	Displays the specified activity action page for activity with id 4225435.	yes	yes

Constraints

- The specified Activity Action page must be visible for the specified activity.
- The specified date must be the route date of the specified activity.

- For technicians, the activity must be assigned to the technician.
- For supervisors, the specified resourceInternalId must be assigned to the activity and the supervisor must have access to the technician.

Inventory List

The inventory_list page label allows you to access the Inventory List page.

Supported Parameters

Name	Mandatory for Technician	Mandatory for Supervisor
activityId	No	No
date	No	No
resourceInternalId	No	yes

Possible URLs

URL	Description	Applicable for Technician	Applicable for Supervisor
https://<OFS_CORE_APP_URL>/#screen=inventory_list	Displays the Inventory List page.	yes	No
https://<OFS_CORE_APP_URL>/#screen=inventory_list&activityId=4225435&date=2020-02-19	Displays the Inventory List page for the Activity ID, 4225435.	yes	No
https://<OFS_CORE_APP_URL>/#screen=inventory_list&resourceInternalId=3000001	Displays the Inventory List page of the technician with resourceInternalId, 3000001.	No	No
https://<OFS_CORE_APP_URL>/#screen=inventory_list&activityId=4225435&date=2020-02-19&resourceInternalId=3000001	Displays the Inventory List page for the Activity ID, 4225435. resourceInternalId	yes	No

URL	Description	Applicable for Technician	Applicable for Supervisor
	is required for supervisors.		

Constraints

- Inventory list action link should be visible from the activity.
- The specified date must be the route date of the specified activity.
- For technicians, the activity should be assigned to the technician.
- For supervisors, the specified resourceInternalId must be assigned to the activity and the supervisor must have access to the technician.

Inventory Details

The inventory_by_id label allows you to access the Inventory Details page with the specified Inventory ID.

Supported Parameters

Name	Mandatory for Technician	Mandatory for Supervisor
inventoryId	yes	yes
activityId	No	No
date	No	No
resourceInternalId	No	yes

Possible URLs

URL	Description	Applicable for Technician	Applicable for Supervisor
https://<OFS_CORE_APP_URL>/#screen=inventory_by_id&inventoryId=21229417	Displays the inventory details for the inventory ID, 21229417.	yes	No

URL	Description	Applicable for Technician	Applicable for Supervisor
https://<OFS_CORE_APP_URL>/#screen=inventory_by_id&inventoryId=21229417&activityId=4225435&date=2020-02-19	Displays the inventory details for the inventory ID, 21229417 and activity ID, 4225435.	No	No
https://<OFS_CORE_APP_URL>/#screen=inventory_by_id&inventoryId=21229417&resourceInternalId=3000001	Displays the inventory details for the inventory ID, 21229417 for the technician with resourceInternalI 3000001.	yes	yes
https://<OFS_CORE_APP_URL>/#screen=inventory_by_id&inventoryId=21229417&activityId=4225435 &date=2020-02-19&resourceInternalId=3000001	Displays the inventory details for the inventory ID, 21229417 and the activity ID, 4225435 for the technician with resourceInternalI 3000001.	yes	yes

Constraints

- For technicians, the technician must have the inventory with the specified ID.
- For supervisors, the specified resourceInternalId must belong to a technician with the inventory specified by inventory ID.
- The specified date must be the route date of the specified activity.
- For technicians, the activity must be assigned to the technician.
- For supervisors, the specified resourceInternalId must be assigned to the activity and the supervisor must have access to the technician.

Inventory Actions

Page Label	Description
deinstall_inventory	Accesses the Add to Deinstalled page with the selected inventory.

Page Label	Description
install_inventory	Accesses the Add to Installed page with the selected inventory.

Supported Parameters

Name	Mandatory for Technician	Mandatory for Supervisor
inventoryId	yes	yes
activityId	yes	yes
date	yes	yes
resourceInternalId	no	yes

Possible URLs

URL	Description	Applicab for Technici	Applicable for Supervisor
https://<OFS_CORE_APP_URL>/#screen=<SCREEN_LABEL>&activityId=4225435&date=2020-02-19&inventoryId=21229417	Displays the specified Activity Action page for the activity ID, 4225435 and for the inventory ID, 21229417.	yes	no
https://<OFS_CORE_APP_URL>/#screen= <SCREEN_LABEL> &activityId=4225435&date=2020-02-19&resourceInternalId=3000001&inventoryId=21229417	Displays the specified Inventory Action page for the activity ID, 4225435 and inventory ID, 21229417.	no	yes

Constraints

- The specified Inventory Action page must be visible for the specified activity and inventory.
- For technicians, the technician must have the inventory with the specified ID.
- For supervisors, the specified resourceInternalId must belong to a technician with the inventory specified by inventory ID.
- The specified date must be the route date of the specified activity.
- For technicians, the activity must be assigned to the technician.
- For supervisors, the specified resourceInternalId must be assigned to the activity and the supervisor must have access to the technician.

Access to Custom Plug-Ins

You can directly access custom plug-ins within the Oracle Field Service Mobile Application for Android or iOS or the Core Application. You can access such pages from any custom Android or iOS app or through specific direct URLs.

Based on the page from where the plugin is accessed and the user type accessing the plugin, you can send the following parameters with the URL:

Name	Type	Description	Constraints
plugin	String	Specifies the plugin to access.	The label must belong to a valid plugin. The plugin must be configured on one of the pages for the logged in user.
contextScreen	String	Specifies the context page from which the plugin is accessed.	The following Context Screen labels are supported: • activity_list • activity_by_id • inventory_list • inventory_by_id Context pages have the same validations as page navigation. The order of the parameters is not important.
date	Date	Specifies the date for the context page.	Date format must be YYYY-MM-DD.
activityId	Number	Specifies the activity for the context page.	A valid Activity ID is required.
resourceInternalId	Number	Specifies the resource for the context page.	Must be a valid resourceInternalId. Mandatory if you access the ID from the Supervisor page.

Name	Type	Description	Constraints
inventoryId	Number	Specifies the inventory for the context page.	A valid Inventory ID is required.

Note:

- External data: Except for the above parameters, all the passed parameters are sent to the plugin with the externalData key. If the same key is provided multiple times then the data is sent to the plugin as an array with the specified key.
- Encoding data: If the data that you want to send has special characters then it must be URL encoded.

Passing Single Key Data

```
URL: https://<OFS_CORE_APP_URL>/
#plugin=<PLUGIN_LABEL>&contextScreen=activity_list&speed=44.5&distance=11&model=V1
{
 "apiVersion": 1,
 "method": "open",
 "entity": "activityList",
 "resource": {},
 "activityList": {
 "4225438": {
 "aid": "4225438"
 },
 "4225439": {
 "aid": "4225439"
 }
 },
 "inventoryList": {
 "21064417": {
 "invid": "21064417"
 },
 "21064418": {
 "invid": "21064418"
 }
 },
 "openParams": {},
 "externalData": {
 "speed": "44.5",
 "distance": "11",
 "model": "V1"
 }
}
```

Passing Array Data

```
URL: https://<OFS_CORE_APP_URL>/
#plugin=<PLUGIN_LABEL>&contextScreen=activity_list&zipcodes=35801&zipcodes=06101&zipcodes=62701status=completed
{
 "apiVersion": 1,
 "method": "open",
 "entity": "activityList",
 "resource": {},
 "activityList": {
 "4225438": {
```

```
 "aid": "4225438"
 },
 "4225439": {
 "aid": "4225439"
 }
 },
 "inventoryList": {
 "21064417": {
 "invid": "21064417"
 },
 "21064418": {
 "invid": "21064418"
 }
 },
 "openParams": {},
 "externalData": {
 "zipcodes": ["35801", "06101", "62701"],
 "status": "completed"
 }
}
```

Passing data with special characters

```
Original Data: "https://www.oracle.com/index?q=encoding"

Encoded Data: "https%3A%2F%2Fwww.oracle.com%2Findex%3Fq%3Dencoding"

URL: https://<OFS_CORE_APP_URL>/#plugin=<PLUGIN_LABEL>&contextScreen=activity_list&targetURL=https%3A%2F
%2Fwww.oracle.com%2Findex%3Fq%3Dencoding
{
 "apiVersion": 1,
 "method": "open",
 "entity": "activityList",
 "resource": {},
 "activityList": {
 "4225438": {
 "aid": "4225438"
 },
 "4225439": {
 "aid": "4225439"
 }
 },
 "inventoryList": {
 "21064417": {
 "invid": "21064417"
 },
 "21064418": {
 "invid": "21064418"
 }
 },
 "openParams": {},
 "externalData": {
 "targetURL": "https://www.oracle.com/index?q=encoding"
 }
}
```

Passing JSON Data

```
Original JSON String: {"street":"479 South Manor Station
 Drive","city":"Glenview","state":"IL","zipcode":"60025"}

Encoded JSON String: %7B%22street%22%3A%22479%20South%20Manor%20Station%20Drive%22%2C%22city%22%3A
%22Glenview%22%2C%22state%22%3A%22IL%22%2C%22zipcode%22%3A%2260025%22%7D
```

```
URL: https://<OFS_CORE_APP_URL>/#plugin=<PLUGIN_LABEL>&contextScreen=activity_list&address=%7B%22street
%22%3A%22479%20South%20Manor%20Station%20Drive%22%2C%22city%22%3A%22Glenview%22%2C%22state%22%3A%22IL%22%2C
%22zipcode%22%3A%2260025%22%7D

{
 "apiVersion": 1,
 "method": "open",
 "entity": "activityList",
 "resource": {},
 "activityList": {
 "4225438": {
 "aid": "4225438"
 },
 "4225439": {
 "aid": "4225439"
 }
 },
 "inventoryList": {
 "21064417": {
 "invid": "21064417"
 },
 "21064418": {
 "invid": "21064418"
 }
 },
 "openParams": {},
 "externalData": {
 "address": "{\"street\":\"479 South Manor Station Drive\",\"city\":\"Glenview\",\"state\":\"IL\",\"zipcode
\":\"60025\"}"
 }
}
```

Open Plugin from Activity List page

```
URL: https://<OFS_CORE_APP_URL>/#plugin=<PLUGIN_LABEL>&contextScreen=activity_list&serialNo=49126
{
 "apiVersion": 1,
 "method": "open",
 "entity": "activityList",
 "resource": {},
 "activityList": {
 "4225438": {
 "aid": "4225438"
 },
 "4225439": {
 "aid": "4225439"
 }
 },
 "inventoryList": {
 "21064417": {
 "invid": "21064417"
 },
 "21064418": {
 "invid": "21064418"
 }
 },
 "openParams": {},
 "externalData": {
 "serialNo": "49126"
 }
}
```

Open Plugin from Activity Details page

```
URL: https://<OFS_CORE_APP_URL>/
#plugin=<PLUGIN_LABEL>&contextScreen=activity_by_id&activityId=4225439&date=2020-02-27&serialNo=49126

{
 "apiVersion": 1,
 "method": "open",
 "entity": "activity",
 "resource": {},
 "activity": {
 "aid": "4225439"
 },
 "inventoryList": {
 "21064417": {
 "invid": "21064417"
 },
 "21064418": {
 "invid": "21064418"
 }
 },
 "openParams": {},
 "externalData": {
 "serialNo": "49126"
 }
}
```

Open Plugin from Inventory List page

```
URL: https://<OFS_CORE_APP_URL>/
#plugin=<PLUGIN_LABEL>&contextScreen=activity_by_id&activityId=4225439&date=2020-02-27&serialNo=49126
{
 "apiVersion": 1,
 "method": "open",
 "entity": "inventoryList",
 "resource": {},
 "activityList": {
 "4225438": {
 "aid": "4225438"
 },
 "4225439": {
 "aid": "4225439"
 }
 },
 "inventoryList": {
 "21064417": {
 "invid": "21064417"
 },
 "21064418": {
 "invid": "21064418"
 }
 },
 "openParams": {},
 "externalData": {
 "serialNo": "49126"
 }
}
```

Open Plugin from Inventory Details page

```
URL: https://<OFS_CORE_APP_URL>/
#plugin=<PLUGIN_LABEL>&contextScreen=inventory_by_id&inventoryId=21229417&serialNo=49126
{
```

```
"apiVersion": 1,
"method": "open",
"entity": "inventory",
"resource": {},
"activityList": {
"4225438": {
"aid": "4225438"
},
"4225439": {
"aid": "4225439"
}
},
"inventory": {
"invid": "21229417"
},
"openParams": {},
"externalData": {
"serialNo": "49126"
}
}
```

Access OFS native app from other Android or iOS native apps

Accessing any of the URL formats and examples listed earlier from an Android or iOS device prompts you to open the link in a native app (if installed) or the web app using a browser.

However, if you don't have the option to open the native app in the browser and you must open the OFS native app from another native app, then replace the link "https://<OFS_CORE_APP_URL>" with "com.oracle.OFS://", (everything else the same) in each of the above links.

Access to Pages and Plug-Ins in Offline Mode

To access the pages and plug-ins related to the activities of past or future dates, if the application (native app or web app) can access the specified activity in the Offline mode, then the links to inner pages also work for those activities.

Integrate with REST APIs

Oracle Field Service supports OAuth 2.0 authentication for API access. Use OAuth 2.0 authentication to let third-party applications such as a mobile app access REST APIs on behalf of a user. To use OAuth 2.0 authentication, you must register the client application with Oracle Field Service. Then, your client application requests an access token from Oracle Field Service or other external token service providers such as, Oracle Identity Cloud Service. The client application then sends the token to the API that you want to access.

Oracle Field Service supports these types of token service:

- **Oracle Field Service Token Service:** The client application uses Oracle Field Service Token service to obtain an OAuth2 access token and authenticate with the APIs. Oracle Field Service token service supports two types of authentication:
    - Client Credentials: Authentication using client credentials is primarily used for back-end to back-end integration. For example, an application that requires pushing data to Oracle Field Service.
    - JWT Assertion: JWT assertion authentication can be used for back-end to back-end integration or for mobile applications. The Access Token generated using assertion flow may include the user identity, and Oracle Field Service performs actions as that user. The advantage of using assertion flow is that user's password is not shared with Oracle Field Service. When you use this type of authentication, the public key

of the third-party application is imported into the Application entity and the third-party application can make API calls using its private key.

- **External Token Service:** The client application uses an external token service such as Oracle Identity Cloud Service to obtain an OAuth 2.0 access token and authenticate with the APIs.
- **Oracle Identity Cloud Service:** The client application uses *Oracle Identity Cloud Service* to obtain an OAuth 2.0 access token and authenticate with the REST APIs. You can upload the signing certificate for Oracle Identity Cloud Service and then configure Oracle Identity Cloud Service to issue *OAuth2 Access Tokens*. See the Oracle Identity Cloud Service documentation for information about where to get the signing certificate: *https://docs.oracle.com/en/cloud/paas/identity-cloud/index.html*.

Use these details to configure Oracle Identity Cloud Service:

- Primary audience: <your Oracle Field Service instance name>. For example, 'ofs-x1111'
- Scope: The scope name must begin with a slash (/), followed by the application ID that you created in Oracle Field Service. For example, if the application ID is 'new_app' then the Scope is '/new_app'.

After filling in these details, note down the client_id and client_secret of the application.

Integrating applications using REST APIs includes these steps:

1. Register the OAuth client application.
2. Configure the authentication.
3. Enable access to specific APIs for your application.

For more information about calling REST APIs from third-party applications, see the *REST API for Field Service* guide.

Create an Application

If you want to call REST or SOAP APIs from a third-party application, you must register the third-party application by adding it on the **Application** page in Oracle Field Service.

1. Click **Configuration** > **Applications**.
   The **Applications** page appears.
2. Click the plus icon, add these details, and then click **Submit**:

Field Name	Description
Application Name	Name of the third-party application that you want to register.
Application ID	A unique ID of the application.

3. On the **Applications** page, click the application that you want to register on the left pane and complete these fields:

Field Name	Description
Application general info section	
Application Name	Name of the third-party application that you want to register. This field is populated automatically.
Application ID	A unique ID for the application. This field is populated automatically.

Field Name	Description
Active	Status of the Application. Inactive Applications don't authenticate or authorize anyone. When you make an active Application inactive, previously-issued access tokens don't work.
Token Service	Type of token service or identity provider the Application uses. Default is OFSC.

4. Select the authentication service using these fields:

Field name	Description
Authentication settings section	
Authenticate using Client ID/ Client Secret	Select this check box to authenticate the application using client ID and client secret. Click Show Client ID/Client secret to view the client ID and client secret.
Client ID	The client ID for the third-party application. This ID is automatically generated.
Client Secret/Show Secret	The client secret for the third-party application. This information is automatically generated.
Authenticate using JWT assertion	Select this check box to authenticate the application using JWT assertion.
Authenticate using external access token	Select this check box to authenticate the application using an external access token. This field is displayed if you select External for **Token service**.
Client Certificate/Upload	The certificate signed by the private key of the Application. If this is absent, you cannot use OAuth2 JWT Assertion authentication. Click **Upload** to upload the certificate.

5. Select specific APIs for your application using these fields:

Field name	Description
API Access section	
Add new	Click to add new APIs. The **Add API access** dialog appears. Select the APIs you want to add and click **Submit**.
Available methods	The list of the API methods available for the corresponding API. Click the menu to modify the fields or methods and to remove access to the API.
Available entities	The list of entities that the users of the current Application have access to. This option is available only for Core API and Metadata API fields.
Available resource fields/ Available activity fields/ Available inventory fields/ Available service requests fields/ Available user fields	The list of the fields available for the corresponding API. Clicking this opens the layout structure, where you can select the fields that the users of the current Application will be able to use to set or update using the API. This page functions as a context layout structure where the fields and their visibilities are set.
Remove access	Removes access to this API. Users that have access to this Application cannot use the corresponding APIs anymore.

6. Add any access restrictions using these fields:

Field name	Description
Additional restrictions section:	

Field name	Description
Visible resources	The resources that are visible to the Application. The Application performs actions only on the resource tree nodes that are included in this setting. If no resources are specified, the Application has access to entire resource tree. Click the pencil icon to select the resources that are visible to this Application.
Allow access only for certain IP addresses	The IP addresses that can access the current application. Add the IP address in the box.
Allow Cross-origin resource sharing (CORS) from these web domains	The white-list of domains from which you can make AJAX requests to Oracle Field Service REST API. Enter each domain name on a separate line. These rules apply: o The maximum length of a domain names is 253 characters. o The maximum number of domain names you can add is 100. o No leading or trailing white space must be present in a domain name. o Wildcards or special characters are not supported. o A single asterisk "*" indicates that all domains are allowed. o Domain names that are added or modified take a few minutes to be populated across the application.

