Field Service

Using Smart Location

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Preface

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1 Set Up Smart Location

Overview of Smart Location

Oracle Field Service Smart Location is part of Oracle Field Service, a mobile workforce management application. You can use Smart Location to find the location and track the travel patterns of a resource.

Smart Location uses GPS information from the resource's mobile device or from the device in the vehicle to gather location and route information. Smart Location can help you perform the following tasks:

- **Locate a resource:** When you need to know where a particular resource is, you can quickly identify the location and the activity being performed. With the details provided in the interface, you can also estimate whether the next activity will be delayed and when the resource will arrive at the next activity.

- **Identify idle time:** Smart Location displays idle time on a map so that you can quickly identify where and when the resource was idle.

- **Identify that work is Started and Completed while on-site:** Smart Location displays whether or not the resource started and completed the activity while on-site.

- **Retrieve navigational data for a resource**. Resource tracks are available on Smart Location for 90 days.

Note: This guide only covers tasks associated with the Smart Location module. See the Using Core Application guide for details about dispatch and administration tasks.

How Smart Location Works

Oracle Field Service Smart Location populates the Map view with the resource's location information.

Smart Location uses GPS information from the resource's mobile device or from the device in the vehicle to gather location and route information to create the Map view.

Note: If your organization has enabled the **Limit location gathering to installed Android or iOS applications** setting on the **Configuration** > **User Types** General tab, then the locations are gathered only from the installed app. If the resource has logged in through Core Application on a browser, the location details are not gathered from that device.

Requirements to Send Data Through the Mobile Device

To use a resource's mobile device to send GPS information to Oracle Field Service, these conditions must be met.

- Oracle Field Service must be configured and running

- The device must be capable of collecting GPS information and transmitting it using the device's Internet browser. This capability must be native to the device. The solution does not work with external devices for GPS and WIFI.
- The mobile device that contains the GPS tool must support HTML 5.
- The resource must be logged in to the Oracle Field Service interface on the mobile device.
- The resource must accept the browser request to share location data with Oracle Field Service
- The browser must be running in the foreground to deliver coordinates to Oracle Field Service.
- The mobile device must not be in sleep or standby mode.

Requirements to Send Data Through the Device in the Vehicle

When you use the device in the vehicle to send GPS information, the following items are required for Oracle Field Service Smart Location to work correctly:

- Oracle Field Service must be configured and running
- You must write an application to transfer the data from the device to Oracle Field Service through the Smart Location API. See the Integrating with Smart Location API for detailed instructions.

Turn On Smart Location

Before resources, dispatchers and other users can use the Smart Location features, you must turn them on.

To enable the features:

1. Click the navigation button to open the side bar menu and click **Configuration**.
2. Click **User Types** under Users and Security.
3. Click the **Enable Smart Location alerts** check box listed under **Permissions** section.

Configure Smart Location

You must configure Oracle Field Service Smart Location to activate the communication between the device and the system. You can also modify the display of certain information in the interface.

To set the configuration settings:

1. Click the navigation button and click **Configuration** in the Navigation Pane.

   The Configuration page is displayed.
2. Follow these steps to define the Map and Geocoding settings to identify the resource's location:
   a. In the Configuration page, click **Business Rules**.
   b. In the Business Rules page, scroll down to review the **SmartLocation/GPS** field under the **Maps and Geocoding** section.

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    c. Optionally, type values in the **Resource is considered idle if remains at the same location for more than ... minutes and does not have started activity** field to specify the minimum amount of time the resource takes to start the activity. This field is used to determine whether a resource is idle. Time period of 30 minutes is a good value.

    d. Optionally, type a value in the **Resource is considered to be at the activity location if the distance to it is less than ... meters** field. This field indicates that if the resource is further away from the activity location than this value, the resource is considered not available at the activity location. 100 meters is typically a good value.

