Oracle® Cloud

Using Oracle IoT Connected Worker Cloud Service

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Preface

Using Oracle IoT Connected Worker Cloud Service provides information and procedures for using Oracle IoT Connected Worker Cloud Service. Oracle IoT Connected Worker Cloud Service lets you monitor and manage the safety and location of your workforce.

Topics:

- Audience
- Documentation Accessibility
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- Conventions

Audience

Using Oracle IoT Connected Worker Cloud Service is intended for system administrators who are responsible for managing Oracle IoT Connected Worker Cloud Service.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at `http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc`.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit `http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info` or visit `http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs` if you are hearing impaired.

Related Documents

For more information, see these Oracle resources:

- Oracle Cloud at http://cloud.oracle.com
- Getting Started with Oracle Cloud

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

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Get to Know Oracle IoT Connected Worker Cloud Service

Oracle IoT Connected Worker Cloud Service is a specialized Oracle Internet of Things Cloud Service. With the Oracle IoT Connected Worker Cloud Service you can monitor the safety and location of your workforce. With connected worker, you always know the location of staff, you can monitor their safety, and respond quickly to safety issues.

Topics

- About Oracle IoT Connected Worker Cloud Service
- Features and Functionality
- Roles and Responsibilities
- Oracle IoT Connected Worker Cloud Service Business Objects
- Oracle IoT Connected Worker Cloud Service Business Process Workflow
- How to Get Support

About Oracle IoT Connected Worker Cloud Service

Oracle Internet of Things (IoT) Connected Worker Cloud Service helps you monitor and manage worker safety. Sensor devices worn by workers use cellular, satellite, or Bluetooth connections to transmit real-time data about the worker's status and location to Oracle IoT Connected Worker Cloud Service. You can use real-time and historic data to maintain the highest level of safety, health, and productivity for your workforce.

Your business requirements determine how you use Oracle IoT Connected Worker Cloud Service. You might want to focus on the enforcement of health and safety policies, reduce worker exposure to hazardous or unsafe environments, or keep in touch with workers more frequently. Oracle IoT Connected Worker Cloud Service user interface provides a visual representation of the data that is important to you.

The map view identifies the location of every worker, incident, project, and hazard in real-time. Knowing the location of a worker in real-time lets you better allocate resources and improves safety monitoring and compliance.

The prebuilt business dashboards and predefined key performance indicators (KPIs) let you locate and monitor worker safety and quickly identify the location of every incident, project, and hazard. Knowing the location of workers, incidents, projects, and hazards helps you prioritize tasks and resolve incidents quickly.

Rules can help you enforce safety policies and to monitor worker safety. Rules can also help you influence safety compliance by monitoring the location of workers and the number of reported incidents. Improved worker safety can reduce the likelihood of worker injury, and lower your insurance premiums. Identifying hazardous locations prevents workers from entering locations that are hazardous to a worker's health and safety.

Features and Functionality

When you log in to Oracle IoT Connected Worker Cloud Service , the first screen that appears is the map view. From the map view you can access the menu, search for workers and projects, and view worker and project metrics.

This image identifies key Oracle IoT Connected Worker Cloud Service functionality and features:
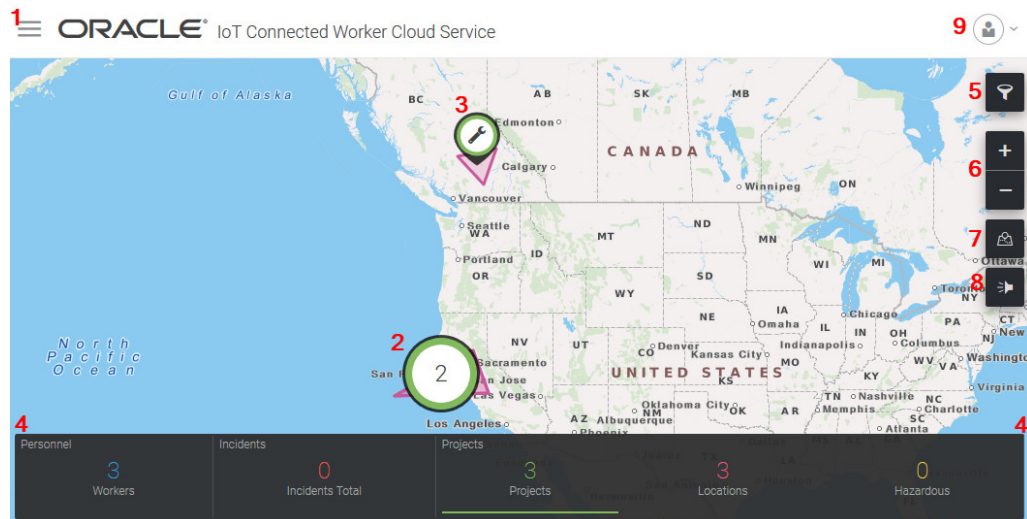
Descriptions for each of the features identified in the image are provided in the table.