This table describes how the Visible resources field works:

Visibility restrictions	Behavior
Empty	When a user is authenticated on behalf of this Application, their location in the resource tree is used for visibility restrictions. The Application cannot authorize itself, it can only authorize users.
Present	When a user is authenticated on behalf of this Application, an intersection (not union) of their location in the resource tree and the application visibility restrictions are used for visibility restrictions.

6 Configure the Subsystems

Statistics

Oracle Field Service uses collected statistical data on actual activity and travel duration for calculating a resource's estimated time arrival for the pending activities and the delivery window. In addition, the Routing module uses the collected statistics to assign activities to a resource in the most effective manner, according to the specified routing parameters. Statistical parameters are calculated separately for each resource, group/bucket, and whole company. If the data is not enough to predict the duration or travel for a resource, then the group/bucket or company values are used. Finally, if the data is not enough at the company level, then the default values are used.

View Statistical Parameters

You can view the settings based on which Oracle Field Service collects statistical data. Some settings are duration parameters, travel time parameters, activity travel keys, and resource travel keys. Be aware that if you try to adjust the settings, it may significantly change the workload for each resource, and significantly impact the logic of gathering statistics for the work done.

1. Click **Configuration**.
2. In the **Subsystems and Integrations** section, click **Statistics**.
   The **Statistics** page appears.

Field	Description
Duration parameters	
Minimum relevant duration time in minutes Maximum relevant duration time in minutes	To ensure that outlier activity durations (sometimes due to non-compliance) don't adversely affect statistical calculations, durations with values less than or more than the minutes entered in these fields will be ignored by the statistics engine.
Lower limit for personal ratio to calculate duration (%) Upper limit for personal ratio to calculate duration (%)	The lower and upper limit percentages are about the company level duration for an activity. If the duration estimated for a resource's assigned activity is beyond the lower or upper limit, the estimate is corrected so that it lies within the set limits. The Lower limit default value is 50 with an available range from 0-100. The Upper limit default value is 200 with an available range from 100-999. If the preference is always to use the personal learned duration without any lower or upper limits applied, the ranges must be set for the outer extremes with the lower limit set to 0 and the upper limit set to 999. Example: Suppose the company-level estimation for an activity is 50 minutes and the lower limit percentage is set to 80%. If the estimation for a resource is 30 minutes, the final estimation for the activity will be calculated as the maximum of 30 minutes and 80% of 50 minutes, which will be 40 minutes. The lower limit would be in effect and 40 minutes would be assigned to the activity.
Travel time parameters	
Default travel average time	The average value and standard deviation (in minutes) used for travel time prediction when there isn't statistical data for travel between two specific travel statistics keys.

Field	Description
Minimum relevant travel time in minutes Maximum relevant travel time in minutes	To ensure that outlier travel durations (sometimes due to non-compliance) will not adversely affect statistical calculations, durations with values less than or more than the minutes entered in these fields are ignored by the statistics engine.
Airline distance method weight	This parameter defines the weighting proportion between the statistic (average travel time) and coordinate methods (straight line/airline) of calculating/predicting travel time between two locations. The options are as follows: o 0 = Use only travel key based estimation. Oracle Field Service uses the statistics based estimation if coordinates are available. If not available, then it uses the default values. o 0.001 = Prefer travel key based estimation. Oracle Field Service uses the statistics based estimation if coordinates are available. If not available, then it uses the airline distance. If even airline distance isn't available, then it uses the default values. o 0.5 = Use both estimations evenly. o 0.999 = Prefer Airline distance method based estimation. Oracle Field Service uses the airline distance based estimation if coordinates are available. If not available, then it uses statistics. If even statistics aren't available, then it uses the default values. o 1 = Use only Airline distance method based estimation. Oracle Field Service uses the airline distance based estimation if coordinates are available. If not available, then it uses the default values.
Calculate airline distance based travel at key level	If this check box is selected, travel key parameters are used to calculate the airline distance based travel estimation. The application acts as before if this check box is deselected.
Default airline distance speed in km/h	The speed used to determine airline (straight line) distance time.
Default departure/parking time in minutes	The amount of time that's allowed for parking and departure from one activity to another.
Delivery Window Parameters	
Delivery window factor	Determines how much deviation should affect the calculation of future delivery windows based on their ETAs.
Delivery window granularity	This defines the number of minutes to which delivery window values will be rounded.
Delivery window minimal size	When delivery window is calculated, this is the smallest value (in minutes) that will be provided.
Delivery window maximal size	When delivery window is calculated, this is the largest value (in minutes) that will be provided.
Delivery window should not start earlier than [ ] minutes prior to start of service or SLA window	Prevents the delivery window from starting outside the service window agreed to earlier. When the option is enabled, the statistically calculated delivery window can't start earlier than the specified number of minutes before the service window or SLA window start.
Stats Fields	
Activity duration stats fields Activity travel stats fields Resource travel stats fields	This group represents the formation of the keys (made up of fields) used for the grouping of work duration and travel duration values to find the averages. The user-defined activity keys make it possible to sort the collected statistical data according to various activity characteristics, such as work order type, activity properties, activity postcode, etc.

Note: You can specify durations for specific activities and technicians through APIs. For more information, see the REST API for Oracle Field Service guide.

Related Topics

- How is activity duration calculated?

Update Travel Statistics

Travel statistics are updated when the not-assigned activities with default travel time are assigned to a resource. Oracle Spatial and Graph Route Server, which sends the travel time, updates the travel statistics in real-time.

1. Open **Configuration** > **Statistics.**

   The **Statistics** page appears.

2. Set up the **Default Travel Time** and **Minimal Statistical Travel Time** to ensure there is no statistical information for the travel time between these activities.

   The setup time is applied to the activities of the bucket.

3. To assign the activities in the bucket to a resource, select the appropriate activities and click **Move**.

   The travel time value is received from *street level* route service and set up as per this value.

Perform What-If Analysis by Applying Changes to Statistical Parameters

Let's say you override travel and activity duration values using the Statistics APIs, or add an additional field under **Activity travel stats fields**, or increase the number of characters of the zip code to be considered. You can check the impact of these changes on a Test instance before applying them on a Production instance. However, for the overrides to take effect, you must run the stats agent on that instance. You can use the **Apply Changes** button on the **Statistics** page to apply the overrides and check the impact.

Since a Test instance typically does not have enough data to calculate statistics meaningfully, changing the configuration parameters and applying those changes on a Test instance is not recommended. The reason is, the changes you apply may clear any statistical data that may have been copied when you re-created the instance.

1. Click **Configuration** > **Statistics**.
2. Change the values in the **Duration parameters** and **Travel time parameters** sections as required.
3. Click **Apply Changes**.
4. Choose one of these options:
   - **Save configuration changes only**: Select this option if you want to just save the changes. This option is disabled, if there are no changes to the configuration.
   - **Apply Statistics API overrides only**: Select this option to apply the overrides that you have added using the Statistics API's 'Update activity duration statistics', 'Update activity travel statistics', or 'Update airline distance based travel' methods manually.
   - Apply configuration changes: Select this option to recalculate the travel duration statistics or the activity duration statistics (or both) depending on the fields you have modified. If you have modified the **Activity duration stats fields** or any field under **Duration parameters**, all activity durations are recalculated. Similarly, if you have modified the **Activity travel stats fields**, **Resource travel stats fields** or any field under **Travel time parameters**, all travel durations are recalculated. If you have modified the fields related to activity duration as well as travel duration, then both activity duration and travel durations are recalculated. If there are unsaved changes, the option reads as **Save and apply configuration changes**. In this case, all the change are first saved and then applied. If you have saved the changes, but have not yet

applied them, the option reads as **Apply configuration changes**. In addition, a message stating whether Activity duration, Travel duration, or both will be updated is displayed.

> **Note:** The functions of these options is the same on a Test instance. However, the description given below each option is different, because the daily recalculation of statistics doesn't happen on Test instances. Therefore, the changes are not applied automatically by the next day. You can use this feature to apply changes to statistics configurations manually on Test instances.

5. Click **Apply**.

   A message displays whether the changes were applied successfully or not. If you open the **Statistics** page after the changes are applied, a message shows the last operation as well as when the changes were applied.

Create a Collaboration Group or Help Desk

You can communicate with other users in your organization and organize help desk activities using Oracle Field Service Collaboration. You can use the chat window to access data from the application, instead of using the Core Application interface. For example, you can share details about a resource, an activity, or an inventory item, or you can move activities and inventory. Oracle Field Service Collaboration is visible only if it is configured. This procedure describes how to create a group or help desk.

The **Collaboration** page shows settings that affect the way the user interface appears to the end user. While you may retain the default settings for most of these settings, you can change a few settings during implementation based on your business needs. Access to the **Collaboration** page is controlled by the **Collaboration** visibility profile permission. You must set this permission for each user type that manages Collaboration. If you don't configure the permission or define the visibility for a user type, users of this user type cannot access Collaboration. If you select ReadOnly, Collaboration is placed into a view only mode. If you select Read/Write for this setting, users can manage Collaboration. To create a group or help desk:

1. Click **Configuration**.
2. In the **Subsystems** section, click **Collaboration**.

   The **Collaboration** page appears.
3. Click the + icon.

   The **New group** page appears.
4. Fill up these fields:

Field	Description
Name	Name of the group or help desk you are creating.
Type	Type of group you are creating—options are group and help desk.
Active	Specifies whether the group or help desk is active.
Description	A description for the group or help desk.

5. If applicable, click the pencil icon in the **Groups to collaborate with** section to select the groups that the newly created group can collaborate with.

   The **Select Groups** dialog box appears.

6. Select the required groups and click **OK**.
7. If applicable, click the pencil icon in the **Assisting Helpdesks** section to select the help desks the newly created group can be assisted by.
8. Select the help desks and click **OK**.
9. Click **Save**.

Edit or Delete a Group or Help Desk

You can communicate with other users in your organization and organize help desk activities using Oracle Field Service Collaboration. You can use the chat window of Oracle Field Service Collaboration to access data from the application, instead of using the Core Application interface. For example, you can share details about a resource, activity, or inventory item, or you can move activities and inventory. This procedure describes how to edit an existing group or help desk.

1. Click **Configuration**.
2. In the **Subsystems And Integrations** section, click **Collaboration**.
   The **Collaboration** page appears.
3. Select an existing group or help desk.
4. To delete, click **Delete**.
5. If applicable, click the pencil icon in the **Groups to collaborate with** section to select the groups that the newly created group can collaborate with.
   The **Select Groups** window appears.
6. Select the required groups and click **OK**.
7. If applicable, click the pencil icon in the **Assisting Helpdesks** section to select the help desks the newly created group can be assisted by.
8. Select the help desks and click **OK**.
9. Click **Save**.

Message Scenarios

A Message Scenario consists of one or more scenario steps, which determine the message content, recipients, delivery channels, and business rules. While each Message Scenario has at least one start step, you can configure multiple inner steps to run different actions based on the results of the preceding steps. The intent is to ensure that the right people or systems receive the expected notifications, while considering all potential circumstances.

When you want to use Message Scenarios for time-based notifications (for example, notifications to customers) the recommendation is to use Reminders, Alerts, or Visit selections in the Launch Conditions. For other Launch Conditions (for example, Route, Activity, Inventory, and Service Requests) the recommendation is to use the Core API/Events REST API for integration with Oracle Field Service.

> **Note:** Because the messages go to your customers, you must test them carefully and thoroughly to ensure that the launch conditions, scenarios, steps, and channels are set up correctly. For more information about *Launch conditions warnings and notes, Scenario Steps elements, Channel errors, Supported variables within the body of the message*, refer to *Oracle Field Service Message Scenario Configuration Guide*.

Create a Message Scenario

A message scenario is a set of rules that specify how to process a message to an external application, or to customers when a launch condition occurs. A launch condition is triggered by a predefined event, for example, when a reminder notification must be sent to a customer 60 minutes prior to a resource's estimated arrival time.

1. Click **Configuration**.
2. Click **Message Scenarios** in the **Subsystems And Integrations** section.
   The **Message Scenarios** page displays.
3. Click the **Plus** icon in the left pane.
   The **Add Message Scenario** dialog box displays.
4. Enter **Route Not Activated** in the **Name** field.
5. Select a date from the **Active From** field.
6. Click **OK**.
   The Route Not Activated message scenario displays on the left pane.

Define the Settings for a Scenario Step

The **Settings** tab enables you to define the general settings for a message step which includes these settings:

- Step Info section: Define the type of the message step, intended recipient, and the delivery method.
- Notification Time section: Define when to send the message (for example, day of event or for how many days) and the time interval when the messages are sent.

Field	Description
Step Info section	
Name	Enter the name of the step that displays in the **Scenario steps** section.
Type	Select the type of step, Start or Inner. Start steps are the first steps that occur when a scenario is initiated. An inner step is run after a preceding step is completed.
Delivery Channel	Select the message agent for delivering the message. Options: Email, Set Property, user-defined channel, Collaboration. **Note:** If you select collaboration as the delivery channel, see *Use Collaboration as a Delivery Channel*
Recipient	The options available varies based on the selected delivery channel (Email, Set Property, user-defined channel, or Collaboration). Select the intended recipient (Customer, Resource, Dispatcher, or use static address) of the message. By default, the recipient address is fetched from the activity or resource fields for the options, Customer, Resource, or Dispatcher. However, if you select Use static address, then you must enter a static recipient address in the format, notify@etadirect.com.

Field	Description
Recipients (Add new)	You can control the delivery of a message to a helpdesk group or to helpdesk operators based on this setting. This option is visible only if you select Use static address in the Recipient field. Click Add new and select the email address of a helpdesk. These options are displayed: • Deliver to helpdesk: The message is broadcast to the helpdesk; it is available in the helpdesk as a system message. Any operator in the helpdesk can take this chat and it will be moved to the operator's active chat list where they can take action. Other operators will not see the message in the helpdesk queue, but they can view this message from the chats in progress menu to know who is working on this message. • Deliver to helpdesk operators: The message is delivered to all the operators within the helpdesk.
These drop-down lists display based on your selections in the Recipient and Delivery Channel drop-down lists.	
Customer Notification Time	Select the time for notifying customers. For example, ETA, Service window, or Delivery window.
Reply Address	Enter the e-mail address (for example, notify@ofs.oracle.com) for sending notifications when you select Email as the Delivery channel and Customer, Dispatcher, or Resource as the Recipient. If you leave this field blank or enter an incorrect ID, Oracle Field Service uses the default reply address from Oracle (noreply@fs.ocs.oc-test.com). This address has the proper SPF and DKIM settings set up for the domain. However, if you use a custom reply address, you must enable SPF and DKIM on your email server. For more information on how to enable SPF and DKIM, see the Configure SPF topic in the Oracle Cloud Infrastructure Documentation.
Time Zone and Language	Select the time zone and language for the email content when you select Email as the Delivery channel and use static address as the Recipient.
Static address	Enter the email address or distribution group to which you want to send emails when you select Email as the Delivery channel and use static address as the Recipient.
Email address source	Refers to the resource property that contains e-mail information when Dispatcher or Resource is selected as a recipient or refers to the user-defined property that contains e-mail information when Customer is selected as a recipient.
Notification time section	
Sending time	Select one of following options: • Day of event • Time of event • Day of route For example, if you select Day of event, select +, and enter 2 in the Days field, then the messages are sent after two days from the Day of event.
from	Select the starting time for the messages. For example, if you select 8 AM from the drop-down list, then the messages are sent from 8 AM. Available when either Day of event or Day of route is selected in the Sending time field.
Sending will time out in	Specify the interval in hours and minutes. The messages are sent during the specified interval.
Number of Attempts On ‘failed’ status	Indicates the maximum number of resend attempts. For example, if you enter 3 in the Interval field and 10 in the Minutes field, then the message is resent for 3 times after every 10 minutes.
Number of Attempts On ‘sent’ status	Available only for External Systems. Indicates the maximum number of attempts to resend the notification status received.

Field	Description
	For example, if you enter 3 in the Interval field and 10 in the Minutes field, then the notification status is resent for 3 times after every 10 minutes.
Sending delay	Specify the time in minutes if you want some time to elapse after an event.
Block messages for specific days	Select the days for which you don't want to send messages.
Block messages for holidays	Select the option, if you don't want to send messages during holidays. You must set up holidays using **Configuration**, **Holidays**.
Blocked messages sending	Indicates the number of days before the holiday. For example, if you select 2, then the messages are stopped before two days.

For our example, enter these details:

1. Click **Add New** in the **Scenario steps** section.

   The **Add scenario step** dialog box displays.
2. Enter **Start test** in the **Name** field.
3. Select **Start** from the **Type** drop-down list.
4. Select **Email** from the **Delivery Channel** drop-down list.
5. Select **day of event** and **+** from the **Sending time** drop-down list.
6. Enter **2** in the **days** field.
7. Enter **5** in the **hours** field and **30** in the **minutes** field in the **Sending will time out in** field.
8. Select **Service Window** from the **Customer notification time** drop-down list.
9. Click **Add**.

   The Start test message step displays in the **Scenario steps** section. The **Scenario steps** section also displays other details such as sending time, the number of messages that are being sent today, and a graph of the progress. The graph and the queue details are hidden if the screen size is not enough to display the details.

Related Topics

- Send Notification Messages

Define the Message Content

The **Patterns** tab defines the content of the message that you want to send to your customers or systems. You can use variables within the body of the message to substitute the property value within the content of the message.

Based on the delivery channel, the template for the message differs as follows:

- If the selected Delivery Channel is **Email** or **External System**, then the template for the message is defined using the **Subject** and **Body** fields.
- If the selected Delivery Channel is **Set Property**, then the template for the message is defined using the property field and property value.

For example, assume that Cancellation Reason property is associated with the entity, Activity. When a customer cancels an activity, you need to set the Cancellation Reason property field for the activity to the value, 14. Using the Set Property

delivery channel, you can use the Cancellation Reason property in the Subject field and define the required value in the Body field. So when the step is run, the application changes the value in the Cancellation Reason property to 14.

Also, you can determine when you want to generate the content of the message using the **Generate content on message creation** or **Generate content on message sending** options. Although the message is created when the message step is run, the property values may change after 40 minutes. Hence, select the **Generate content on message sending** option so that you receive the latest changes. For example, if you want to display the customer address in the content of the message, enter the label name of the property field using { }. For example, {caddress}.

1. Select the **Start test** message step from the **Scenario steps** section.
2. Select the **Patterns** tab.
3. Enter test start in the **Subject** field.
4. Enter **start test activity started at {caddress}** in the **Body** field.
5. Select **Generate content on message sending** option and click **Update**.

Define Conditions

The **Next Steps** tab identifies the relation between different steps of a scenario and defines the conditions to run the subsequent steps.