3. Follow the steps to define the display settings for resource icons:

    a. In the Configuration page, click **Display**.

    b. In the Display page, scroll down to review the **Map** section.

    c. Complete the following fields:

- **Fade resources**—Select this check box to fade and hide resource icons when GPS data is not received after a certain amount of time.
- **Fade resource time**—When the GPS data is not received for a certain amount of time, the resource's icon appears transparent, or faded, on the map. This setting determines that amount of time.
- **Hide resource time**—When the GPS data is not received for a certain amount of time, the resource's icon is removed from the map. This setting determines that amount of time.

> **Note:** You must select the **Fade Resources** check box to activate **Fade resource time** and **Hide resource time** settings.

Troubleshoot Smart Location

If Oracle Field Service Smart Location is not working properly, there might be a problem with the configuration.

See the following list of common problems and the possible solutions:

- **Location dots are not displayed in Map view in the Web interface:** Verify that **Show Resource Trace** is checked in the **View** drop-down menu. Verify that the user account is tied to a resource.

- **Data for a resource is not displayed in Map view in the Web interface:** The resource did not authorize the mobile device to send GPS data to the application. The resource must accept the browser request to share location information. The resource closed his internet browser or logged out of the mobile interface. Ask the resource to log back into the mobile interface.

2 Use Smart Location

Capturing Geolocation in iOS and Android apps

These are the rules based on which the geolocation is captured in iOS and Android apps.

- Geolocation is captured only if the route is active.
- The application can capture the coordinates only if the field resource provides the required location permissions to the app. If the app has only been given permissions to capture the location when the app is being used, locations will not be captured if the app is in the background.
- Generally, the location is captured more frequently when a field resource travels and less frequently when the application identifies that the techician is not travelling.
- The application tries to send at least one coordinate per minute. If the accuracy of the coordinates is low, the application captures the most accurate coordinate within that minute.
- If the field resource is travelling, and the accuracy of coordinates is good, the application may capture the coordinates as frequently as every 10 seconds. Fewer coordinates are captured per minute as the movement reduces.
- When the field resource is not travelling, the application captures one location per minute.
- On the Android app, the logic of capturing coordinates is similar regardless of whether the app is in the background or the foreground.
- On the iOS app, if the app is in the background and the application identifies that the field resource is not moving significantly, no coordinates are captured or sent until the field resource starts moving or the app is brought to the foreground.
- If the field resource is offline, the points are sent in bulk only when the field resource comes back online. If the app is closed in between, the points are sent only when the app is launched again.

Verify Resource Compliance in the Map View

Oracle Field Service Smart Location provides details in the Map view of the Web interface showing resource compliance.

To verify resource compliance in Map view:

1. View a resource in **Map View**. The route displays.
2. Click **View** and then select **Show Resource Trace**.

   The application compares the resource's actual route to the projected route.

Results:

The map displays colored dots that indicate the locations that the GPS sent back to the application. The colors represent the following statuses:

- Blue dots indicate locations that the GPS device sent to the application where there are no compliance alerts.

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- Red dots indicate locations that the GPS device sent to the application where the resource has started the activity outside of the defined radius or where the resource left the location without completing the activity.
- Yellow dots indicate locations that the GPS device sent to the application where the resource has exceeded the defined idle time.

This figure shows the map to indicate the locations that the GPS sent back to the application. The application compares the resource's actual route to the projected route to display the locations.
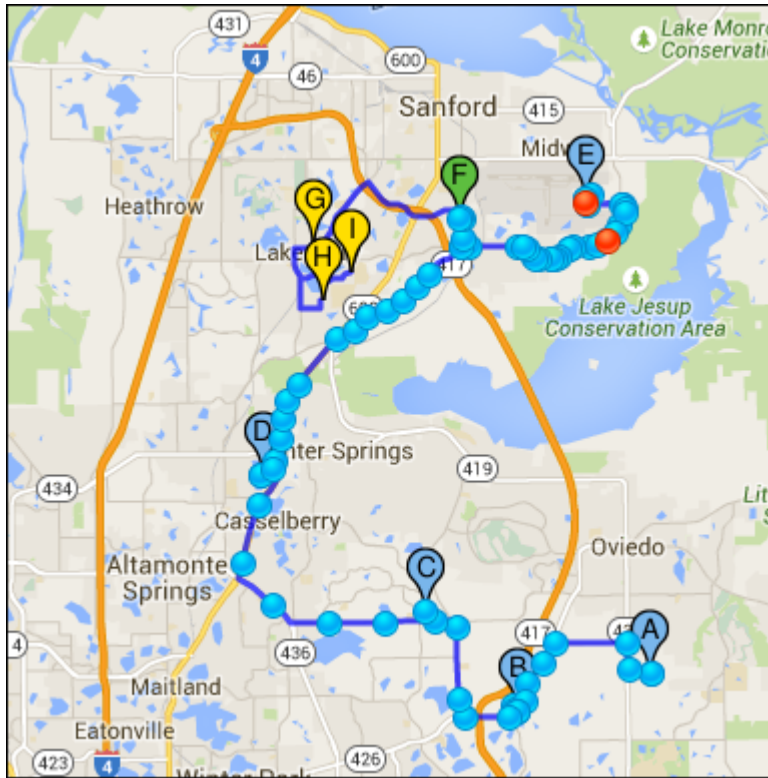
Verify Resource Compliance in the Time View