Item	Description
1	The Oracle IoT Connected Worker Cloud Service menu. Use the menu to:
	• View dashboards, such as the dashboards for workers, incidents, and messages.
	• Create users, rules, projects, hazards, and other business objects.
	• View and change the application configuration settings.
2	A project cluster. Projects in close geographic proximity are grouped. Click the cluster to view the individual projects that form the cluster.
	To display worker, incident, location, or hazard clusters, click the corresponding link in the Personnel and Projects ribbon.
3	An individual project cluster. Click ( ) to display the **View** ( ) and the **Broadcast** ( ) icons. Click ( ) to view the project dashboard, or click **Broadcast** ( ) to send a message to all selected project participants.

Item	Description
4	The Personnel, Incidents, and Projects metrics ribbon. Use this ribbon to quickly access worker and project information. Clicking an item in the ribbon displays the metric in the map view.
5	Filter map content. Use the filter to look for specific projects, project locations, and workers in the current map view.
6	The zoom controls for the map view. Click + to increase magnification, or click — to reduce magnification.
7	Show floor plans. If you have added floor plans to your project locations, you can toggle this button to superimpose the floor plans on the map view. Note that you may need to zoom into the location to see the floor plan.
8	Send a message to all workers in the map view. Click this button to broadcast a message to all workers in the current map view.
9	The Authentication menu. Click this menu to see the currently logged in user, and the application version. You can also use the option to log out of Oracle IoT Connected Worker Cloud Service.

Roles and Responsibilities

How you interact with Oracle IoT Connected Worker Cloud Service is dependent on your assigned role and access privileges.

Role	Responsibilities
Administrator	• Sets up and manages the cloud service. • Creates user accounts and manages user data. • Creates projects and assigns project managers to projects.
Project Manager	• Creates and manages projects. • Assigns supervisors and workers to projects. • Creates project locations. • Creates geofences to monitor and restrict worker access to hazardous locations. • Creates rules to enforce safety policies. • Monitors and manages supervisors and workers.
Supervisor	• Monitors and manages workers. • Reports and manages workplace hazards. • Monitors and manages incidents. • Creates rules to enforce safety policies. • Creates geofences to monitor and restrict worker access to hazardous locations.
Worker	• Indicates their status as on duty, on break, or off duty. • Reports hazards. • Responds to and acknowledges messages.

Oracle IoT Connected Worker Cloud Service Business Objects

A business object is an object within a computer application that represents a part of the business or an item within it. These business objects let you collect, view, manage, and analyze business data. A worker is an business object within the Oracle IoT Connected Worker Cloud Service. Using business objects simplifies data management by encapsulating the data associated with the business entity it represents.

The structure, relationships, and attributes of business objects are stored in the schema of your database. The attribute values of the predefined Oracle IoT Connected Worker Cloud Service business objects are defined by Oracle IoT Connected Worker Cloud Service users. For example, a supervisor defines the name, user name, password, and assigned group for a monitored worker. When you view a project manager, supervisor, a worker, or administrator business object in Oracle IoT Connected Worker Cloud Service, the defined attributes are displayed. To allow project managers and supervisors to update, create, and delete business objects, Oracle IoT Connected Worker Cloud Service includes forms that let them quickly add create, edit, and update business object data. When the a project manager or supervisor modifies business objects, the schema and tables in the database are automatically updated.

This table lists the Oracle IoT Connected Worker Cloud Service business objects.

Business Object	Description
Alert	A system message generated when the rule conditions are met or exceeded. Typically, alerts are used to send messages to integrated, external applications.
Device	Sends supervisor and worker data to the cloud service.
Hazard	Defines the geographical location of the hazard, hazard severity, and hazard details.
Incident	Identifies personnel and workplace safety issues.
Message	Data sent to and from supervisors and workers.
Project	Defines the project parameters including the start and completion dates.
Project Manager	Uses the cloud service to create and manage projects and project participants.
Rule	Enforces safety policies.
Supervisor	Uses the cloud service to manage and monitor workers.
Worker	Uses the cloud service to report hazardous conditions.