For example, assume that the start step (that is, the start test activity) fails due to some reason and you want to inform a resource in the Helpdesk department that the activity has failed. To handle the above condition, you must create an inner step and define the message that you want to send to the Helpdesk department.

> **Note:** By default, the **Next Step** drop-down list in the **Start test**, **Next Steps** tab is empty. Since the inner step handles a specific condition when the Start Step fails, it is required to create an inner step and link the Start step with the Inner step.

To create an inner step, follow the steps in the Define the settings for a scenario step using the Settings tab section, but modify these settings:

- Enter **test inner** in the **Name** field, select Inner, Resource, and Email from the **Type**, **Recipient**, and **Delivery Channel** drop-down lists.
- Enter the email address of the Helpdesk department in the **Reply address** field.
- Select the **Patterns** tab and enter the message that you want to send in the **Subject** and **Body** fields.

For our example, let us configure the Start step so that when the Start step fails, the inner step (that is, test inner) runs and sends the failure message to the Helpdesk department.

1. Select the **Start test** message step from the Scenario steps section.
2. Select the **Next Steps** tab.
3. Select **Failed** from the **Status** drop-down list.
4. Select the check box and enter the required description.
5. Select **test inner** from the **Next Step** drop-down list.
6. Click **Add**.

   The configured condition displays in the list.

7. Click **Update**.

   The test inner step is updated with the latest settings.

Block Message Steps

The **Conditions** tab enables you to define conditions to block the messages in a step. The application checks for any blocking conditions, and if the conditions are met, then the messages in the step are not processed.

Assume a scenario where you want to block the messages that are sent to the customer if the customer cancels an activity. To handle the above scenario, define a condition to verify whether the value in the Activity Status field is Cancelled as follows:

1. Select the Start test message step from the **Scenario steps** section.
2. Select the **Conditions** tab.
3. Select **Activity Status** from the **Field** drop-down list.
4. Select **In** from the **Condition** drop-down list.
5. Enter **Cancelled** in the **Value** field.
6. Select **Failed** from the **Result** drop-down list.
7. Enter activity is cancelled in the **Description** field.
8. Select **Check** on message sending option.
9. Click **Add**.

   The configured condition displays in the list. If an activity is cancelled, then the customer receives a notification that is configured in the **Conditions** tab, that is, “failed, activity is cancelled.”

Add Launch Conditions

Launch conditions are trigger events that invoke message scenarios and scenario steps to deliver configured messages to client systems.

Assume that you want to invoke the message scenario that you have created, that is, Route Not Activated when a resource’s route is not activated. Therefore, you need to add a launch condition to invoke the scenario as follows:

1. Click **Configuration** > **Message Scenarios**.
2. Click **Add New** in the **Launch Conditions** section.
3. Select **Route is not Activated** from the **The scenario will be launched when** drop-down list.
4. Enter the number of minutes in the **minutes after shift starts according to calendar** field.

5. Click **OK**.

   The launch condition displays in the **Launch Conditions** section of the **Message Scenarios** page. For each launch condition of the scenario, the **Launch Conditions** section also displays the number of messages that are in the queue. If the number of messages is greater than 999, then the numbers are displayed as follows:
   - Range 1000-999999 - "k". For example, 1000 messages are displayed as "1k"; 10000 messages are displayed as "10k".
   - Range 1000000 and greater - "m". For example, 1000000 messages are displayed as "1m"; 123000000 messages are displayed as "123m"

> **Note:** When the user selects a message scenario in the routing plan as a **Fallback** option, a read-only launch condition, **Routing fallback** is automatically populated in the message scenario. When the user removes the message scenarios from all associated routing plans, the launch condition is removed from the message scenario. The launch condition has a count of routing plans to which it is associated. You can click the count of routing plans in the launch condition UI to view the routing plans.

Send Notification Messages

Channels define a mechanism to communicate notification triggers to external systems. The Email agent is used for sending messages when the **Email** delivery channel is selected.

However, if you want to send messages to an external system (for example, client system), then you must define the details of the client system (such as Host, Port number, URL, Connection method, and so on) using the **Delivery Channels** page. For example, let us create a delivery channel, external sys 1 as follows:

1. Click **Channels**.

   The **Delivery Channels** page displays.
2. Click the **Plus** icon on the left pane.
3. Enter **external sys 1** in the **Name** field.
4. Select the required option from the **Status** drop-down list.

> **Note:** If notification scenarios contain at least one message step that uses an internal delivery channel (e-mail or voice) then that channel is accessible in the list of channels. A user with appropriate permissions can select Active or Inactive to resume or stop the message delivery for any external or internal channel. For example, you can block a channel using the Inactive option in Test instances to disallow test messages to reach real customers. Messages that are not delivered due to inactivated delivery channel get the status 'obsolete' with the description, EXTERNAL_NOTIFICATION_ARE_DISABLED. Note that the 'set property' messages don't have a delivery channel and cannot be handled this way.

5. Enter **agent.com** in the **Host** field and **8080** in the **Port number** field.

> **Note:** Enter one of these values (20, 21, 22, 25, 80, 290, 389, 443, 587, 873, 2401, 3668, 4011, 4142, 5308, 5666, 5900, 5901, 6666, 6460, 7800, 8080 8443, 14861 and 20106) in the **Port** field.

6. Enter the URL Path of the server (optional).
7. Enter the name and password of the user for authorization purpose.
8. Select the **Allow basic access authentication** check box if you want to implement HTTP basic authentication while integrating with external systems.

   When you select the check box, the outbound methods (such as send_message, drop_message, get_message_status methods) send the standard HTTP header "Authorization" with base64-encoded user credentials (standard basic access authentication). Also, the <user> SOAP structure is sent in the body of the request. The client application can

either use the standard HTTP header "Authorization" or the <user> SOAP structure to send user credentials in the request.

> **Note:** When the check box is not selected, the standard HTTP header is not used in the request and the client application can use the <user> SOAP structure for authentication. For more information, see the *Integrating with Outbound API Guide*.

9. Select a connection from the **Connection** drop-down list to denote the encryption protocol type.

> **Note:** By default, **Not Encrypted** option is selected. If you select default encryption or any other encryption type, then complete the necessary fields in the **Advanced Settings** section.

10. Click **Add**.

The channel displays in the **Delivery Channel** drop-down list in the **Add scenario step** and **Modify scenario step** dialog boxes. The delivery channel, external sys 1 also displays on the left pane on the Delivery Channels page. The channel details are displayed in:

- Green if there are no warnings and the channel is active
- Gray if there are no warnings and channel is inactive
- Red if there are warnings, or count of message scenarios is greater than 0 and the channel is inactive

Active and Inactive are also displayed on active and inactive channels respectively.

Use Collaboration as a Delivery Channel

You can use collaboration as a delivery channel to send alerts of different types of events or situations in Oracle Field Service to collaboration users (for example, technicians, help desk operators, and resources). Also, you can broadcast notifications or alerts to collaboration user groups or help desk groups on occurrence of an event or when a predefined condition is met in Oracle Field Service.

Before you start

- Subscribe to Collaboration to view the Collaboration option as a delivery channel in the message scenario. View the About page in your instance to verify whether the service is enabled.
- Create collaboration users, user groups, or help desk groups.

> **Note:** For more information on configuration settings, see the *Configuring Collaboration* section in the *Oracle Field Service Collaboration Service Guide.*

For example, assume that you want to notify the resource using collaboration as a delivery channel when a activity is created in Oracle Field Service. Assume that the message scenario, `new appt` is associated with the `Activity is Created` launch condition and has a scenario step, Collab Alert.

Here's what to do

1. Log in to Oracle Field Service as a Administrator.
2. Click **Configuration**, **Message Scenarios**.
3. Select the **Collab Alert** scenario step.
4. Select Collaboration from the **Delivery Channel** drop-down list in the **Settings** tab.

5. Select one of these options from the **Recipient** drop-down list:
    - Resource: Delivers message to the resource associated with the launch condition. By default, Oracle Field Service considers the language and time zone of the user associated with the resource. If the collaboration permission is not configured for the resource, then the message scenario displays a False Method status in the **Messages** tab of the **Activity Details** page for the scenario step.
    - use static address: Enables you to send the message to specific users, user groups, and helpdesks. Click **Add New** and search for the required users, user groups, and helpdesks. Select the required users, user groups, and helpdesks to add them to the **Recipients** section. You must enter at least three letters in the **Search** field to search for the required users, user groups, and helpdesks.
6. Enter the message content in the **Subject** and **Body** fields of the **Patterns** tab.

   The default language of the company is configured on the **Preferences** page, **Language** drop-down list and is selected as the language for the message content. To add more languages, see *Configure the Display Page*. For example, if English is configured as the default language and if the **Subject** and **Body** fields in the **Patterns** tab are populated is English, then regardless of the user's language, the message is sent to the recipient in English.

   However, you can use the **Pattern** tab to specify another language for the message content. You can specify any one of the languages selected from the **Preferences** setting as the language for the message content. For example, if English is configured as the default language and the **Subject** and **Body** fields in the **Patterns** tab is populated is Spanish, then the message is sent to the recipient user in Spanish. However, be aware that the placeholders are not translated; they are always in English. For example if there is a placeholder {activity_status}, it will not be translated; it will be in English.

   If the default language is not configured then English is considered as the default language of the recipient and the message is sent to the recipient in English.
7. Configure the required fields and click **Save**.

   The details such as sending time and the selected delivery channel are updated for the Scenario step.

Assume that a new activity is assigned to the resource, Phillip. The message scenario is triggered and the **Collab Alert** scenario step is displayed with the New status in the **Messages** tab of the **Activity Details** page.
When the message alert is sent to the resource, the status in the **Messages** tab of the **Activity Details** page changes to Sent.

> **Note:** If the scenario step is not configured properly or if the message alert is not sent to the resource, the status in the **Messages** tab of the **Activity Details** page changes to Failed. However, if a message is invalidated because of an activity-related operation in Oracle Field Service (such as delete, move, suspend activity), the status in the **Messages** tab of the **Activity Details** page changes to Obsolete.

To view the message alert, log in to Oracle Field Service using resource's login credentials.
For more information, see the *About Collaboration Window* section in the *Oracle Field Service Collaboration Service Guide.*

Holidays

There may be certain holidays when it would not be appropriate to send messages to customers. Use the **Holidays** section within Subsystems to set up the dates where certain outgoing messages will be blocked.

You can provide access to the **Holidays** page from the **Configuration** > **User Types** > **Configuration** context layout structure page. You must set this permission for each user type that you want to manage holidays. If you don't configure

this item or don't define the visibility, Holidays is visible to the user. If you select the visibility as ReadOnly, Holidays is placed into a view only mode. If you select Read/Write, the user can manage Holidays.

How do I add a holiday or a nonworking day?

There might be certain nonworking days when you don't want to send notifications to your customers from Oracle Field Service. You must add such days on the **Holidays** page for the application to consider them.

1. Click **Configuration** > **Holidays**.
2. Click **Add new**.
   The **Add Holiday** page appears.
3. Complete these fields:

Field Name	Action
Name	Enter the name of the holiday, for example, New Year Day.
Active	Select the check box if you want this Holiday to be considered by the application.
Date	Click the calendar icon and select the date, for example, 01/01/2023.

4. Click **Add**.

7 Use the Applications

Daily Extract

Daily Extract is used to report on the main Oracle Field Service entities, such as activities, inventory, and messages, for storage and further analysis. Extracted data is stored in the Daily Extract Database as a package of XML files. You can create or update a Daily Extract configuration by importing the configuration from an external source. For more information about generating Daily Extract files, see the *Configuring Applications* guide.

Configure Daily Extract

You can configure the set of files to be extracted by Daily Extract at the implementation stage. At a later stage, you can also modify them when necessary. In addition, you can also configure custom Daily Extract file sets in the **Manage Application** page. Access to the Daily Extract configuration functionality is controlled by adding a read-write visibility to the User Type that requires access to the Daily Extract report.

Daily Extraction Files

Daily Extract files are the result of data processing by the application and contain the details such as activities, inventory, and messages. As part of the Daily Extract, you can receive only the data structures that are described in this document. To get access to other data elements of the application, you must use different interfaces such as, the REST API. The extracted files are intended for reporting and historical analysis of the events in the application.

Extraction Period

Daily Extract files are typically generated once a day and contain all data the processing of which has been finished since the previous extraction. If the company does not support overnight shifts, the extraction period covers time since the previous extraction and till the end of the previous day. If the company supports overnight shifts, the daily extract data for the previous day are available for extraction after the overnight expiration, that is, at 00:00 AM + overnight. If the data is extracted before that time, the resulting files contain data of two days before.

A company can operate in several time zones, however, the Daily Extract functionality extracts data according to the time zone defined for the company in **Business Rules**. Only these files are extracted in GMT:

- General Message Details
- Message Text Details
- PAS Answer Details
- Gpstracks Details

Upon the first extraction all available data is collected. The maximum Daily Extract archive file size supported is:

- For archive with .xml files - 5 GB
- For archive with property files - 5 GB

Create Daily Extract Files

You use the Daily Extract files to extract data from Oracle Field Service to store, analyze, and report on events. You can extract data related to activities, inventory, and messages. The Daily Extract function can only receive data structures that are described in this document. To get access to other data elements of the application, you must use different interfaces such as, the REST API. You can use the extracted files for reporting and historical analysis of the events in the application. You can configure the files to be extracted by the Daily Extract report manually at the time of implementing the application. The daily extract files are always created in XML format.

1. Log in to Oracle Field Service Manage interface.
2. Select the **Navigation** button.
3. Click **Configuration**, **Applications** and then click **Daily Extract**.

   The **Daily Extract** page appears. The page displays the list of files for extraction organized as a grid. For each file name the list shows the entity to which the extraction file is related (the Entity column) and the fields exported in the file (the Exported field column).
4. Click **Add new**.

   The **Add configuration file** dialog box appears.
5. Type the exported file name.
6. Click **Submit**.

   The new file configuration is saved. When you edit the configuration, you can only edit the file name and not the entity.

Choose Daily Extract Fields to Export

A new daily extract file is created empty and for the export to work, you must specify a minimum of two fields.

1. Click **Configuration**, **Applications** and then click **Daily Extract**.

   The **Daily Extract** page appears.
2. Click the stack menu to the right and click **Fields** to add fields to the entity.
3. Click the plus icon and select the required field that you want to add to the entity.
4. Select a field to view its properties. Change the **Name** if required.

   You can arrange the list of properties by dragging and dropping. You cannot change property names for the GPS Track Fields, Type List Fields and Property File Fields entities. If a custom property is deleted from the application, you must also delete it from the field list of any daily extract files; otherwise the extraction returns an error.
5. Click **OK**.

Extraction Files and Extraction Data Sets

Data of different entities processed during the extraction period or available by the end of extraction period can be collected and extracted in the files. (In this document, 'during the extraction period' means that if at any time during the extraction period the entity was available in the application. Such entity is extracted. 'By the end of extraction period' means that if an entity was created at some time during the extraction period and was deleted before the end of extraction period. Such entities are not extracted).

This data can be divided into data sets, that is, groups of details related to one and the same entity in the application. In some cases, data related to one entity is divided into several different data sets.

> **Note:** Data from several data sets cannot be extracted in one file but data from one data set can be divided to be extracted in any number of files. For example, the file created for the Activity Fields entity cannot also include data for the Resource Fields entity. At the same time, one file can refer to several database tables according to the exported field's configuration. For example, an Activity Fields file may include data from the queue table, when configured so.

These data sets are available for export. The actual list of data sets to be exported can be configured according to your company preferences.

- Activity Fields – Data on all fields and properties assigned to activities that were to be performed or were performed.
- Activity Link Fields – Details of all links between activities defined in the application.
- Activity Work Skill Fields – Details of work skills per activity.
- GPS Details – Details of all GPS data gathered.
- Inventory Fields – All fields and properties assigned to all inventory items, except inventory in resources' pools, available in the application by the end of the extraction period.
- Manual Move Fields – Values of the fields related to activities that were manually moved during the extraction period.
- Message Details – Data on all messages generated during the extraction period divided into two data sets:
  - Message Fields – Details on the messages excluding the actual text of the message.
  - Message Text Fields – The text of each specific message.
- PAS Answer Fields – Details of the customer's answers to the questions asked in the Post Appointment Survey that are present in the application with the status 'delivered' at the time of extraction.
- PAS Question Fields – Details of the questions for Post Appointment Surveys at the time of extraction.
- Property Fields – Details of all fields and custom properties available in the application.
- Property File Fields – Contents of file properties (such as images) available in the application.
- Property Lookup Fields – Sets of values that can be used to identify a field or custom property for all fields, and custom properties available in the application.
- Resource Fields – Details of the properties of all resources available in the application (including inactive resources) and their position in the Resource Tree.
- Resource Location Fields – Details of locations defined for each resource in the application.
- Resource Property Fields – Details of all properties defined for each resource in the application.
- Resource Work Skill Fields – Details of work skills per resource.
- Route Fields – Data on all fields and properties assigned to routes that were to be processed during the extraction period, including all fields and properties assigned to resources, to which a route is directly assigned.
- Routing Run Result Fields – Details of the fields for all the routing runs and rollbacks in the application for the extraction period.
- Service Request Fields – Details of service requests created in the application.
- Time Slots Fields – Details of time slots defined in the application.
- Type List Fields – Sets of values used to identify the type of entity by its ID for all types available in the application.

- User List Fields – Details of all users existing in the application.
- User-Resource Relation Fields – Details of the resources visible to each user as defined in the application.

Note: Daily Extract processes property labels regardless of whether any special symbols or capital letters are used.

8 Administer Oracle Field Service

The Administrator Role

The Administrator plays an essential role in the application. The Administrator user type is assigned to an individual or group of individuals who oversee the regular maintenance and updating of users, resources, calendars, and the Resource Tree.

The Administrator is responsible for a combination of functions that can include:

- Managing users—Adding new users and deactivating users.
- Assigning user types to users. Resetting passwords.
- Managing the Resource Tree.
- Managing the resource calendars, shifts, and teamwork.
- Working with work zones, work skills, work conditions, and work skills groups.

The Administrator user type is unique to each company and includes any combination of the responsibilities mentioned earlier, depending upon the visibilities assigned to the user type. As a general rule, the administrator user:

- Has read-write access to the interface.
- Can manage user and resource related information.
- Can manage own account (password).

> **Note:** This document covers all aspects of an administrator's role. Based on your company's configuration and modules purchased, some of the functionality described in this document may not apply.

As an administrator, one of your key responsibilities is to manage user information. There are two primary types of users:

- Users who use the manage aspect, for example, dispatchers and field managers.
- Field service resources who use the mobile app, for example, field service personnel.