Oracle Field Service Smart Location provides details in the Time view of the Web interface showing resource compliance.

To verify resource compliance in Time view:

1. View a resource in **Time View**.
2. Click **View** and then select **Show Resource Trace**.

   The application provides a compliance bar showing the resources trace.

   The colors represent the following statuses:

   - Blue indicates locations that the GPS device sent to the application where there are no compliance alerts.
   - Red indicates the location that the GPS device sent to the application:
     - where the resource has started the activity outside of the defined radius

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- where the resource has completed the activity outside of the defined radius
- where the resource left the location without completing the activity
  - Yellow indicates locations that the GPS device sent to the application where the resource has exceeded the defined idle time.

Apart from differentiating the resource's location in color, you can also view them as text in the map hints. For example, if the Technician starts the first activity, the ETA (Estimated Time of Arrival) becomes the actual Start time. Ideally, the Technician should have completed the first activity, driven to the second activity, and started the second activity at the End time. However, if the Technician remains on the location of the first activity after the End time, the location is indicated in red. If he Technician suspends the first activity, the location is indicated in blue. This change in color indicates that the Technician continues with the first activity and was on that activity location. Apart from differentiating the resource's location in color, you can also view them as text in hints in the Time view.

Results:

When reviewing the route for past date, Time view contains actual information: actual activity start time, actual travel time, activity duration, and actual statuses of resource's positions.

When reviewing the route for current date, Time view contains a mix of actual information for already completed activities and prognosis for pending activities such as ETA, estimated travel time. The prognosis is updated with each action of the technician. Hence, ETA changes to actual start time once technician starts the activity.

The statuses (colors) of resource's positions change and prognosis becomes reality.

This figure shows an example of Time view before and after Technician starts an activity.
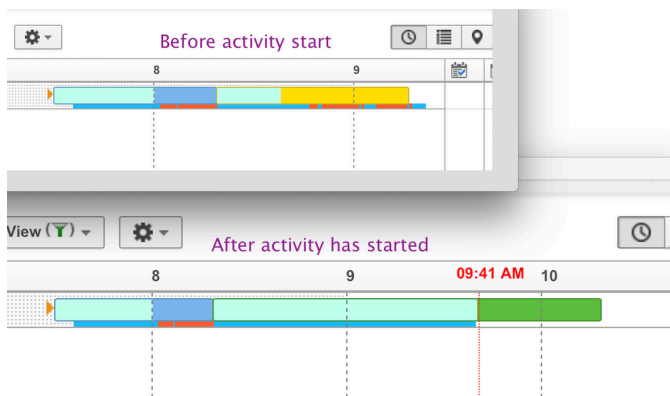
Now, the ETA for the second activity was approximately 08:30 AM. In fact, it was started at 09:40 AM. Time View is updated immediately after the tech started the activity. The resource coordinates collected within estimated activity duration are mostly red since the technician is progressed to be out of activity:

This figure shows resource coordinates after the Technician started the activity:

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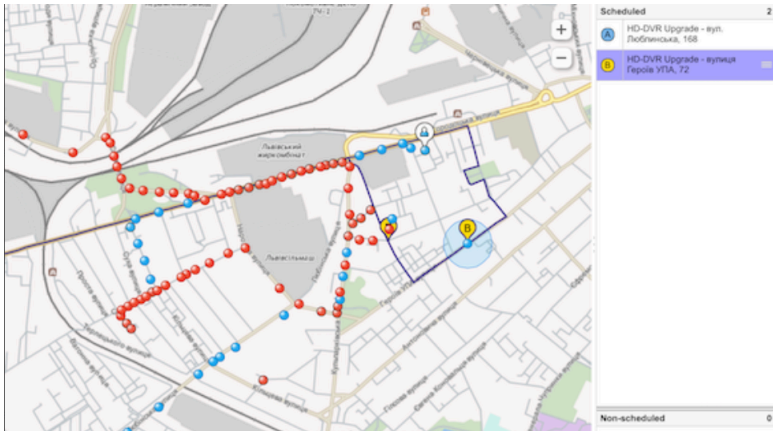
The situation changes when the Technician suspends the first activity. The resource coordinates turn blue (normal) because the Technician is traveling to the second activity.

This figure shows resource coordinates after the Technician suspended the first activity:
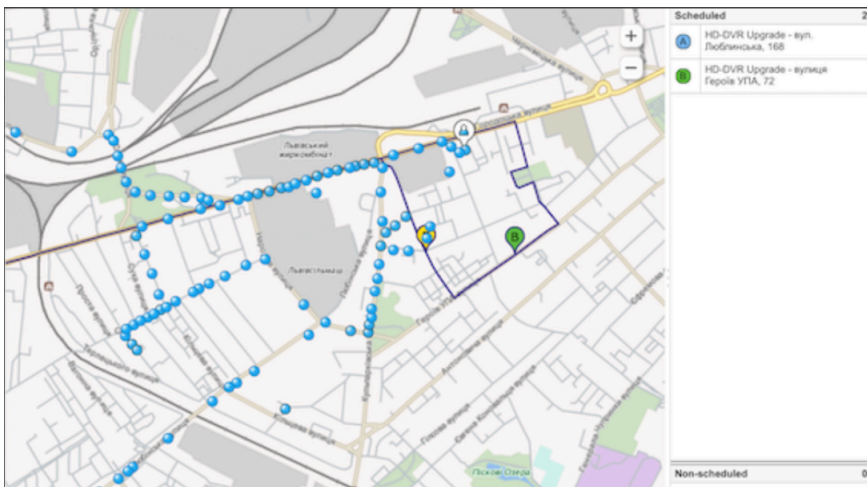
Locate a Resource

You can use Oracle Field Service Smart Location to find a resource's current location.

To locate a resource:

1. View a resource in **Map View**. The route displays.

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2. Select **View** > **Show Resource Location on Map**.

A resource icon in a white balloon displays on the map in the position where the resources is currently located. Apart from differentiating the location using colors, you can also view the details as text in the map hint.
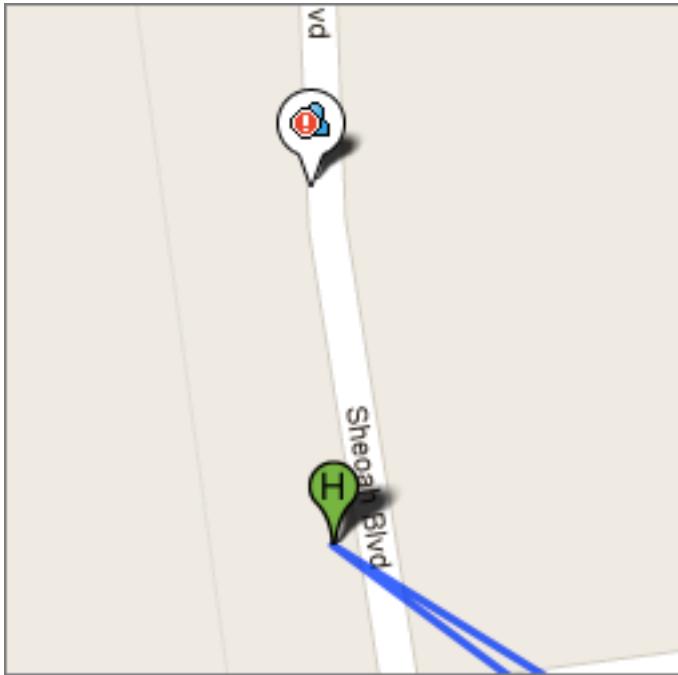
This figure shows the current location of a resource in the map.