Oracle IoT Connected Worker Cloud Service Business Process Workflow

A workflow, or business process, is a collection of tasks that you complete to configure the cloud service to meet the unique requirements of your business. The typical tasks you complete are represented visually in the diagram and links to each task or collection of tasks are provided in the table below the diagram.

This image represents the workflow for using Oracle IoT Connected Worker Cloud Service:
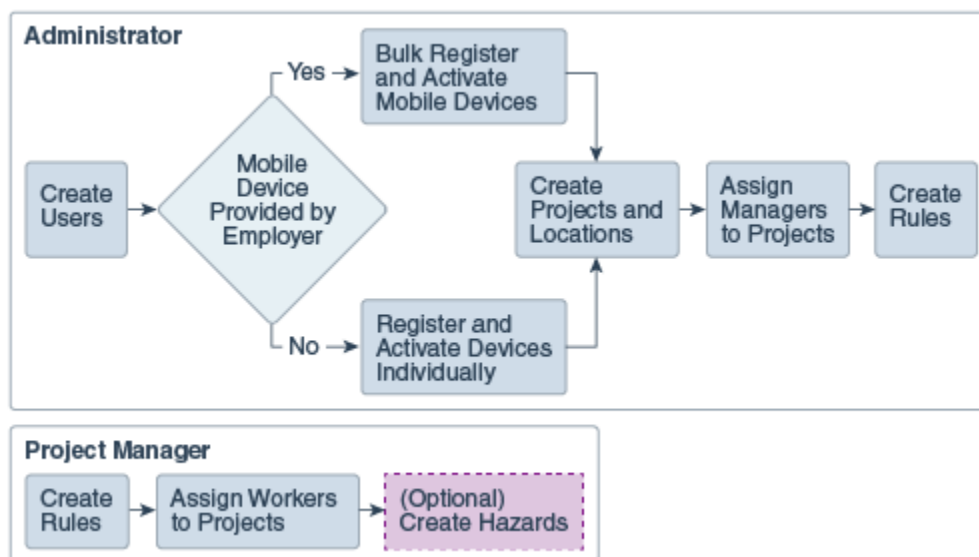
Task	Description	More Information
Create User Accounts	Create user accounts to allow workers to be assigned to projects.	Add and Manage User Accounts
Register Mobile Devices	To allow the mobile device to send and receive data, register the mobile device with the Oracle Internet of Things Cloud Service, download the provisioning file, and then install the provisioning file on the mobile device.	Register a Single Device Using the Management Console and Manually Provision the Oracle IoT Connected Worker Mobile Device
Create Projects	Create projects to define the locations where workers work.	Create and Manage Projects
Assign Workers to Projects	Assign workers to projects to allow them to participate in project communications, view project information, and be informed of workplace hazards.	Assign Personnel to a Project
(Optional) Create Rules	Create rules to generate incident reports and identify worker issues.	Create and Manage Rules
(Optional) Create Hazards	Create hazards to notify workers of issues that could cause personal injury.	Create and Manage Hazards

How to Get Support

Use these resources to resolve problems:

- Visit the Oracle Help Center at http://docs.oracle.com/en/.

- If you're an Oracle Premier Support Customer, visit My Oracle Support.

- Contact Oracle Technical Support. See Contacting Oracle Support in *Getting Started with Oracle Cloud*.

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Access Oracle IoT Connected Worker Cloud Service

Here's what you need to know to access Oracle IoT Connected Worker Cloud Service, including the prerequisites, creating a service instance, and assigning roles. Review this chapter carefully to make sure that you have configured the service for your requirements.

Before You Begin with Oracle IoT Connected Worker Cloud Service

Before you use Oracle IoT Connected Worker Cloud Service:

- Make sure that you have the link to access the service instance. This link is provided by Oracle in an email and the format is typically `https://hostname/<cloud service acornym>`. For example, `https://hostname/cw` for Oracle IoT Connected Worker Cloud Service. If you haven't received this email, contact your Oracle representative or your development team.

- If you are a worker, make sure you have the Oracle IoT Connected Worker Mobile Application installed and provisioned on your Android mobile device. If you require assistance with setting up the application, contact your Oracle IoT Connected Worker Cloud Service Administrator.

- Make sure that you have a user name and password to access Oracle IoT Connected Worker Cloud Service or the Oracle IoT Connected Worker Mobile Application. If you have not been assigned a user name or password, contact your development team.