In either case, a *user* is someone who requires access to some part of the application's interface.

Manage Users

You can set up users and maintain their accounts through the **Resources** page that opens from the **Resources** option on the hamburger menu. Much of the information that you enter is standard, based on your company's login and password policies, but some are unique to the user and role they play in your configuration. This section describes one-time activities as well as periodic activities that are performed to conform to changes in the user's role and company policy. For example, if users persist in attempting to log in with an incorrect password, they are locked out of their accounts. This section describes how to unlock the account and reset the password.

Access User Details

You can access user information to view the details and modify them.

1. Click the hamburger menu and then click **Resources**.
   The users that belong to the organization level that you have access to are displayed.
2. If you have access to multiple levels of the organization, click **Change** in the Org Unit/Bucket section. Search for and select the appropriate organization level for which you want to view the users. If you want to view all users, select the highest level of the organization.
3. In the **Resource Type** section, select the type of resource you want to view.
   The resources that satisfy the criteria you have selected are displayed.
4. Sort the list of resources using the Status, Collaboration, and Last Login options.

Add an Organization Unit or a Bucket

Use organization units to sort and organize the items in the resource tree. You can use buckets to hold the activities that aren't yet assigned to field resources. You must set up the resource tree using the organization, buckets, and child resources in a way that suits your business requirements.

Difference between resource, user, and child resource: A resource can be a field resource (a human being), a dispatcher, an administrator, a vehicle, or a tool. All resources are elements of the Resource tree. A user is a field resource or any other user that has access to Oracle Field Service. A child resource is a resource that is added to a bucket or an organization unit element of the resource tree. In the hierarchy of the resource tree, the bucket or the organization unit appears at a higher level than the child resource. A child resource can be a field resource (a human being), a vehicle, or a tool.

Organization units are typically used to group resources by location. Organization units cannot be route owners and you cannot assign activities to them. Buckets can have activities. However, dispatchers can assign activities to buckets manually and Routing can assign activities to buckets automatically. To add an organization unit or a bucket:

1. Click the navigation icon and then click **Resources**.
2. Click the plus icon.
3. Complete these fields:

Field name	Action
Resource Type	Select Group or Bucket. The fields on the page change based on the option you select.
Name	Enter the name of the organization unit or bucket the way you want it to appear in the resource tree.
External ID	Enter a unique ID for the organization unit or bucket. These IDs are optional.
Org Unit/Bucket	Select the organization unit or bucket under which you want to create the organization or bucket.
Status	Select whetner the organization unit or bucket is active or inactive. An inactive organization unit or bucket is not listed in the resource tree.
Message Language	Select the language in which dispatchers and technicians see the error messages.

Field name	Action
Time zone	Your (currently logged in user) time zone is populated, change it if required. This is the time zone in which the organization is located.
Time format	Your (currently logged in user) time format is populated, change it if required. This is the time format that your resources see and use in the interface. This can be either **12-hour** or **24-hour**.
Date format	Your (currently logged in user) date format is populated, change it if required. This is the date format that your resources see and use in the interface. This can be either **month-day-year** or **day-month-year**. The date format controls the display of dates in numeric format.

4. Click **Submit**.
   The new active organization unit or bucket is added to the resource tree, in the selected hierarchy.

Add a Dispatcher, a Manager, or an Administrator

You use the Add Resource page to add a dispatcher, a manager, or an administrator user. This is also the user without a resource; in other words, this user does not perform the duties of a field resource.

1. Click the hamburger icon and then click **Resources**.
2. Click the plus icon.
   The **Add Resource** page appears.
3. Complete these fields:

Field name	Action
Resource Type	Select Manager/Dispatcher/Admin. The fields on the page change based on the option you select.
Name	Enter the resource name the way you want it to appear in the resource tree.
Org Unit/Bucket	Click the field and select the organization unit or bucket with which you want to associate the resource. Let's say you want to add a dispatcher who manages a bucket and the resources under the bucket. Select the bucket to place the dispatcher so that the user can see only the bucket and the resources under that bucket. If you want to create a manager who may see the entire enterprise, select the parent level of the organization structure to add the manager. The options available for you are configured by your administrator. If you don't select any organization unit or bucket, the resource is treated as unassigned to any organization.
Status	Select whether the resource is active or inactive. Inactive resources cannot log in to the application.
User Type	Select the user type for the resource. The permissions assigned to the selected user type applies to this resource. In other words, the user type selected here determines the pages and the options the resource can see. You can create and edit resources of only the user types that are selected in the **Configuration** > **User Types** > **General Can create users of the following user types** section. The user types that are not selected on the **General** page are not available here for selection. Further, you cannot edit the details on the **Resource Info** page of the resources of this user type.
Visible resources	Select the resources the current resource can view, from the organization structure. The resource can see the resources belonging to the selected organization, organization unit, or bucket.
Self assignment	If you are assigning this resource to a bucket, select this check box to determine the availability of activities and resources for this resource. For more information, see the How Self-Assignment Works topic.

Field name	Action
Login	Enter the user name with which the resource can log in to Oracle Field Service. **Note:** Although you can change a user's Login (user name) after it is created, it is not advisable to do so. This is because, it may cause issues with integrations with other Oracle applications such as, DBaaS or Oracle Analytics Cloud, where this field is used as a primary key on some tables.
Password, Confirm Password	Enter the password that you want to set for the resource.
Force password change at next login	Select this check box, if you want the resource to change their password when they log in for the first time.
Collaboration group	Click and select the collaboration group that you want to add the resource to.
Message Language	Select the language in which you want the resource to see the error messages.
Time zone	Your (currently logged in user) time zone is populated, change it if required. This is the time zone that the resource sees and uses in the interface.
Time format	Your (currently logged in user) time format is populated, change it if required. This is the time format that the resource sees and uses in the interface. This can be either **12-hour** or **24-hour**.
Date format	Your (currently logged in user) date format is populated, change it if required. This is the date format that the resource sees and uses in the interface. This can be either **month-day-year** or **day-month-year**. The date format controls the display of dates in numeric format.
Long date format	Select the long date format that the resource views in the application. A long date is a date that includes words. For example, Wednesday, May 6, 2020.

4. Click **Submit**.
   The new resource is added. If you have configured the Refresh Rate (refresh_rate) field for the user, it will not be used in Core Application.

How Self-Assignment Works

The **Self-Assignment** feature influences the availability of activities and resources for a user who is assigned to a bucket. By default, **Self-Assignment** is disabled. This setting is mostly used by dispatchers, who allocate activities to resources and usually do not perform any activities.

If a user is assigned to a bucket and **Self-Assignment** is cleared:

- All child resources of the bucket are available to the user.
- All activities in the bucket are available to the user (regardless of their work zones and work skills).
- The user can move all activities between all available resources (for example, from the bucket to any of the assigned resources, between resources, from a resource back to a bucket).
- **Self-Assignment** must be selected, if a technician is granted permission to assign tasks. (For example, the user is a crew chief, assigning activities to members of the crew, or a single technician allowed to choose activities to perform.)

If a user is assigned to a bucket and **Self-Assignment** is selected:

- Only the resources explicitly assigned to the user are available to such a user (for example, the bucket, the user themselves and members of the crew). No other child resources of the bucket are available to the user.
- Only those activities in the bucket that can be performed by at least one of available resources (subject to the work zone and work skill requirements) are available to the user.
- The user can move only the available activities and only between the available resources.

Add a Field Resource

You must add a field resource, before you can assign activities to them.

1. Click the hamburger icon and then click **Resources**.
2. Click the plus icon.
   The **Add Resource** page appears.
3. Complete these fields:

Field name	Action
Resource Type	Select Technician. The fields on the page change based on the option you select.
Initial Ratio for Activity Duration	Select the default ratio that is used for the resource, if there isn't enough historical data for the resource for a particular type of activity. For such activities, the estimated duration of the technician is the value of the Initial ratio * company wide estimation (provided "Personalize the estimation of activity duration" is selected). After the technician completes at least one activity, the default ratio shows for the technician based on the reported duration.
Type	Select whether the resource is an in-house resource, or a contractor.
Name	Enter the resource name the way you want it to appear in the resource tree.
External ID	Enter the ID number from an external system, such as the employee ID number. These IDs are optional. If you use them, each resource must have a unique ID.
Org Unit/Bucket	Click the field and select the organization unit or bucket with which you want to associate the resource. The options available for you are configured by your administrator. If you don't select any organization unit or bucket, the resource is treated as unassigned to any organization.
Status	Select whether the resource is active or inactive. Inactive resources cannot log in to the application.
Personal Info	Enter the personal information of the resource.
User Type	Select the user type for the resource. The permissions assigned to the selected user type applies to this resource. In other words, the user type selected here determines the pages and the options the resource can see. You can create and edit resources of only the user types that are selected in the **Configuration** > **User Types** > **General Can create users of the following user types** section. The user types that are not selected on the **General** page are not available here for selection. Further, you cannot edit the details on the **Resource Info** page of the resources of this user type.
Visible resources	When you create a Field Resource, the Visible Resources field is prepopulated with the current resource's name. So, it means that technicians can see themselves. Select more resources the current resource can view, from the organization structure. The resource can see the resources belonging to the selected organization, organization unit, or bucket.

Field name	Action
Self assignment	If you are assigning this resource to a bucket, select this check box to determine the availability of activities and resources for this resource. For more information, see the How Self-Assignment Works topic.
Login	Enter the user name with which the resource can log in to Oracle Field Service.
Password, Confirm Password	Enter the password that you want to set for the resource.
Force password change at next login	Select this check box, if you want the resource to change their password when they log in for the first time.
Collaboration group	Click and select the collaboration group that you want to add the resource to.
Message Language	Select the language in which the resource sees the error messages.
Time zone	Your (currently logged in user) time zone is populated, change it if required. This is the time zone that the resource sees and uses in the interface.
Time format	Your (currently logged in user) time format is populated, change it if required. This is the time format that the resource sees and uses in the interface. This can be either **12-hour** or **24-hour**.
Date format	Your (currently logged in user) date format is populated, change it if required. This is the date format that the resource sees and uses in the interface. This can be either **month-day-year** or **day-month-year**. The date format controls the display of dates in numeric format.
Long date format	Select the long date format that the resource views in the application. A long date is a date that includes words. For example, Wednesday, May 6, 2020.

4. Click **Submit**.
   The new resource is added.

Change the Resource Type of a Field Resource

Sometimes, you may have to change a field resource to a dispatcher or manager. When you do this, the resource becomes inactive and a user is created.

1. Click the hamburger icon and then click **Resources**.
2. Type the resource name for which you want to change the Resource Type in the **Search** field.
   The matching results appear.
3. Click the required resource name.
   The **Resource Info** page appears, with all the details of the resource.
4. Click the stack icon and then click **Edit**.
   The **Edit Resource** page appears.
5. In the **Resource Type** field, select Manager/Dispatcher/Admin.
6. Click **Submit**.
   The resource becomes inactive, and a user is created.

Change the Resource Type of a Manager, a Dispatcher, or an Administrator

Sometimes, you may have to change a Manager, a Dispatcher, or an Administrator to a field resource. When you do this, the field resource is created and the Manager, Dispatcher, or Administrator is not available anymore.

1. Click the hamburger icon and then click **Resources**.
2. Type the resource name for which you want to change the Resource Type in the **Search** field.
3. In the search results, click the required resource name.
4. On the **Resource Info** page, click the stack icon and then click **Edit**.
5. In the **Resource Type** field, select a field resource.
6. Click **Submit**.

   The field resource is created and the Manager, Dispatcher, or Administrator is not available anymore on the **Resources** page.

How do I activate, deactivate, or delete a user?

You can control users' access to the application by activating or deactivating them. Active users can log in and use the application. Deactivated uses can be re-activated when needed. Deleted users are no longer available in the resource tree.

1. Use one of the following ways to access the user that you want to activate or deactivate:
   a. In the resource tree, click the user for which you want to change the status. Click the Info icon for the resource. On the **Resource Info** page, click the stack icon and then click **Edit**. The **Edit Resource** page appears.
   b. Click the hamburger menu and then click **Resources**. Search for the user for which you want to change the status.
2. Select the corresponding check box and click **Activate** or **Deactivate**, depending on whether you are activating or deactivating the user.
3. Click **Activate** or **Deactivate** on the confirmation dialog box.
4. To delete a user, select the corresponding check box and click **Delete**. Click **Delete** on the confirmation dialog box.
5. If you want to activate, deactivate, or delete multiple users, click the hamburger menu and then click **Resources**. Search for the resources for which you want to change the status. In the search result, select the check box against resource names and click the appropriate check box in the header. However, note that your administrator must first configure these group actions for the **Resources** context layout structure, before you can use them.

How do I unlock a user account?

When a user makes too many unsuccessful attempts to log in, the account is locked. You must unlock it for the user to log in and use the application.

1. Click the hamburger menu and then click **Resources**.
2. Select **Blocked** under **Status**.

3. Select the check box next to the resource whose account you want to unlock.
4. Click **Unlock** above the list of resources.
   Unlock appreas as an option, only if you have configured it on the **Resources** context layout structure.
5. Click **Unlock** in the confirmation diaog.

Reset a User's Password

As a user administrator, one of the most common jobs you do is reset passwords. If a user is locked out, it is most often because the user exceeded the maximum number of password attempts. Sometimes in addition to unlocking a user's account, you may also have to change their password.

1. Click the hamburger menu and then click **Resources**.
2. Search for the resource for which you want to reset the password. In the search result, click the resource name.
3. Click the stack icon and then click **Edit**.
   The **Edit Resource** page appears.
4. Type in the new password in both the **Password** field and the **Confirm Password** field.
   You can select the **Force password change at next login** check box to force the user to change the password when they log in the next time.
5. Click **Submit**.
   The password is reset.

The Resource Tree

The *resource tree* provides a hierarchical view of your organization's resources, typically sorted by geographical region. It displays on the left of the page.

You can click the *toggle button* to show or hide the resource tree. When you select a *resource* from the resource tree, the resource's activities display in the work area on the right. Click the plus sign (+) next to an entity in the resource tree to expand and view the entities under that group or bucket. Click the minus (-) sign to collapse that view.

The resource types and the overview of the roles performed by each item in the resource tree are:

- Field resource: This resource can perform work, has work skills, work zones associated, and has a related user that is an actual person performing work or a crew or people.
- Vehicle: This resource can have work skills, inventory, and geolocation tracking enabled. When assigned to a team it may add the required work skills and inventory to be used by the team.
- Tool: This resource represents specific tools such as 30-feet ladder and excavator. This resource can have work skills, inventory, and geolocation tracking enabled. When assigned to a team it may add the required work skills and inventory to be used by the team.
- Bucket: This resource is used to accumulate work that is not yet distributed to field resources. Only the application can assign activities to this resource. This resource is used for Quota Management.
- Organization unit: This resource aggregates field resources, vehicles, and tools in the tree-like hierarchy to simplify management and reporting. This resource is used for Quota Management.

Designate Buckets for Capacity or Quota Management

After adding a bucket, you must select whether you want to use it for Capacity Management or Quota Management.

1. Click the bucket name in the Resource Tree.
2. Select the **Use as Capacity Area** check box.
   The **Routing profile**, **Capacity categories**, and the **Time slots** fields appear.

> **Note:** When you select the "Used for Quota management" option for a bucket, you cannot change the resource type and deselect this option. Similarly, if you have deselected **Use as Capacity Area** the option initially, you cannot change the resource type and select the option.

Add Capacity Categories and Time Slots

If you designate a bucket as a capacity bucket used for quota calculation, then the page displays the capacity categories and time slots fields. The selections you make here determine how the Quota section appears. Configuring capacity categories and time slots on a bucket-by-bucket basis is helpful when different regions and types of resources within these buckets require different skills and time slots.

1. Click the bucket name in the Resource Tree.
2. Select the **Use as Capacity Area** check box.
   The **Routing profile**, **Capacity categories**, and the **Time slots** fields appear.
3. Select the **Time Slots** that will be used for Quota Management in this bucket. Click the pencil icon next to the **Time Slots** field.
   The **Edit Time Slots** field appears.
4. Select the time slots that will be used for quota management for this bucket then click **Save**.
5. Select the **Capacity Categories** that will be used for Quota Management in this bucket. Click the pencil icon next to the **Capacity Categories** field.
   The **Edit Capacity Categories** field appears.
6. Select the capacity categories that will be used for quota management for this bucket. Click **Save**.
7. Select the level at which quota is defined in this bucket (i.e., day, time slot, capacity category).
   This determines the visibility of the **Day**, **Time slot**, and **Capacity category** tables in the **Quota** view.
8. Select the levels on which quota can be closed in this bucket.
   Note that quota can also be closed by work zone.
9. Select the levels for which maximum capacity should be estimated.
   Maximum capacity is the maximum number of minutes for activities booking. The application checks that the total duration of booked activities plus the total duration of other activities does not exceed maximum capacity.
10. Click **OK** to save the bucket information.

Rules for Removing Inactive Resources

Resources that have an inactive status for more than 12 months are automatically removed from the application to improve performance and remove clutter from the resource tree.

These rules are applied to remove the resource:

1. Resource Type Role = 'Field Resource', 'Vehicle', or 'Tool' is deleted and removed if the resource:
    - Has an inactive status
    - Was last updated more than 12 months ago
    - Does not have activities in future days (non-scheduled activities, teamwork, and so on)
    - Is not used in visibility conditions in User types configuration (via 'pid' or 'external_id')
    - Is not used in blocking conditions of Message steps (via 'external_id')
    - Is not used in conditions of Filters (via 'external_id')
    - Does not have a related user whose 'uid' is used in visibility conditions in User Types configuration
2. Resource Type Role = 'Bucket' or 'Organizational Unit' is deleted and removed if the resource:
    - Has an inactive status
    - Was last updated more than 365 days ago, where:
        - Any field or property for the resource was changed
        - Resource calendars were changed
        - Resource work zones were changed
        - Resource locations were changed
        - Resource inventories were changed
        - Resource time slots were changed
        - Resource capacity categories were changed
        - Resource routing profiles were changed
        - Visibilities between users and this resource were changed
    - Resource does not have any child resources
    - Resource does not have activities in future days
    - Resource is not used in visibility conditions in User types configuration (via 'pid' or 'external_id')
    - Resource is not used in blocking conditions of Message steps (via 'external_id')
    - Resource is not used in conditions of Filters (via 'external_id')
    - Resource does not have a related user whose 'uid' is used in visibility conditions in User Types configuration

Update means:

- Any field or property for the resource was changed
- Resource calendars were changed
- Resource locations were changed
- Resource work zones were changed
- Resource inventories were changed

- Resource associated as Field Resource for some user
- Visibilities between users and this resource were changed

Configure the Activity Labels

You must configure the activity labels that you want to see on the Month view.