Highlight Selected Parts of a Resource Track

There are two ways to analyze a resource track in the Map View—by viewing the route between resources and by highlighting a specific part of a track. Hovering over a breadcrumb on the map highlights the part of the track that contains the selected breadcrumb. When hovered over any activity marker on the map, the track between the previous and selected activities is highlighted and the non-related tracks are muted. This lets you see the track between two locations.

The tracks are highlighted as described below:

- When hovering over any activity marker on the map for at least half-a-second, or clicking the activity icon on the right panel:
  - The part of the track between the previous and selected activities is highlighted.
  - The selected and previous activity markers are highlighted.
  - The remaining activity markers and breadcrumbs are grayed out.

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- When hovering over a point from the track for at least half-a-second:

  - The part of the track and the activity markers from the previous activity to the next one are highlighted.
  - The remaining activity markers and breadcrumbs are grayed out.

The following figure shows a track between points B and C highlighted in red:
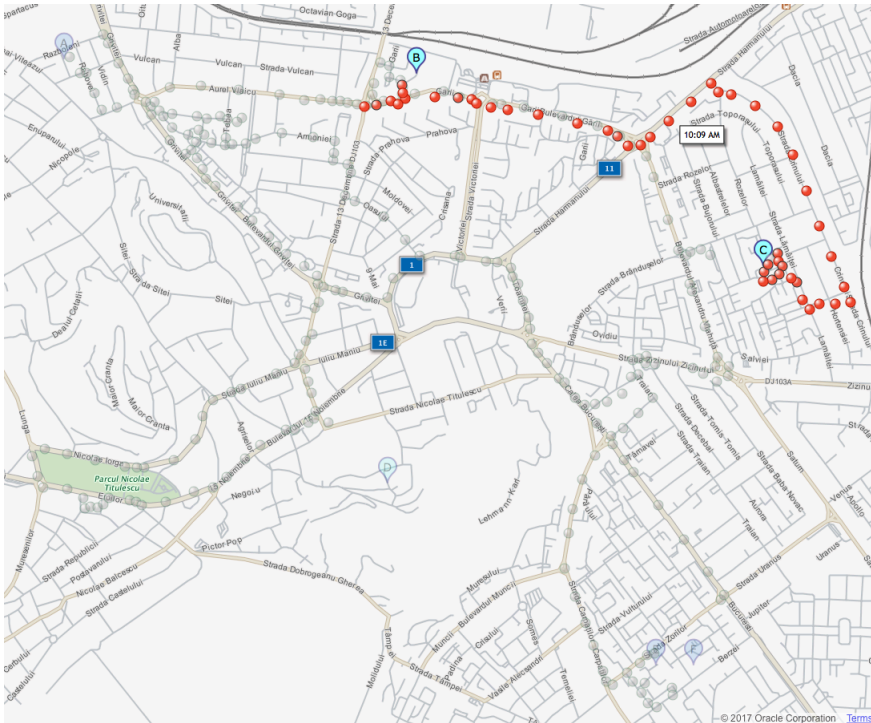
The following rules are followed while highlighting:

- The highlighting described in the earlier bullet points are applied only for non-clustered points.

- Both resolved and unresolved activities are considered when highlighting the route. If activity B is highlighted and there is an unresolved activity (for example, Lunch) before it, then the track is rendered from Lunch to B.

- The breadcrumbs between the selected parts of the route are highlighted gradually, one after another. The order of highlighting is based on the timestamp, starting from the earliest one.

Hint for a clustered point: When you click a clustered breadcrumb (resource track point) the hint 'Zoom in' appears near it. It displays the timestamps of the points that the cluster contains. Upon clicking Zoom in, the map is zoomed in to the area with breadcrumbs. The following figure shows a clustered breadcrumb with the hint:
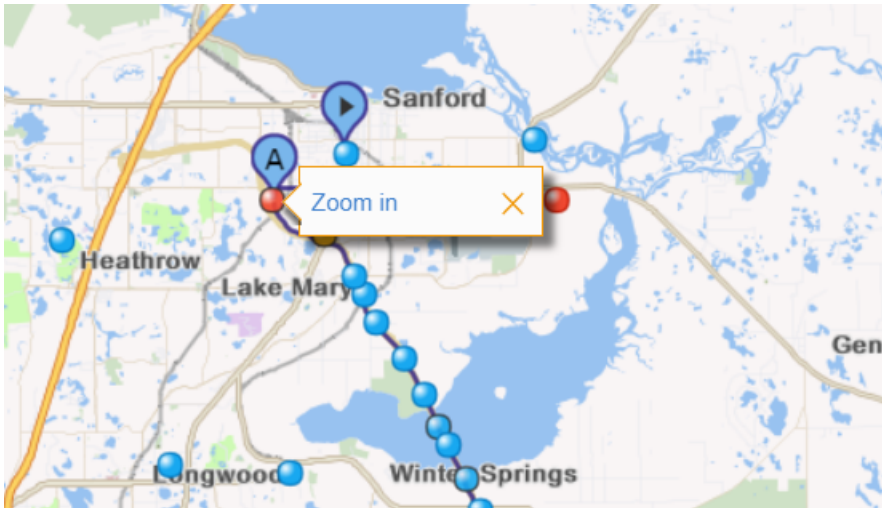
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Show Nearby Resources

You can use Oracle Field Service Smart Location to see the location of all team members in a particular area in relation to one another.

Dispatchers can assist personnel by locating others who can help by offering detailed guidance. You can create a virtual community among team members in an area that allows team members to find and communicate with one another and quickly access help, expertise, or inventory. This speeds up the job completion and helps fulfill the commitments that you have made to customers.

To show nearby resources:

1. View a resource in the **Map View**. The route displays.

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2. Click **View** > **Show Nearby Resources**.

The icon [icon], representing nearby resources, will display on the map.

You can select one to view more details. The number of the nearby resources displayed on the map depends on the zoom selected for the current map view on your application device.

This figure shows the map to indicate the locations of all nearby resources with the details of a selected nearby resource.
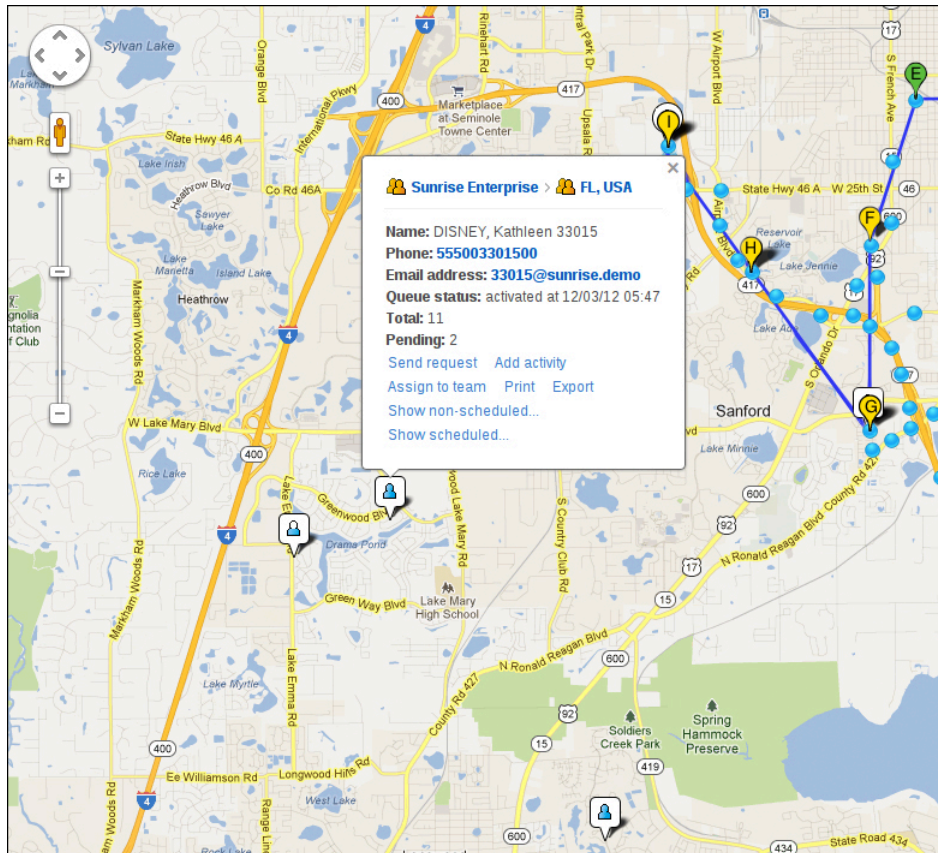
Configure Alerts