1. Click **Configuration** > **User Types**.
2. Select the user type for which you want to configure the activity labels.
3. Click **Screen configuration**.
4. Expand **Application screens** and click **Activity time view label**.
5. Click **Click to Add**. On the **Add property** window, select the properties that you want to display as labels.
6. Click **OK**.
7. In the [property] visibility section, click **Add new visibility**.
   Read-Only is selected by default.
8. Click **Save**.
9. Click **Add new visibility** in the [property] value visibilities section. By default, all the values for the property are visible. If you want to have it that way, click **Save**. If you want to add visibility to specific values, select the values and then click **Save**.
10. Click **Close**. Go to the Month view in **Dispatch Console**.
    The labels are displayed.

How do I configure activity and resource hints?

Activity hint is a context menu that is displayed when you click an activity on the List, Time, or Map view. Similarly, resource hint is displayed when you click a resource in the resource tree. These menus can include static text such as activity type or capacity category and buttons for actions such as adding or starting an activity. The menu can also include links to open forms and plug-ins.

1. Click **Configuration** > **User Types**.
2. Select the type of user for which you want to configure the hint and click **Screen configuration**.
3. Expand **Application screens**.
4. To add an activity hint, locate **Activity hint** in the **Dispatch Console** tree and click it. To add a resource hint, locate **Resource hint** in the **Main menu** tree and click it.
   The **Context layout structure** opens for the selected hint. This page displays two sections—**Layout structure** and **Actions**.
5. Click **Click to Add** in the **Layout structure** section and select the required properties such as Alerts, Activity type, Activity status, Resource name.
   The items in the **Layout structure** are static text items.

6. Click **Click to Add** in the **Actions** section.
   The **Add action** dialog box appears and displays these options:
   - **Standard action screen:** Lets you add standard actions such as Activate route, Add child resource, Add to group, Resource calendar, Work Skills, Work Zones, Location, and so on.
   - **Plugins:** Lets you add plug-ins. The plug-ins that you have added on the Forms & Plugins page are listed here.
   - **Custom forms:** Lets you add custom forms. The Forms that you have added on the Forms & Plugins page are listed here.
7. Select one of the three options and then select the required item in the **Available** list.
8. Click **OK**.
   The properties of the newly added item are displayed.
9. Click **Add new visibility**.
   Read-only is selected by default on the **[item] visibility** dialog box.
10. Click **Conditions** and add any conditions based on which you want to display the link.
11. Click **Save**.
    The new item or link is added to the hint. The item is displayed when the user refreshes the application, or logs in to it the next time.

Configure Time and List Views

You can configure the columns that display on the Time and List views to suit your business requirements.

1. Click **Configure** > **User Types**.
2. Select the type of user for which you want to configure the views and click **Screen configuration**.
3. Expand **Application screens**.
4. Click **List view columns** in the **Dispatch Console** tree.
   Context layout structure opens and displays the default items available on the page. You can more static text or action items to it.
5. Click **Click to Add** in the **Layout structure** section and select the required items.
   The items in the **Layout structure** are static text items.
6. Click **Click to Add** in the **Actions** section.
   The **Add action** dialog box appears and displays these options:
   - **Standard action screen:** Lets you add standard actions such as Activate route, Add child resource, and so on.
   - **Plugins:** Lets you add plug-ins. The plug-ins that you have added on the Forms & Plugins page are listed here.
   - **Custom forms:** Lets you add custom forms. The Forms that you have added on the Forms & Plugins page are listed here.
7. Select one of the three options and then select the required item in the **Available** list.
8. Click **OK**.
   The properties of the newly added item are displayed.
9. Click **Add new visibility**.
   Read-only is selected by default on the **[item] visibility** dialog box.

10. Click **Conditions** and add any conditions based on which you want to display the link.
11. Click **Save**.

Provide Access to the Required Inventory Page

You must provide access to the desired resources for the Required Inventory pages, so that the resources can add, edit, and delete Required Inventory.

1. Follow these steps to provide access to the **Add Required Inventory** page:
    a. Click **Configuration**, **User Types**.
    b. Select the user type for which you want to provide access.
    c. Click **Screen configuration**.
    d. Locate and click Inventory grid.
    e. Click **Click to add**. Search for and select **Add to Required**.
    f. Click **OK**.
    g. Click **Add new visibility** and then click **Save**.
    The **Add to Required** button is added to the **Inventory list** on the **Activity details** page.
2. Follow these steps to provide access to the **Edit required inventory** and **Delete required inventory** pages:
    a. Repeat the steps a to c mentioned earlier.
    b. Click **Edit required inventory**.
    c. Add a button and select the **Edit required inventory** page. Similarly, add a button and select the **Delete required inventory** page.
    d. Click **OK** and then click **Save**.
    The **Edit required inventory** and **Delete required inventory** buttons are added to the **Inventory list** on the **Activity details** page.

Configure a Standard Action Screen for Inventory Actions

If your field resources use inventory to complete the activities assigned to them, you must add the required buttons to the Equipment page. These could be buttons that open the pages such as Install and Deinstall.

1. Click **Configuration** > **User Types**.
2. Select the User Type for which you want to add the inventory pages.
3. Go to **Screen configuration** and expand **Application screens**.
4. Click **Add/Details inventory**.
5. Drag and drop the **Button** element to the required position.
6. Click **Button** and then click the pencil icon in the **Standard action screen** field.
7. Select the required inventory-related page, for example, install_inventory.

8. Add the required visibility conditions for the page.
   For example, Activity type (aworktype) in (equal) Cardio Equipment Installation.
9. Click **Save** on the Visibility Settings dialog box.
10. Click **Save** on the Visual Form Editor.
    Users of the selected User Type can see the Install button on the **Equipment** page for the Cardio Equipment Installation type of activity. Further, users can see the button only when the basic conditions such as activating the route and starting the activity are fulfilled.

Configure the Activity Identifier Context Layout Structure

You must configure the **Activity identifier** Context Layout Structure page to define the activity information that is visible when a Technician views the activity list for the day.

1. Click **Configuration** > **User Types**.
2. Select the User Type for which you want to configure the **Acitivity identifiers** page.
3. Click **Screen Configuration**.
4. Expand **Collaboration and Identifiers** and click **Activity identifier**.
5. To add a new column to the Layout Structure table, add a new property.
6. Click **Add new visibility** and add rules to hide or show the columns.
7. Change the order of properties to the order in which you want to display the columns of the table.
8. Click **X** or **Close**.
   These rules apply to the columns that you configure here:
   - The columns of the table support custom styles.
   - The column order corresponds to the order you have configured here.
   - To improve the performance, the configured visibility conditions are only applied on the first 254 symbols of the activity property value.

Configure the Inventory Identifier Context Layout Structure

You must configure the Inventory identifier Context Layout Structure page to view the inventory details on the Inventory page.

1. Click **Configuration** > **User Types**.
2. Select the User Type for which you want to configure the **Inventory identifiers** page.
3. Expand **Collaboration and Identifiers** and click **Identify equipment by**.
   The **Inventory Identifier** Context Layout Structure appears.
4. To add a new column to the inventory table, add a new property.

5. Click **Add new visibility** and add rules to hide or show the columns.
6. Change the order of properties to the order in which you want to display the columns of the table.
   The columns are added to the inventory table.
7. Click **X** or **Close**.
   These rules apply to the columns that you configure here:
   - The columns of the table don't support custom styles.
   - The column order corresponds to the order you have configured here.
   - If a column name is longer than the column width, then the full name shows as a tool tip.
   - If there are more columns than can be shown on the page, the horizontal scroll bar appears.
   - By default, Quantity is shown as the extreme right column and is fixed on the right side of the page, if there is a scroll bar.
   - Required inventory displays first with the columns Inventory type, Inventory Model, Missing Quantity, and Quantity. You cannot configure the columns for this section.
   - Pool statements are expanded by default and saved after you collapse or expand them.
   - You can hide the columns using the visibility conditions on the 'Inventory identifier' context layout, if there is no value.

Add 'Select Resource' to a Visual Form Editor

You can add the **Select Resource** button to the **Edit/View activity** and **Add/Details inventory** Visual Form Editor to help dispatchers, field users, and supervisors view the activities assigned to a technician in one click. For dispatchers, **Select Resource** leads to the **Dispatch Console**, where the resource is automatically selected in the resource tree. For field resources and supervisors who don’t have access to the **Dispatch Console**, **Select Resource** opens the technician's landing page.

The **Select Resource** link is added by default to the Activity Hint and it can't be configured.

1. Click **Configuration** > **User Types**.
2. Select the User Type for which you want to add the button and go to the **Screen configuration** tab.
3. Expand **Application screens** and click **Edit/View activity**.
4. Expand **New element** and drag the **Button** element to the header.
5. Click the pencil icon in the **Standard action screen** field.
6. On the **Select screen** dialog, select **Select Resource [select_provider]** in the **Screen** field.
   The **Select Resource** button is added with a default visibility of Read-Only.
7. Click **OK**.
8. Add any name translations and visibility conditions that you want.
9. Click **Save** on the Visual Form Editor.
10. Repeat steps 3 to 9 and add the button to the **Add/Details inventory** page.

Add the Access Schedule Fields to a Page

The Access Schedule fields include the Access Schedule and Access Hours fields. The Access Hours fields are auto-calculated. Access Hours may be empty for a non-scheduled activity and/or when you are in the offline mode. As soon as you are online and the Access Schedule changes are populated for a scheduled activity, the Access Hours data is shown. You can add Access Schedule in Read-Only and Read-Write mode, but you can add Access Hours only as Read-Only. In most of the contexts (including activity-related pages, lists and hints, with the only exception of Activity details) the Access Schedule field also includes Access Hours, if it is calculated.

1. Click **Configuration** > **User Types**.
2. Click the User Type for which you want to add the Access Schedule fields.
3. Click **Screen configuration**. Under **Application screens**, locate and click the page to which you want to add the fields.
4. From the **New element** section, drag and drop the Input element to the required position on the Visual Form Editor.
5. Click the element and then click the pencil icon in the **Activity field** drop-down list.
6. Select Access Schedule [access_schedule] and click **OK**.
7. Add the translations and the visibility.
8. Repeat steps 4 to 7 to add the Access Hours [access_hours] fields.
9. Click **Save**.

Add an External Plug-In to the Main Menu

You can add external plug-ins that are created as HTML5 applications to the Main menu. You cannot add the plug-ins that have the **Only for Legacy Manage main menu** option selected. And, you cannot add native application plug-ins either.

> **Note:** If you add an external plug-in as the first item in the Main menu, the menu item shows in the correct order. However, the plug-in does not open when the user logs in. Instead, a standard page or a plug-in that you have created using the Plugin API Framework that is next in the order is opened.

1. Click **Configuration** > **User Types**.
2. Select the type of user for which you want to add the plug-in and then click **Screen configuration**.
3. Expand **Application screens** and click **Main menu**.
4. Select an existing button and click **Add button**.
5. On the **Add button** dialog box, click **Plugins**.
6. Select the plug-in that you want to add and click **OK**.
7. Click **Add new visibility**, and then click **Save**.

8. Follow these steps, if you want to pass any parameters to the plug-in:
    a. Click **Add new** in the **Parameters** section.
    b. Enter a name for the parameter in the **Name** field. For example, enter defaultScreen to define a page as the default page in the plug-in. The maximum length of the name that you can enter is 248 characters.
    c. Enter a value for the parameter. For example, enter part_order to display the Part order page as the default page in the plug-in. The maximum length of the value that you can enter is 4000 characters.
    d. Click **Save**.
    e. Repeat the procedure for all the parameters that you want to configure. The total combined length of all parameter names and values must not exceed 5000 characters. These parameters are not encrypted when sent to the plug-in.
9. Click **Close** or X.
   The plug-in is added to the Main menu.
10. Click the Main menu and confirm that the plug-in is available.

Configure the Visibility for Booking Status, Quota, and Available Capacity Pages

The visibility level of the Main menu item does not control the access level for the Booking status, Quota, and Available capacity pages. You must configure the visibility levels for each of these pages separately.

1. Click **Configuration** > **User Types**.
2. Click the user type for which you want to add or modify the visibility for the Quota pages.
3. Click **Screen configuration**.
4. Expand **Application screens** and click **Quota**.
   Booking status, Quota, and Available capacity are displayed in the **Buttons** section.
5. Click an item of your choice. Click **Modify** in the visibility table.
6. Click the access mode of your choice and then click **Save**.

Configure the Fields for Print Route

You must configure the fields to be displayed on the **Print Route** page, using the Print Route context layout. When a user prints the route, all the fields configured for the selected resource or bucket are displayed and printed. In addition to the configured fields, the list of inventory in the Resource pool is displayed at the bottom.

> **Note:** The application can print a maximum of 1000 activities at a time using the Print Route function. If there are more than 1000 activities, only the first 1000 activities are displayed with a note.

1. Click **Configuration** > **User Types**.
2. Click the user type for which you want to configure Print Route.
3. Click **Screen configuration**.

4. Expand **Application screens** and click **Print Route** under **Main menu** > **Activity list**.
5. Click **Click to Add** and then select the required fields.
   You can select all the activity related fields, including custom fields.
6. Click **OK**.
7. For all the fields, click **Add new visibility** and then click **Save**.

Enable Activity Selection by Location

Let's say a field resource is assigned with multiple activities in the same location. When the resource completes one of the activities, they can see the other activities in location, if you have configured the **Suggest activity by location** option. This functionality is available in the offline mode as well. An activity is considered to be at the same location, if the distance is within 'X meters, where X' is the Resource Parameter is defined under the Smart Location section.

1. Click **Configuration** > **User Types**.
2. Select the user type for which you want to enable the **Suggest activity by location** option.
3. Under the Activity Management section, select the **Suggest activity by location** check box.
4. Click **Save**.
5. To configure the Resource Parameter, click **Configuration** > **Business Rules**.
6. Go to the Maps and Geocoding section. In the **Resource is considered to be at the activity location if the distance to it is less than** field, enter the distance in meters.
   A resource is considered to be at the activity location if the distance to it is less than X meters. If you do not have a license for Smart Location / Professional/ Enterprise Cloud services, then the value is set to 100 meters; you cannot change this value.

How do I enable the En Route Support feature?

You can enable the **En route Support** option, so that the field resources can change the activity status to 'En route'. This status is then shown to your customers on the 'Where is My Technician' page. After you enable the **En route Support** option, the 'En route' status is available only for the activity types that have the **Calculate travel** option enabled. Further, if you disable the En route Support option after using the 'En route' status for some time, then all the current activities with the 'En route' status end their cycle. And, you can't set the 'En route' status for new activities. The 'En route' status integrates with the "Where is My Technician" page and you can use it in the Routing module to prevent undesirable adjustments to the next appointment.

> **Note:** When you upgrade to Update 21B, the **En route Support** feature is disabled for all the instances to save backward compatibility. Enabling the 'En route' feature makes the "En Route" status available for travel activities globally. The changes may impact the "Next activity" function, ETA, and "On my way" notifications to your customers.

1. Click **Configuration** > **Business Rules**.
2. Select the **En route Support** check box.

3. Click **Save**.

   These changes are available for activities and resources:

   - The 'Next activity' section includes the option **I will be Idle for a while**.
   - The activity selected as the next activity gets the status 'En route'.
   - The ETA of the activity is updated using real-time traffic although the activity has a Service window, Access hours, or SLA. Real-time traffic is available only if you've a valid license for Oracle Field Service Enterprise Edition with Google Maps.
   - The **Adjust travel** option is available when activity is in the 'En route' status. Resources must click **Adjust travel** to change the status of the activity to En route.
   - If **Display and allow adjustment of remaining Travel Time** is selected on the **User Types** > **General** page, resources can change the travel time, but must set the activity to En route immediately. If **Display and allow adjustment of remaining Travel Time** isn't selected, resources can't change the travel time, but can be idle for sometime and then change to En route.
   - When you enable the **En route Support** feature, if your resources don't set their activities as 'En route', then:
     - Oracle Field Service doesn't consider the resource as on the way to an activity until they set the "En route" status.
     - Travel time isn't recalculated.
     - If you've configured a Message Scenario to notify your customers about resources being on their way, they aren't notified.
     - Where is My Technician page doesn't show the "On the way" status and the resource's position and track.

Configure a Color for the En Route Status

If you have enabled the En route Support feature, you can configure the color for the en route status. This helps dispatchers identify quickly when a resource is on the way to an activity.

1. Go to **Configuration** > **Activity types**.
2. Click **Modify** for the required activity type.

   The color for 'En route' status is inherited from the 'Pending' status by default.
3. Set another color and click **Update**.

   When a user sets the status as 'En route', the color of the activity changes to this color in the Dispatch Console. However, if there is an alert for the activity, the color of the alert takes precedence over en route. For example, if a technician sets an activity as 'En route' and the activity is likely to lose the SLA, Dispatch Console shows the color configured for the SLA alert.

Configure the Access to the 'En route' Button

Resources can set the 'En route' status at the beginning of the day, after selecting the next activity on the Complete activity dialog box, or after taking a break. When resources come back from a break, they can set the status on the My Route or Activity details page, or the activity hint. Use this procedure to add the En route button to the Edit/View activity and Activity hint layouts.

1. Click **Configuration** > **User type**.

2. Select the user type for which you want to add the En route button.
3. Click **Screen configuration**.
4. Under **Application Screens**, click Edit/View activity or Activity hint.
5. Add a button element or click **Click to Add**.
6. Select **Standard action screen** and then select 'En route' (enroute_activity).
7. Click **OK**.
8. Configure the visibility conditions. Specify whether you want to have the 'En route' status mandatory before starting an activity.
9. Click **Save**.

Configure the Access to the 'Stop Travel' Button

Sometimes your customers might ask you to reschedule an appointment even after the resource changes the status to ‘En route’. In such cases, your dispatchers or resources can return the activity to the Pending status and then reschedule it.

1. Click **Configuration** > **User type**.
2. Select the user type for which you want to add the Stop Travel button.
3. Click **Screen configuration**.
4. Under **Application Screens**, click Edit/View activity or Activity hint.
5. Add a button element or click **Click to Add**.
6. Select **Standard action screen** and then select 'Stop Travel' (stop_travel).
7. Click **OK**.
8. Configure the visibility conditions.
9. Click **Save**.

   Stop Travel will be visible only for activities that have a status of En route.

Configure the User Interface for Field Resources

As an administrator, you configure the interface for field resources. Typically, field resources are assigned to the Technician user type.

Field resources see 'tiles' on their home page, where each tile opens the page for a specific function.

How do I add My Route to the main menu or landing page?

You can configure the landing page for Field Resources to display either the My Route page or the list of activities.

1. Click **Configuration** > **User Types**.
2. Under Screen Configuration, go to Application Screens and click Main Menu.
3. Click **Click to Add** and add **My Route**.

4. Click **Add new visibility** and then click **Save**.

   My Route is added to the Main menu.
   - For users who have a route: **My Route** is always displayed in the Main menu regardless of whether it is configured or not.
     - If you have not configured **My Route** but have configured other items for the Main menu, **My Route** is displayed as the first item.
     - If you have configured **My Route** and other items, the position of **My Route** is per the configuration.
     - If a user has access to multiple resources and also has a route of their own, if you have not configured any items, **Manage** and **My Route** are displayed in the Main menu.
   - For users who do not have a route of their own: **My Route** is not displayed in the Main menu even if you have configured it.

> **Note:** If a resource who does not have access to multiple resources needs to access the Main menu, then set the **Field Resource Landing Page** option on the Configuration → Display page to 'My Route'. You can also set the option to 'Activity List'. However, if you set it to 'Activity List', this user will not have access to other Main menu items.

Add a Custom Form to the Landing Page

You can display custom Forms on the field resource Landing page. This is helpful when you have custom forms for field resources to capture vehicle or safety inspection details or some type of expense.

1. Open the **Configuration** page and click **User Types**.
2. Select the user type for which you want to modify the Landing page.
3. Go to the **Screen Configuration** page and click **Activity List**.
4. Click **Click to Add**.
5. On the **Add button** dialog box, select **Custom Forms**.
6. Select a form in the **Available** list and click **OK**.
7. Provide a custom name for the tile.
8. Click **Add new visibility**.
9. Add any conditions required for the visibility of the form and then click **Save**.

   A link to the custom form appears as a tile on the Landing page. The link contains the name and icon. the custom form is displayed when the user clicks the icon.
10. To display the **History** tile on the Landing page, repeat the steps 4 to 9 and add the **Request History** standard action.

Configure the Tiles on the Resource Info Page

The Resource Info page includes a few tiles by default. If you want to add more tiles to the page, you must configure the page.

1. Click **Configuration** > **User Types**.
2. Click the Technician user type.

3. On the **Screen configuration** tab, click **Resource/User Info**.
4. Follow these steps to add a new tile:
    a. On the **Resource/User info** context layout structure, click an existing tile. For example, Work Skills.
    b. Click **Group** and then complete these fields:
        - Name: Enter a name for the group in English and any other language that you prefer.
        - Tab Type: Select an option from the drop-down list:
            - Resource Calendar: The Resource Calendar tile shows the resource's non-working and on-call shifts. The tile opens the Resource Calendar page, where you can modify the resource's schedule.
            - Work Skills: The Work Skills tile shows the resource's work skills. The tile opens the Resource Work Skills page, where you can add new and modify existing work skills for the resource.
            - Locations: The Locations tile shows the resource's start and end locations for the current day. The tile opens the Locations page, where you can set the daily locations and override locations as well.
            - Work Zones: The Work Zones tile shows the work zones added to the resource. The tile opens the Resource Work Zones page with a map, where you can modify the resource's work zones.
            - Inventory: The Inventory tile shows the inventory added to the resource. The tile opens the Equipement List page, where you can add inventory to the resource.
            - Resource History: Resource History is displayed as the **History** button on the **Resource Info** page, and not as a tile. The Resource History page shows the details of the changes made to the resource's calendar.

        This is the page that is displayed when you click the tile on the Resource Info page. You can add a tile only once on the page.
    c. Click **OK**.
    d. Click **Add New Visibility**, select Read-only and click **Save**. You can see the newly added tile when you open the **Resource Info** page for a technician.
5. Follow these steps to add fields to the **Resource Info** page.
    a. Click **Click to add**.
    b. On the **Add property** dialog box, select the check box for property that you want to add.
    c. Click **OK**.
    d. Click **Add New Visibility**, select Read-only and click **Save**. You can see the newly added properties when you open the **Resource Info** page for a technician.

Create Nearby Activities Buttons with Auto-Filters

You can create multiple Nearby Activities buttons to launch different filter views to guide technicians toward activities that meet specific criteria. This feature also helps you limit the nearby activities displayed within a list and on a map. You configure the buttons with predefined or ad-hoc filters and these filters are automatically applied to the activities list or map. For example, you can configure buttons to display the activities for which SLA is ending in three days, or activities that are of high priority. This topic describes how to create the SLA End button on the Activity List page for the Technician user type.

Prerequisite: Create a custom filter named SLA End, where the condition is SLA Window End (sla_window_end] is less than 5 days. Assign this filter to the Technician user type.

1. Click **Configuration** > **User Types**.
2. Select the Technician user type.

3. Click **Screen configurations** > **Application screens**.
4. Click **Activity List**.
5. Click **Click to add**.
6. On the **Add button** dialog box, click **Standard action screen** in the Screen type field.
7. Select the check box next to Nearby Activities and click **OK**.
8. In the Name section, add SLA End and click **Save name**.
   The name of the button now shows as SLA End.
9. Click **Add new visibility** and then click **Save**.
   Read-only visibility is selected.
10. In the [Nearby Activities] Parameters section click **Add new**.
11. On the **Add parameter** dialog box select SLA End and then click **Save**.
    Technicians can now see the SLA End tile on the landing page.

9 Manage Resources

Resource Entities

The ongoing management of resources typically involves managing one or more entities among calendars, work schedules, shifts, work skills, and work zones.

Calendars, Work Schedules, and Shifts – This involves creating calendars that illustrate when a resource is available for work and when they are off duty. Between calendars, work schedules, non-working time, internal activities, holidays, and shifts, a great deal of flexibility is available in the application. Some parameters can be set in advance for planning, and others are considered more day-to-day adjustments.

Work Skills –This refers to the correlation between what is required to complete incoming activities, and which resources have the capabilities to accomplish them.

Work Zones – This refers to the area within which a resource is able or allowed to travel to complete activities.

How do time zone settings work?

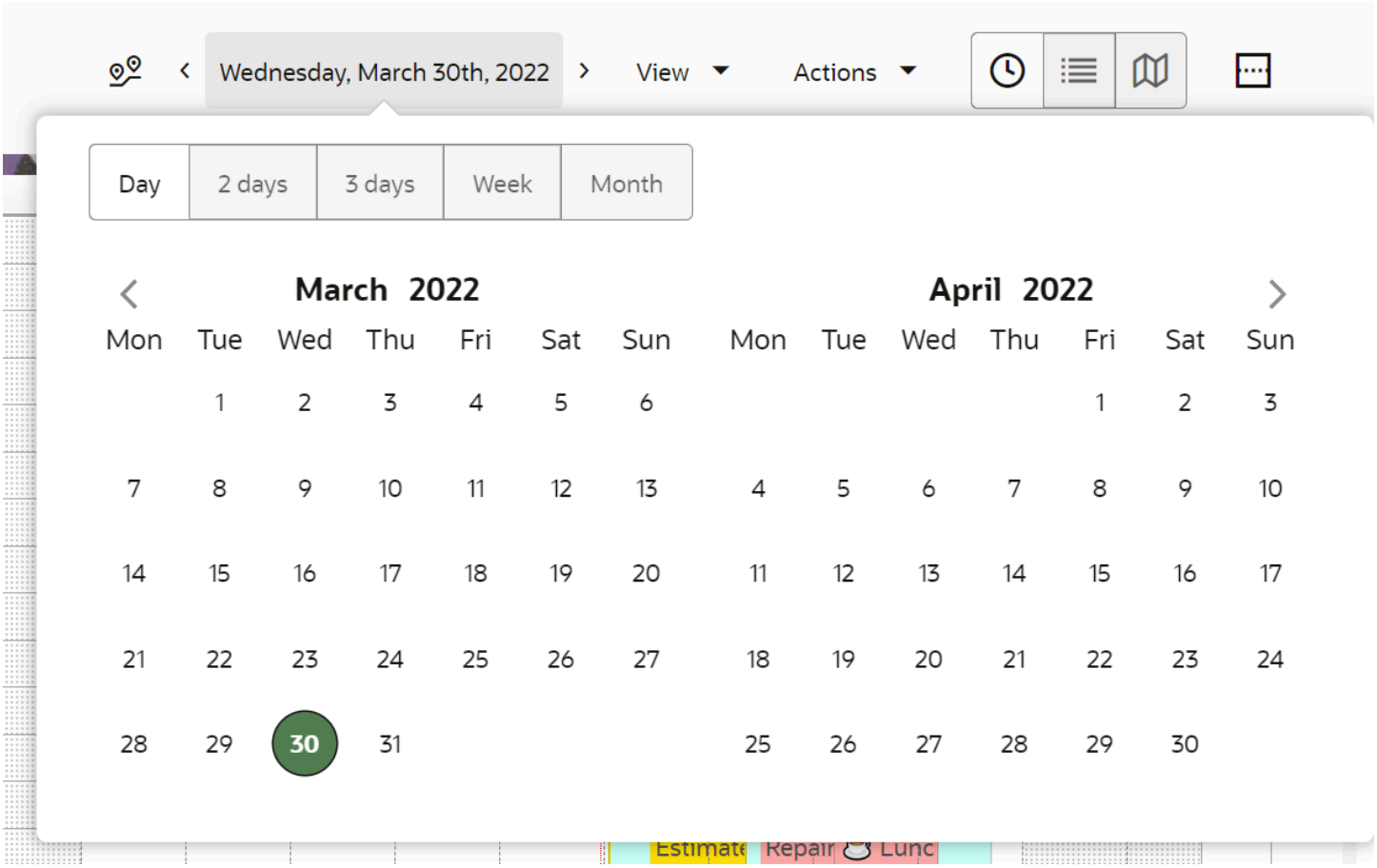
When you configure the application, it's possible to set different time zones for users and for resources. These time zones are used in different contexts on different pages. Here's an overview of how time zones are displayed throughout Oracle Field Service for technicians and dispatchers.

Today's Date

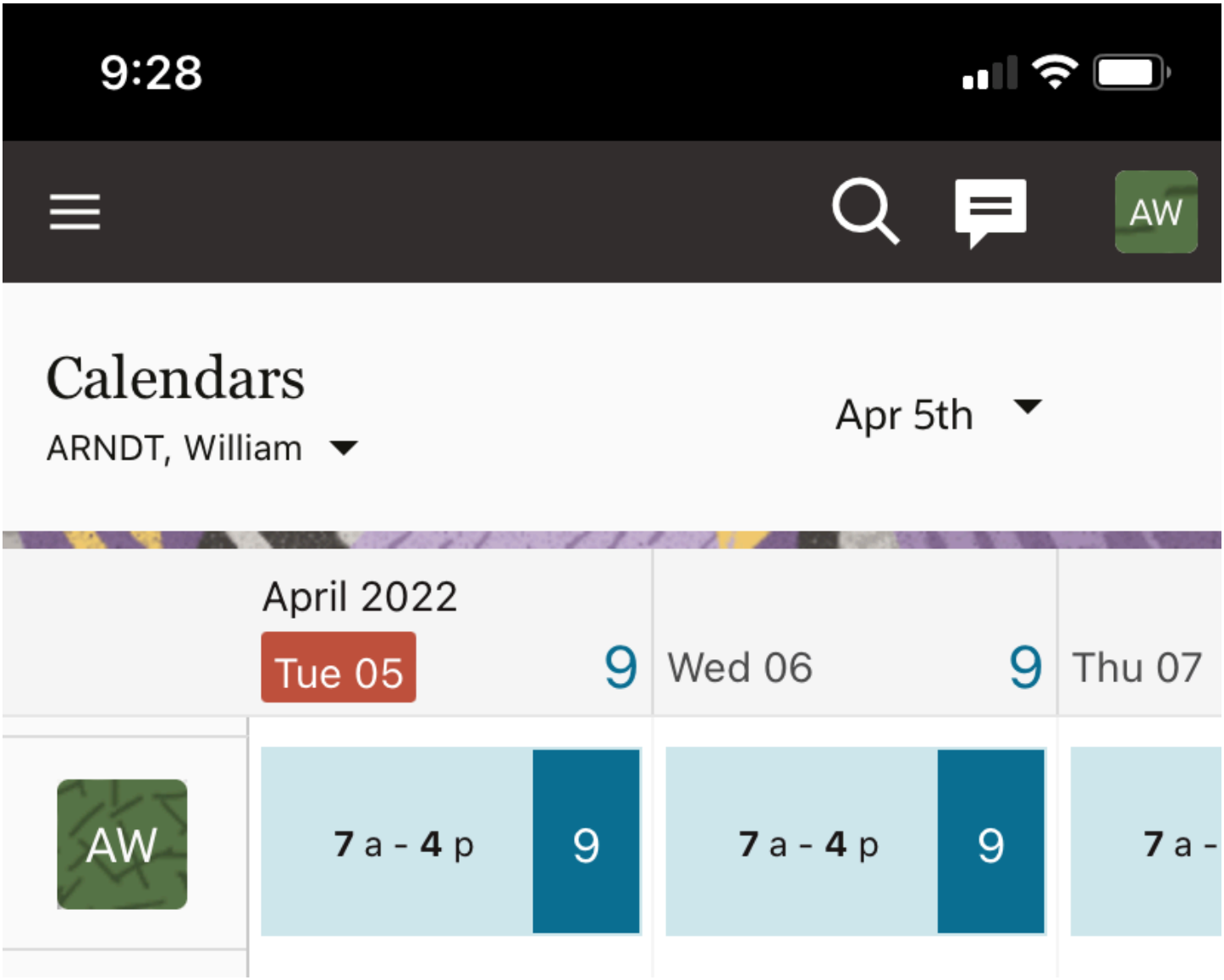
The time zone of the currently logged in user is used when determining today's date. Let's say it's 1:00 PM, Jun 10 in a UTC+00:00 time zone. If you sign in as a user who's in UTC+12:00 time zone, after logging in you see that the current date is set to Jun 11. This is because, in the user's time zone it's already 01:00 AM, Jun 11.

Where is it Used?

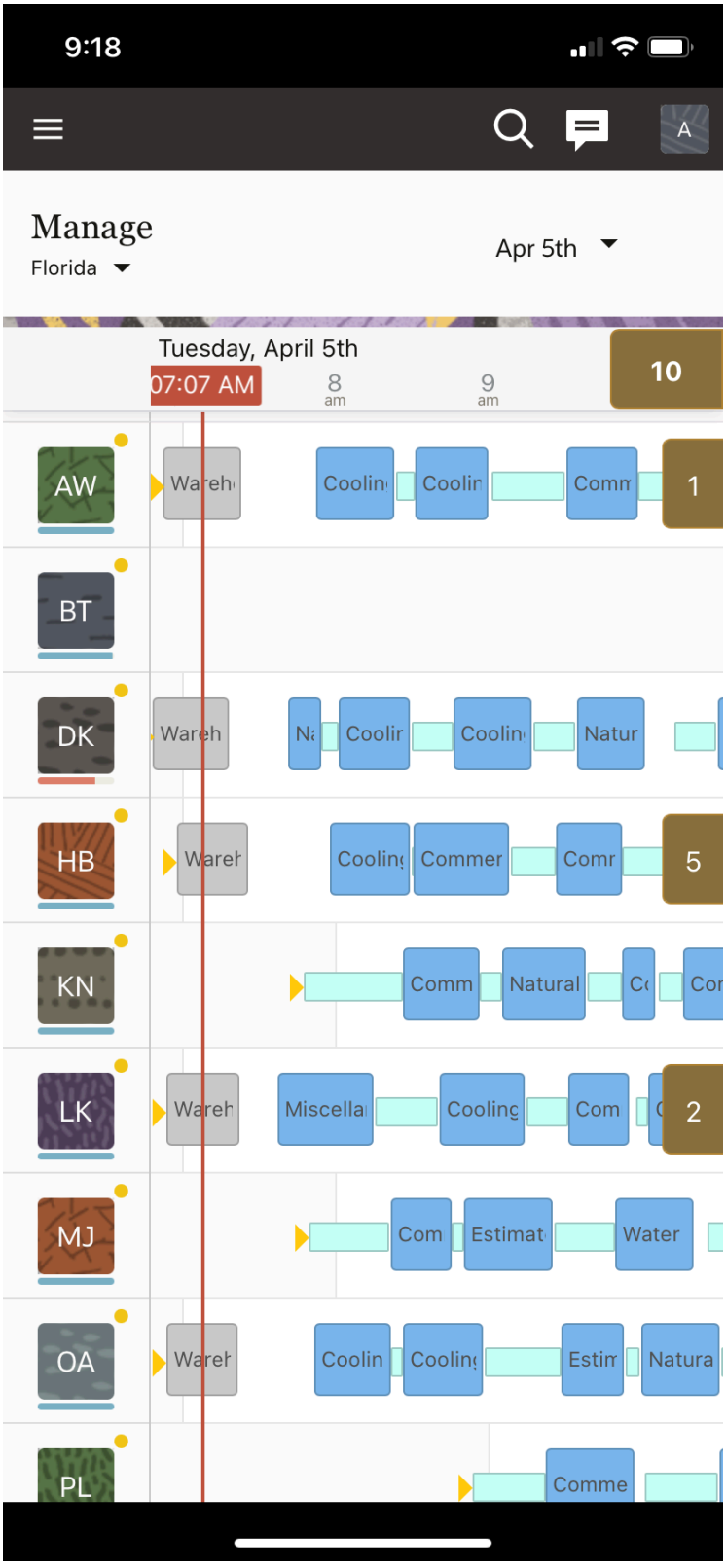
Today's date is used as the initial date on these pages in Oracle Field Service Core Application: Activities, Offline synchronization, Dashboard, and Print route. For example, on the "Activities" page, it is the date for which the activities are shown after you log in to the application. You can change the date on these pages to see the information for another date. Nevertheless, when you click the date field, the calendar widget shows you today's date in light blue color. This screenshot shows the calendar with the current date highlighted:



The same behavior is present in Oracle Field Service Mobile for Android and iOS. When a field resource logs in, today's date is marked with light red color on the date selection panel in the header, as shown in this screenshot:



When a field manager looks at the **Calendars** page in Oracle Field Service Mobile for Android and iOS, then today's date is marked in light red, as shown in this screenshot:


9:18
A
Manage
Florida
Apr 5th
Tuesday, April 5th
07:07 AM
8 am
9 am
10
AW
BT
DK
HB
KN
LK
MJ
OA
PL
1
5
2

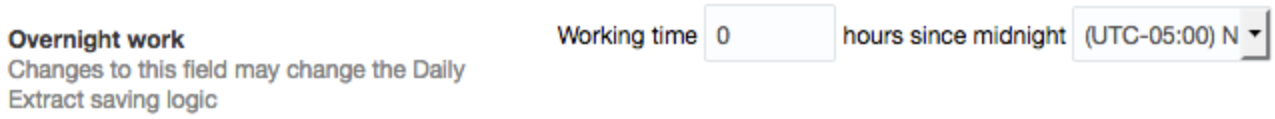
The same date is used in Oracle Field Service Core Application when searching for activities "starting today".