You can configure alerts using the User Types configuration window. Alerts will be displayed when the geocode accuracy level is 8 (intersection), 9 (address) or when an external source had provided the coordinates using the API.

Follow these steps to configure alerts:

1. Click **Configuration**, **User Types**.

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2. Click the **Enable Smart Location alerts** check box to 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 Smart Location module.

3. Configure idle time-out (in minutes) for alerts.

4. Configure idle radius (in meters), start activity radius (in meters), and end activity radius (in meters) for alerts.

> **Note: GPS data gathering starts once users have activated their respective Route and have 1:1 relation with the resource (Technician).**

Mobility Application Notifications

The Oracle Field Service Core application interacts with technicians by sending alerts to notify them if some non-compliance occurs during regular daily activities.

Alerts are sent when the following activities occur:

- **Idle** — Occurs when the technician stops for a critical period of time when moving to the next activity. This may be configured within Core Application.

  - Situation:

    If no activity is performed (while pending exists) and Geo coordinates have not been changed for X period of time then this alert notifies the technician that some activity might be missing in a route.

  - Core Application doesn't alert if any of these cases is true:

    - Idle timeout <= 0
    - Idle radius <= 0
    - Resource activity queue contains started activity.
    - Resource activity queue does not contain pending activities.
    - Distance between previous and current coordinates more than idle radius.

  - User Interface:

    Core Application shows alert message with information about which activity might be missed. You can close the alert.

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- **Start**— Occurs when the technician reached the activity location but has not started it yet. Applicable address of activity has Geolocation and radius of activity is configured within Core Application.

    o Situation:

    If an activity site has been reached then this alert notifies the technician to start the activity.

    o Core Application doesn't alert if any of these cases is true:

    - Start radius <= 0
    - Resource activity queue contains started activity.
    - Resource activity queue does not contain pending activity.
    - Activity coordinates are incorrect.
    - Distance between resource location and activity location > start activity radius
    - The activity screen is not opened at the moment. Only the first ordered or not ordered activity is taken into account.

    o User Interface:

    Core Application shows a confirmation message indicating which activity to start. You can close the confirmation or open start activity screen.

- **Completed**— Occurs when the technician leaves the activity location but has not completed the activity in the system. If the address of an activity has Geolocation and radius of activity, it is configured within Core Application.

    o Situation:

    If an activity site has been left and there is still started activity in a queue then this alert notifies a technician to complete the activity.

    o Core Application doesn't show this alert if any of these cases is true:

    - Started activity radius <= 0
    - Resource activity queue does not contain started activity.
    - Activity coordinates are incorrect.
    - Distance between resource location and activity location < end activity radius
    - The activity screen isn't opened at the moment.

    o User Interface:

    Core Application shows a confirmation message indicating which activity to complete. You can close the confirmation or open complete activity screen.

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Revision History

This document will continue to evolve as existing sections change and new information is added.

Date	What's Changed	Notes
February 2022	Minor updates	

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