Current Date of the Resource

The current date of the resource is always determined in the time zone of the resource. You can activate the route and start an activity only on the current date of the resource's time zone.

Changing Past Activities

Every instance has a specific time when all the data that is related to the previous day is frozen and can't be changed any more. This time is configured in the **Overnight work** section on **Business Rules**, shown in this screenshot:

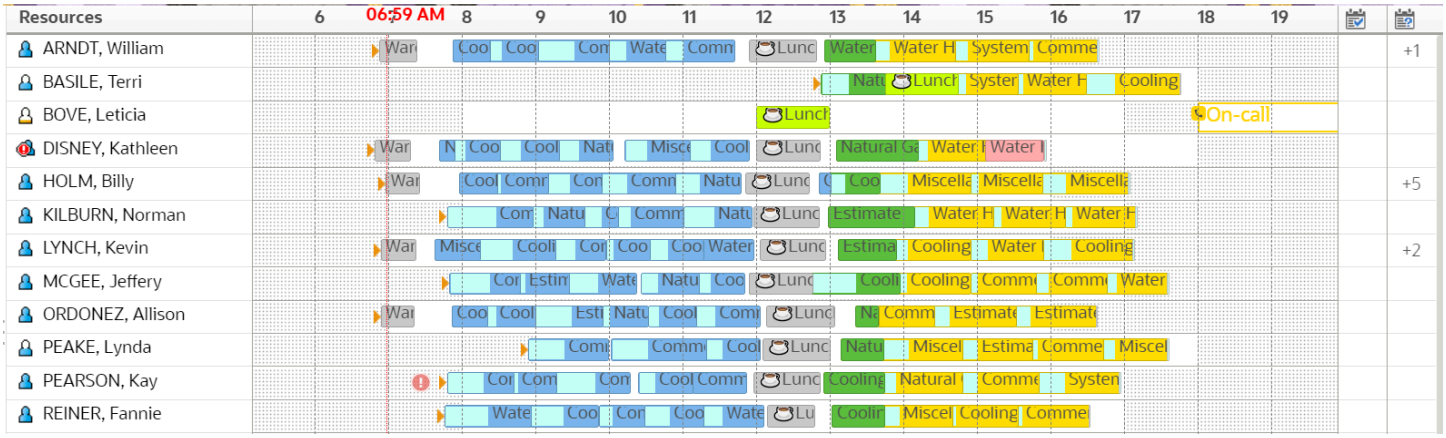


For example, you have configured that the working time is 5 hours since midnight in the Eastern time zone. This means that at 5:00 AM in the Eastern time zone all data for the previous day becomes frozen.

> **Note:** If you configure an instance to use in several time zones, you must set the time zone on **Business Rules** to the most "western" time zone. If the work is performed several hours after midnight in this most "western" time zone, then you must also specify the number of hours after midnight.

Time View in Oracle Field Service Core Application

Time view displays aggregated information for the hierarchy of resources. The information is presented in the same time zone to look consistent on the time line. The time zone is determined as the time zone of the resource selected in the resource tree on the left of the page. The current time, which is shown as a red vertical line is also in the time zone of the selected resource, shown in this screenshot:



> **Note:** The only exceptions are the resource hint, activity hint, and activity label. Information on the resource hint is displayed in the time zone of the resource this hint belongs to. Information on the activity hint and activity label is displayed according to the rules described in the Activity related information section later in the topic.

Manage page in Oracle Field Service Mobile for Android and iOS

The **Manage** page in Oracle Field Service Mobile for Android and iOS shows the information similar to the Time view. The difference is that there is no resource selected in the installed app. The information is shown for the list of resources identified as a group, and the group is configured by a user. Since it is not possible to identify which resource time zone must be used as the primary time zone, the time zone of the currently logged in user is used instead.

Note:

- The only exceptions are the resource hint, activity hint, and activity label. Information on the resource hint displays in the time zone of the resource this hint belongs to. Information on the activity hint and activity label displays according to the rules described in the Activity related information section later in the topic.
- When a user opens the non-scheduled or non-ordered activities on the right of the page, the activity identifier shows information according to the rules described in the Activity related information section later in the topic.

Organizations with Multiple Time Zones

If your organization operates in multiple time zones, it is important that you configure both, the field resource and activity time zones correctly. Configuring these time zones is even more important if they are different. A field resource sees all the data in their own time zone, but when the activity (customer) is in a different time zone, both times are shown as appropriate. The activity time zone is used for notifications and can be used in APIs (for example, for sending messages). Typically, the time zone of a physical location is used for notifications, but you may use your preferred time zone, such as your headquarters time zone or any other in which you prefer to get notifications.

Resource related information

Information that is related to a resource and the resource's route is entered in the resource's time zone. It includes:

- Route Status (queue_status), includes the time when the route was activated
- Reactivated (reactivated)
- Resource working hours (calendar)
- Resource on-call hours (oncall_calendar)

Time view shows this information differently in Oracle Field Service Core Application and Oracle Field Service Mobile for Android and iOS. See the earlier sections for more details.

Activity Related Information

Time related information on an activity is displayed and entered in the time zone of the resource for which the activity is assigned. This information includes:

- Start (ETA)
- End (end_time)
- Start - End (eta_end_time)
- Delivery window (delivery_window)
- Activity Time of Booking (atime_of_booking)
- Activity Time of Assignment (atime_of_assignment)

The only exceptions are:

- Time slot or service window (depending on what is used for the particular activity type)
- SLA window

These properties are either in the resource time zone or in the customer time zone. It depends on the **SLA and Service window use customer time zone** field set on the activity type. Time view shows this information differently in Oracle Field Service Core Application and Oracle Field Service Mobile for Android and iOS. See the earlier sections for more details.

User related information

All user related information is shown in the time zone of the user. It includes:

- When the user was registered
- When the user was updated
- When the user logged in last time
- When the user changed the password
- Date and time till when the user is blocked

Collaboration

Each message in Collaboration includes the time when it was sent. This time is shown in the time zone of the currently logged in user.

Change a Resource's Organization

You can change the Organization for bucket and Organization unit resources. Resource types such as field resources, tools, and vehicles inherit their parent's Organization.

1. Select the resource in the resource tree.
2. Click **Resource Settings** > **Resource Info**.
3. Locate the **Organization** field and select the desired Organization.
4. Click **OK**.
   The resource is displayed under the selected Organization in the resource tree.

Provide Access to Group Actions for Resources

You can provide access to users to select multiple users of a user type to perform actions such as deactivate, unlock, delete, or activate.

If a user doesn't have the permissions to change the resources or users of a particular User type, then the user can't select such resources or users. Verify the **Can create users of the following user type** setting on the **Configuration** > **User Types** > **General** tab.

1. Click **Configuration** > **User Types**.
2. Select the user type for which you want to provide the access.
3. Go to the **Screen configuration** tab and click **Resources** under **Application screens**.
4. Click **Click to add** and select **Activate**, **Deactivate**, **Delete**, **Set Collaboration Group**, and **Unlock**.
5. For each button that you just added, click **Add new visibility** and then click **Save**.

The **Activate**, **Deactivate**, **Delete**, **Set Collaboration Group**, and **Unlock** buttons are displayed on the **Resources** page, when a user with this permission selects a resource.

Calendars, Work Schedules, and Shifts

Whether they're set at the organization unit, bucket or resource level, overall calendar options are made up of combinations of work schedules, shifts, working, and non-working time. They represent a holistic view of who's available or not available for work at any given time on any given day.

Here are a few rules regarding the hierarchy of calendars in general, and their levels of precedence:

- Work schedules, shifts, and working time applied to a bucket or an organization unit, by default, also apply to all resources that are part of bucket or organization unit.
- Calendars created or adjusted at a lower level override the calendar at a higher level. That is, the calendar that you've set up at a resource level overrides the calendar that the resource may have inherited from its parent entity. However, the work schedule defined at the child level doesn't override the shift, custom working time, and non-working time defined at the parent level. To override custom working time, you must delete any existing custom working time.
- A calendar at the individual resource level applies only to that resource and overrides all other calendars.

To understand calendars and their potential components better, we must define the different options. The components of a calendar are:

- Work Schedules: Work schedules contain multiple shifts and non-working times. Work schedules are the mechanisms for grouping these items, so that they can be applied to a single resource, a bucket, or an entire organization unit. Work schedules represent the highest level of calendar options.
- Shifts: Shifts are used to define the different working times as defined by an organization. They can be created once and used by various work schedules, simplifying the assignment of schedules. In addition to work schedules, shifts can also be assigned directly to organization units, buckets, or resources.
- Working Time: The time frame in which a resource is scheduled to work that doesn't comply with one of a company's standard shift definitions.
- Non-working Time: Non-working time is used to identify known absences such as bereavement, illness, holidays, and vacations.

Earlier portions of this guide covered the creation of work schedules, shifts, and non-working time. This section will concentrate on assigning those calendar options to entities on the Resource Tree (organization units, buckets, resources). While the process is the same for each, depending on what you select on the Resource Tree, the implications differ. This ties back in with the explanation of the calendar hierarchy.

Add a Work Schedule or a Shift

You can assign a work schedule or a shift to a *resource*, *bucket,* or *group*. You can also define the on-call schedule of a resource using the Calendar view.

1. Click the hamburger icon and click **Calendars**.

The calendar appears for the resources in your group or bucket.

2. For the resource for which you want to modify the calendar, click the shift for the required date.
   The modify calendar dialog box appears for the selected resource and date.
3. To change the work schedule or shift for the resource, update these fields:

Name	Description
Schedule	This list includes work schedules and shifts. Select the work schedule or shift that you want to apply to the resource. Select Default schedule, to set the default schedule for the resource. Default schedule is the working time configured for the whole organization, division, or for a particular geographic region. In other words, a default schedule is the working time added at the Organization unit or Bucket level, which is inherited by the child resources. A default schedule is displayed with a darker color on the calendar, and an individual schedule is displayed with a lighter color.
End date	The date on which the new work schedule or shift ends. Click **No date specified** to apply it for an indefinite time.
Comment	Enter any comments that you wish to provide, for example, the reason for changing the schedule.

4. To add the details of on-call for the resource, click On-Call and update these fields:

Name	Description
On-Call Schedule	The field that specifies that the resource is on call. When you select an on-call shift, the on-call color coded icon that is attached to the shift appears. When you add this shift to a resource, this icon is displayed on the Dispatch Console, Manage, Calendar, and Resource Calendar pages, and on the resource avatar. Select On-Call. An On-Call shift shows the resources that are available to be contacted outside a regular working shift with the on-call icon. If you have not activated an On-Call shift, it is not suitable for activity assignment - either manually or in routing optimization, and is not used in capacity calculations. However, when you activate an on-call shift, activities can be assigned to the resource. If both regular and on-call shifts are assigned to a resource for a day, then the shift is automatically calculated based on these rules: o If the route is activated during the regular shift period, then the regular shift is activated. o If the route is activated outside of the regular shift period, then the shift with the closest start time is activated.
End Date	Select the date on which you want to end the new working time. Click **No date specified** to apply it for an indefinite time.
Repeat	Select the frequency (Daily, Weekly, Yearly) at the new working time must be repeated. Enter the number of days or select the day of the week on which you want the new working time to be repeated. If you have selected Yearly, select the end date for the recurrence of the new working time. The end date of the new schedule is displayed below the field.

5. Click **Submit**.

Add a Shift to a Resource's Calendar

Shifts are standard patterns of working time. They decide when a resource is available for work. Shifts applied at the resource level override the shifts applied at a higher level in the resource tree. You must modify the resource's calendar to add a shift.

1. Method 1: Click the calendar icon on the navigation bar. Select a resource from the resource tree.
   The **Calendars** page appears.
2. Method 2: Go to the **Resource Info** page for the desired resource and click **Resource Calendar**.
3. Click the date for which you want to change the shift.
   The shift dialog box displays.
4. Complete the fields.

Field name	Action
Schedule	Select a shift from the drop-down list.
End date	Select the end date of the shift, if applicable.
Comments	Enter comments, if any.
Recurrence-Repeats-Daily	Apply to schedules such as every other day or every 3rd day. If you select this option, add the frequency of occurrence in the field **Days between occurrences**.
Recurrence-Repeats-Everyday	Applies to every day schedules that repeat without exception and without any modification options.
Recurrence-Repeats-Weekly	Apply calendars that have a regular weekly pattern. Select the days that apply to this shift using the check boxes for the individual days. Indicate the frequency of this pattern weekly by adding a value to the **Weeks between occurrences** field.
Recurrence-Repeats-Yearly	Occurs every year from the selected date entered in the **From day** until the date entered in the **To day** field.

5. Click **Submit**.

Add Working Time to a Calendar

Working time differs from shifts in that it represents start and stop times that may differ from the pre-defined shifts. Use working time when resources work a different number of hours than they normally do or when they work at a different time of the day than the other resources.

1. Click the hamburger icon and click **Calendars**.
   The calendar appears for the resources in your group or bucket.
2. For the resource for which you want to modify the calendar, click the shift for the required date.
   The modify calendar dialog box appears for the selected resource and date.

3. Fill up these fields:

Field name	Action
Schedule	Select **Custom Working Time** from the drop-down list. **Note:** You can create only one on-call shift per day. If you create a second on-call shift, the first one is deleted. You can remove an on-call shift if you assign a schedule for a resource. You can't remove an on-call shift, if you assign a regular shift, custom working time, or non-working time. You cannot remove an on-call shift, which is part of a Schedule.
Start Time	Enter the time when the resource's work is to begin.
End Time	Enter the time when the resource's day ends.
Points	If you are using points to cap activity assignments, you can enter them here. These points work the same way as points associated with a shift.
Comments	Enter any comments that you would like to provide for the change in timings.
End Date	Select the end date for the schedule.
Repeat	Select the frequency (Daily, Weekly, Yearly) at the new working time must be repeated. Enter the number of days or select the day of the week on which you want the new working time to be repeated. If you have selected Yearly, select the end date for the recurrence of the new working time. The end date of the new schedule is displayed below the field. You cannot add recurrence for a schedule and for Non-Working Time.

Field name	Action
Keep the Non-working days	Select this check box to retain the existing non-working days in the resource's calendar. This check box is selected by default.

This screenshot shows the dialog box where you add the custom working time:

DISNEY, Kathleen, 04/11/22

Schedule*: Custom Working Time

Start time*: 11 AM 00

End time*: 08 PM 00

Points:

End Date*: 04/30/22

Repeat*: Weekly

Every 3 weeks

Sun Mon **Tue** Wed Thu Fri Sat

☑ Keep the Non-working days

Comment: Doctor's appt at 8 am

4. Click **Submit**.
   The new schedule is displayed on the calendar.

Add On-Call, Non-Working, or Custom Working Time to a Calendar

Use *non-working time* to identify times when a resource, an organization unit, or a bucket isn't available for work. You can use the custom working time to specify a custom schedule for a resource. Similarly, you can use the on-call option to specify the time during which a resource is available on call. Be aware that you can change the calendar, only if you've the Read-Write permission for Resource Calendar on the Resource/User Info context layout structure.

1. Click the hamburger icon and then click **Calendars**.
   The Calendar view appears for the group or bucket assigned to you.
2. Select the bucket, group, or resource for which you want to change the calendar.
3. Click the date for which you want to add the non-working time, custom working time, or an on-call schedule.
4. Click On-Call and update these fields:

Name	Description
On-Call Schedule	The field specifies whether the resource isn't working, is working in a custom schedule, or is on call. Select Non-Working Time, Custom Working Time, or On-Call. If you select the blank option, the existing on-call schedule is removed and the earlier schedule is restored. You can't remove an on-call shift, which is part of a Schedule.
Reason	If you've selected Non-Working Time, select the reason for which the resource isn't working. For example, Others. This field isn't displayed if you've selected Custom Working Time or On-Call.
Start time, End time	If you've selected Custom Working Time, select the custom start and end time of the schedule. This field isn't displayed if you've selected Non-Working Time or On-Call.
Comment	Enter any comment that you wish to provide, for example, Daughter's graduation day, or Dentist's appointment at 4:00 pm. This field isn't displayed if you select On-Call.
End Date	Select the date on which you want to end the new working time.
Repeat	Select the frequency (Daily, Weekly, Yearly) at the new working time must be repeated. Enter the number of days or select the day of the week on which you want the new working time to be repeated. If you've selected Yearly, select the end date for the recurrence of the new working time. The end date of the new schedule is displayed below the field. You can't add recurrence for a schedule and for Non-Working Time.
Keep the Non-working days	Select this check box to retain the existing non-working days in the resource's calendar. This check box is available and enabled by default if the schedule is changed for more than a day. That is, it's available if you change the **End date** field.

5. Click **OK**.
   If the non-working time can be applied, the resource is marked as a non-working resource for the selected date range. If the non-working time can't be applied, a warning message appears. If you click OK, the non-working time is applied, but a warning message appears on the resource tree for that resource on that day. Non-working time can't be applied if the technician has anything other than repeating, shift, or mass type of activities assigned on this

route. The activities on the resource's route, other than mass and repeating activities, are rerouted or assigned to the bucket, if these conditions are met:

- The routing plan has the Enable reoptimization check box selected.
- The resource meets the routing plan filter conditions.
- If the **Use resources outside the bucket** option isn't selected for the routing plan, the activities may be assigned to the bucket despite having different work zones.
- If the **Use resources outside the bucket** option is selected, then it depends on the resource. If the resource is a child of the routing bucket, their activities may be assigned to the bucket even if the work zone isn't a common work zone. However, if the resource isn't a child of the routing bucket, then only the activities for which the bucket has all the work zones may be assigned to the bucket.

Add the Find Nearby Inventory Action to Part Details Page

Field Resources can find out the availability of an item with any of the nearby technicians. You must first configure the context layout of the **Part details** page to display the **Find Nearby Inventory** action on the **Parts details** page.

The Find Nearby Inventory option is available based on these rules:

1. The **Find Nearby** link is active ONLY if these conditions are true:
   - Your company has a subscription to Smart Collaboration and Smart Location or Oracle Field Service Enterprise edition or Oracle Field Service Professional edition.
   - Collaboration is enabled and configured for the user type and user.
   - User location information is available and the location permission given in the browser.
   - Nearby resources are available for the current user and at least one nearby user is online.
   - Find Nearby action link is added to the Part Details context for the user.
   - User activated the route.
2. The **Find Nearby Inventory** tab shows the number of users who hold this inventory within 50 miles distance from the resource.
3. The **Find Nearby Inventory** tab displays the travel duration only if these conditions are true:
   - Your company has a subscription to Oracle Field Service Enterprise edition with Google Maps.
   - You have enabled the Enable Real Time Traffic check box on the User Types page.

To add the Find Nearby Inventory action to the Parts details page:

1. Click **Configuration**.
2. Click **User Types**.
3. Open the **Screen configuration** tab.
4. In the **Application screens** section, click **Parts details**.
   The Parts details context layout structure appears.
5. Under Action, click the**Click to Add** link.
6. Select the **Standard action screen** option.
7. Select the **Nearby Resources with Parts** check box and then click OK.

8. Click **Add new visibility**.
   Read-only is selected by default.
9. Click **Save**.

Results:

The **Find Nearby Inventory** button is now available on the **Parts details** page.

Add a Plug-in to the Parts Details Page

You may have created a plug-in that lets Field Resources order a part from the warehouse or from a vendor. To display a link to the plug-in on the **Parts Details** page, you must configure the context layout of the **Parts details** page.

Prerequisite: You have added the plug-in on the **Forms & Plugins** page and configured it.
To add a plug-in to the **Part details** page:

1. Click **Configuration**.
2. Click **User Types**.
3. Open the **Screen configuration** tab.
4. In the **Application screens** section, click **Parts details**.
   The Parts details context layout page appears.
5. Under Action, click the**Click to Add** link.
6. Select the **Plugins** option.
7. Select the check box for the plug-in to be displayed and then click **OK**.
8. Click **Add new visibility** for the newly selected plug-in.
   Read-only is selected by default.
9. Click **Save**.

Results:

The plug-in is now available on the **Parts details** page.

Add a Mass Activity

When you create an activity for one resource that you would like to use for other resources, you can create a *mass activity*. For example, if all the technicians are required to attend a training, you add a mass activity.

1. Add an activity to a resource as you normally would.
2. Complete the Activity Notes, Position in Route, Duration, SLA Start, SLA End, and Time Slot fields.
3. Click **Mass activity.**
   The **Mass activity** check box is displayed only for the activity types for which it is configured.
4. Click **Add new**.
   The resource tree displays.
5. Select the resources that you want to be part of this activity.
6. Click **OK**.

The activity is assigned to all the selected resources.

Add Repeating Activities to a Resource's Route

You can add activities to a resource's route that repeats for a specified period. Examples of repeating activities include meetings and lunch breaks.

1. From the Resource Tree, select the resource to which you want to assign the activity.
2. Click the gear icon and select **Add activity**.
   The **Add activity [resource name]** page appears.
3. Complete these fields:

Field	Description
Activity Type	Select the internal activity type. Some common options include: Lunch Break, Assisting, Office Activity, Warehouse Activity, Weather and Vehicle Maintenance. This list is populated with activities designated specifically as allowed for repeating.
Activity Notes	Any notes or comments about the activity.
Position in Route	If Not Ordered is chosen, then the activity is displayed as a **scheduled/not ordered** activity in the lower portion of the Time view interface. This is true whether a subsequent time slot is indicated or not. If **Ordered** is chosen and a time slot is indicated, then the activity is displayed on the resource's route within the time slot specified. If **Ordered** is chosen and no time slot is indicated, then the activity is displayed as pending at the beginning of the resource's route.
Duration	The amount of time that the activity lasts.
SLA Start	The date and time at which the SLA starts for this activity.
SLA End	The date and time at which the SLA ends for this activity.
Time Slot	Select the period of time within which this activity can be started. Time slots for internal activities are defined within the Activity Type settings. Time slots can also be created to support internal activities, similar to how they work for scheduling external activities.
Repeating Activity	Select the frequency at which the activity occurs and complete the corresponding fields.

4. Click **Submit**.
   The activity is added to the resource's route.

Resource Work Skills

To ensure that a resource has the ability to perform the assigned activities, you must correlate the incoming activity skill requirements with the skills specified for each resource.

The work skill functionality is what that correlation is based on. You first set up work skills and then assign them to resource records, with the appropriate levels of qualification set for each. Incoming activities are also assigned work skills based on certain conditions being met. The application matches up the resources with corresponding skills during routing. For more information about how to add work skills, see the Configure Oracle Field Service chapter. In this section, we'll cover a common administrative task – assigning work skills to resources to help ensure that the right resource is being assigned the right work by routing.

Related Topics

- Add a Work Skill

Work Skill Group Considerations

Work skill groups are bundles of work skills that can be assigned to resources, similar to individual work skills. The difference, however, is that work skill groups may already contain predetermined qualification levels of certain skills, whereas when assigning works skills one at a time, you can define unique qualification levels for the resource.

If there is an overlap in qualification levels between what is defined within work skill groups and individual work skills, then the resource is considered to have whichever is the highest. Work skill groups are assigned in the same manner that work skills are (less selecting qualification levels), so this section only describes the process of assigning work skills. Editing existing work skills for resources is another common task, and it is also accomplished in the same manner as initially assigning skills.

Assign Work Skills to a Resource

Work skills are the competencies that each resource is qualified to perform. A resource without work skills is not considered for activity assignments. You can assign *work skills* to resources through the **Resource Info** page.

1. In the resource tree, click on the group or bucket that you want to add the new resource to.
2. Click **Settings** > **Resource Info** from the drop-down list.

   The **Resource Info** page displays.
3. Click the plus icon in the **Work skills** field.

   The **Add work skills** window opens.
4. Assign a preference level for each work skill using a scale of 1 to 100.

   A higher number means that the resource has a higher chance of being allocated the task. If a resource performs this task only occasionally, enter a lower number.
5. Click **Save**.

   The resource is now assigned the skills and will be considered for work only if their qualification level meets or exceeds the level in the activity record. These guidelines are applicable:
   - If no individual skills are defined for a resource, then the application interprets that the resource is qualified to perform all of the skills at the highest qualification level. This is the default setting.
   - When qualification levels are set for at least one work skill, then the resource is considered to have only that specific skill. The resource is not considered for work requiring any of the other skills.
   - A higher ratio number increases the likelihood that this resource will be assigned activities with this work skill. If the ratios are conflicting, the application uses the higher ratio. If the work skill group ratio conflicts with the individual work skill ratio, the application uses the individual work skill ratio.

Resource Work Zones

Work zones provide two major capabilities—the first is to define the areas within which a resource is allowed to work (or is restricted from working outside of). The second is to support the ability to cap or stop activities from being booked at certain times on a zone-by-zone basis (capacity management).

You can assign work zones to resources through any level within the Resource Tree (group, bucket or resource). An exception is temporary work zones – you can set them only at an individual resource level. If you set work zones at a group or bucket level, then their child entities (resources) inherit the same settings. If you set work zones at the resource level, then those settings override any higher-level settings. Given those rules, ensure that before assigning work zones, you have selected the correct entity from the Resource Tree. The process of assigning work zones is the same for all levels. This document includes the steps for assigning work zones to individual resources.

Related Topics

- Add a Work Zone

How do I add a work zone to a resource?

Work zones define the regional areas in which resources are allowed to work. You can add a work zone that the resource uses only on weekdays, a work zone only for weekends, or a temporary work zone which is assigned for a short period. When you add a work zone to a resource, any work zone shape or custom map layer that's added to the work zone is displayed on the map. Work zone shapes and custom map layers help you visualize your work area better.

If you don't assign a work zone either to a resource or to any of its parents, the application considers that the resource has no work zones and is thus incompatible with all activities.

1. Open the **Resource Info** page for a resource.

   When a resource doesn't have any work zones assigned directly, but inherits work zones from one of its parent entities, then the message, "Applied from <bucket_name>" appears on the Work Zones tile, where <bucket_name> is the parent resource. When a resource has been assigned with several work zones, then the Map isn't shown on the tile. Instead, a list of up to 10 assigned work zones appears.
2. Click the title of the Work Zones tile.

   When resources have work zones added but shapes aren't populated, or no work zones are added either for the resource AND all its parents, then the map on the **Resource Work Zones** page doesn't display. Only the list of work zones is displayed in full-screen mode. After you add new work zones that have shapes, the page is refreshed and the map is displayed. When a resource doesn't have any directly-assigned work zones, then a search field is displayed and the message, "No work zones are added for the resource. Work zones are applied from <bucket_name>" is displayed where <bucket_name> is the parent resource.
3. On the **Resource Work Zones** page, click the plus icon.

   The **Add Work Zones** dialog box appears.
4. Complete these fields:

Field	Description
Work zone	Select one or more work zones from the drop-down list. The **Default Work Zones** section contains active work zones that are added to the resource's bucket or organization unit. When the bucket or organization unit isn't assigned to a work zone, then the work zones of its parent are considered.

Field	Description
	The **Other Work Zones** section contains other active work zones that aren't considered as default.
Ratio	Type a value between 1 and 100. A higher number increases the likelihood that this resource is assigned activities in this work zone. If this is a work zone the resource works in daily, or if it's a preferred zone for the resource, enter a higher number. If this resource works in this work zone occasionally or only by exception, enter a lower number. You can assign multiple work zones with different ratios to one resource.
Temporary	Select this check box to assign a temporary work zone for a specified period of time.
Start date	Enter the date that this work zone assignment starts.
End date	[Optional] If this is a temporary assignment, enter the date that this work zone assignment ends.
Recurrence	Set the schedule for the work zone if the resource is alternating between work zone assignments. Resources can cover different work zones on different days of the week. Use this feature to change a resource's work area on certain days of the week. Select the frequency of recurrence and the days on which to recur.
Days between occurrences	Enter the number of days after which the assignment repeats. If you've selected Repeat Weekly in the earlier field, select the days of the week on which the assignment repeats.

5. Click **Submit**.

   The work zone is added to the resource. If any work zone shapes are added to this work zone, they're displayed on the map.

Remove Work Zones from a Resource

If a resource doesn't want to work in a specific region, you can delete the work zone from a resource's record. Deleting a work zone has a major impact on the activity assignments.

1. Select the resource from which you want to delete a work zone.
2. Click **Settings** > **Resource Work Zones**.
3. Select the work zones you want to delete from this resource.
4. Click **Delete**.
5. Click **OK**.

   Any activities associated with these work zones will no longer get routed to this resource. Deleting a work zone from a resource does not delete it from the application. It will still be available to be assigned to other resources as needed.

Assign a Temporary Work Zone

You can assign a temporary work zone to a resource, for the resource to perform a work outside the usual work zone. Temporary work zones override all regular work zones of the resource for the defined period of time.

1. Select the appropriate resource from the Resource Tree.
2. Click **Settings** > **Resource Work Zones**.

3. Click **Add new**.

   The **Add resource work zone for [resource name]** window appears.

4. Select the **Work Zone** that you want to assign temporarily to the resource.
5. Select the **Temporary** check box.
6. Adjust the **Date Start** and **Date End** dates.

   Date End is mandatory for temporary work zones.

7. Click **Add**.

   The work zone is added.

Results:

There is no need to remove temporary work zones once the date has passed. They expire on the end date and the normal work zones take precedence. These rules apply to temporary work zones:

- The **End Date** is mandatory.
- You can assign temporary work zones only to resources. You can't assign them to buckets or groups.
- Only the **Everyday** recurrence is available for temporary work zones.

10 Create and View Reports

View Scheduled Reports

The **Schedule Report** option enables you to view a list of reports that have been set up to run on a specified schedule.

Before you start

Users for whom the Schedule Report option is selected can access the Schedule Report option from Core Application. Note that you cannot provide access privileges for users in a new user type.

Be aware of these points:

- There is a limit based on the file size that can be sent through emails (The email size cannot exceed 2MB). If the configured report causes this size to go above the limit, the report is truncated so that the size is within the limit.
- If the report is truncated due to size, the email also contains a note stating that the size exceeded. The note also suggests that the type of report be changed and/or the filters applied can be modified so that the size of the report is within the limit.
- If a scheduled report is deleted, the changes are updated only on the following day.

These improvements were made:

- Schedule report functionality for existing users
- Removal of the survey reports as the survey functionality is not available for users

Schedule report functionality for existing users

Existing users configured with schedule report in legacy manage can now access schedule reports from Core application.

1. Click Configuration. In the Configuration window, select Dashboards. This image shows the Configuration window:
2. Click **Schedule Reports** from the Actions menu. This image shows the Configuration window. The Schedule Reports window is displayed.
3. Make sure users who have privilege to access schedule report also have access to Dashboards from the Configuration window.

> **Note:** You cannot configure view or edit access privilege for a new user type in Update 21A. Existing user types that have access to scheduled reports will have the same access privilege in Update 21A. However, new users cannot modify the existing privilege in Update 21A

Initial report scheduling is handled by your system administrator.

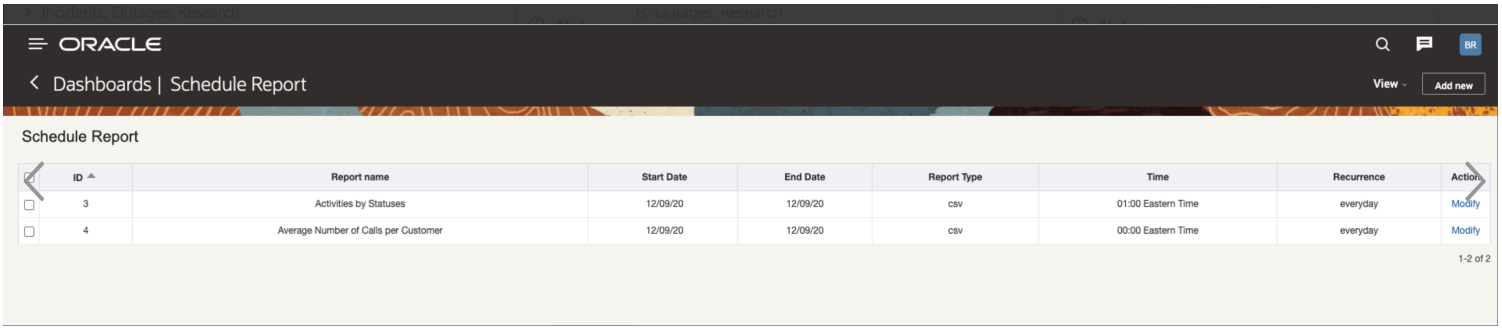
To view scheduled reports:

Here's what to do

1. Select the ***Navigation*** button.
2. Select **Schedule Report** from the navigation pane.

A list of the reports that have been scheduled to run on a recurring basis by the system administrator appears.

This screenshot displays the Schedule Reports page showing the list of all scheduled reports.



Results:

This table provides the elements in the Scheduled Report and their description:

Column	Description
ID	The unique identifier for this report.
Report name	The name of the report.
Start Date	The start date of the reporting period.
End Date	The end date of the reporting period.
Report Type	The format of report to be sent or saved (CSV, HTML, XML, PDF).
Time	The time that the report was run.
Recurrence	How often this report is run. You cannot run or modify any recurring reports.
Action	To view the details of the settings for an individual report (**View**).

View the Messages Report

The Messages report details the results of messages sent out through the Notification Engine. This report shows only those messages that use set property delivery channel (method) if they were generated in less than one hour. The only exception from this rule: Messages with failed status. Such messages are important for troubleshooting therefore they do not have the one-hour expiration time.

To view the Messages report:

1. Select the subject of your report from the resource tree.
   This could be a bucket or organization, such as XYZ contractors, or one or more resources.
2. Click the **Navigation** button.
3. Select **Messages Report** from the navigation pane.
4. Click **View** to display the filtering options for this report.
5. Select your options.
   a. **From/To Date**: Use the calendar icons to select the desired dates.
   b. **Trigger**: Select a trigger from the drop-down menu. The trigger is the action taken within Oracle Field Service that triggers the message. For example, if you would like to run a report showing all messages triggered when an order is canceled, select **Cancel**.
   c. **Find**: Use this field to search for a certain term, word, or character (such as the name of a resource) within the results.
   d. **Rows**: Enter the number of rows you want to see at one time. The default value is 20.

The Messages report details the results of messages sent out through the Notification Engine.

Field	Description
Method	How the message was sent. For example, internal process or external system.
Status	The status of the message at the time the report was run.
Description	Additional information about the message status.
Miscellaneous	Other information
Scenario (Step)	The scenario or step referenced in the message.
Trigger	The event or reason why the message was sent.
Call Day	The day the call was placed.
Day Created	The date and time that the message could be seen in the system.

Revision History

This document will continue to evolve as existing sections change and new information is added.

Date	What's Changed	Notes
February 2023	These topics are updated: • Configure Business Rules	
November 2022	These topics are updated: • Work Zones These topics are added: • Cancel a Map Layer Upload • Messages for Failed Upload • Create a Notification for Negative Feedback on Where is My Technician	
August 2022	These topics are updated: • Configure the Form Elements • Configure the Where is My Technician Theme • Configure Business Rules This topic is added: • Add a Barcode, QR Code, NFC Scanner Field • Move Reasons Enhancements	
May 2022	This topic is added: • Properties That can be Used with Forms These topics are updated: • Add a Login Policy • Configure the Manual Move Reasons • Set Up SSO Authentication • Configure a Color for the En Route Status	
February 2022	These topics are added: • How to Add Install Required Inventory Workflow Step • Auto-Adjustment of ETA for En Route Activities • Perform 'What-if' Analysis by Applying Changes to Statistical Parameters These topics are updated: • Add a Workflow Step • Configure Business Rules • Export and Import Forms • Add Work Zones for a Resource	

Date	What's Changed	Notes
November 2021	These topics are added: • Configure a Workflow • Add a Workflow • Add a Workflow Step • Add a Workflow Condition • Edit a Custom Form within a Workflow • Tips to Configure Activity Pages for Workflows • Use Cases to Configure a Workflow • Export and Import Workflows • Associate a Workflow with an Activity These topics are updated: • Define the Settings for a Scenario Step	
August 2021	This topic is added: Download a Shape File that was Uploaded from a Local Device These topics are updated: • Update Shape Properties • Add a Map Layer • View Statistical Parameters • Travel Time Prediction	
May 2021	Renamed the topic 'Add a Login Policy' to 'Add a Login Policy for LDAP, SAML, or OpenID Connect Authentication Method' and updated it	
February 2021	These topics are added: • Prerequisites for Using the Activity Booking Options These topics are updated: • Activity Booking • Create a Layout for Booking an Activity • Time Slot Page Configuration • General Tab • Add an Inventory Type • Pre-Calculated Travel Statistics • Add a Theme	