How You Access Oracle IoT Connected Worker Cloud Service

How you access and interact with Oracle IoT Connected Worker Cloud Service is dependent on your role. For example, a Project Manager uses the Oracle IoT Connected Worker Cloud Service management console to manage projects. A worker uses the Oracle IoT Connected Worker Mobile Application to report safety issues, identify their location, and communicate with co-workers and management.

The Management Console

Administrators, Project Managers, and Supervisors use the management console to manage the day-to-day activities of their workforce and monitor worker safety and project progress. For example, a Supervisor can use the map view to quickly determine the location of workers, and identify reported hazards and incidents. The Project Manager can use the management console to create and manage projects, create project rules, and more.

Oracle IoT Connected Worker Mobile Application

The Oracle IoT Connected Worker Mobile Application is a cloud based application for mobile Android devices. Workers use the application to report safety issues, identify their location, and communicate with co-workers and management. See Use the Oracle IoT Connected Worker Mobile Application.
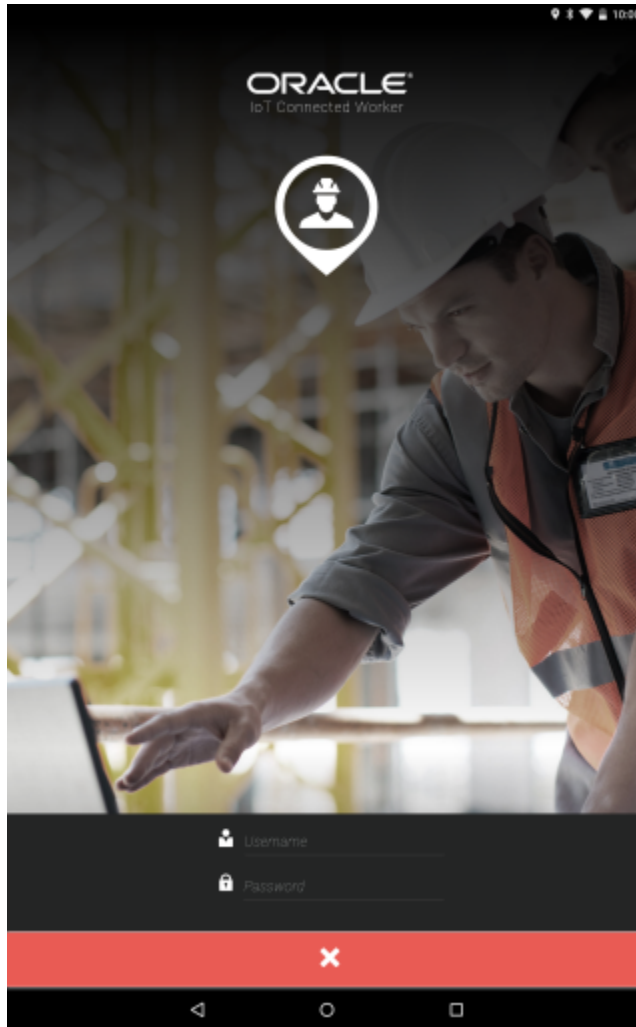
Oracle IoT Connected Worker Cloud Service Access Privileges

Your access to Oracle IoT Connected Worker Cloud Service features and functionality is determined by the role you are assigned by the administrator.

Currently, there are four roles available to restrict access to Oracle IoT Connected Worker Cloud Service functionality. The Admin role is automatically assigned to the user who created the Oracle IoT Connected Worker Cloud Service instance. The Worker is assigned to workers after the Oracle IoT Connected Worker Cloud Service instance is created and provides the user with worker privileges. The Project Manager and Supervisor roles are assigned to users after the Oracle IoT Connected Worker Cloud Service instance is created and provides the user limited access to application functionality.

Role Name	Description
Admin	A 'super-user' role that grants access to all Oracle IoT Connected Worker Cloud Service management console functionality including create, view, edit, and delete operations.

Role Name	Description
Project Manager	Grants access to most Oracle IoT Connected Worker Cloud Service management console functionality including view, edit, and delete operations. Project managers typically create and manage projects and associated hazards.
Supervisor	Grants access to most Oracle IoT Connected Worker Cloud Service management console functionality including view, edit, and delete operations. Supervisors typically manage workers and monitor worker safety.
Worker	No access to Oracle IoT Connected Worker Cloud Service management console functionality. Grants full access to the Oracle IoT Connected Worker Mobile Application.

How to Access Oracle IoT Connected Worker Cloud Service

Log in to manage and monitor your Oracle IoT Connected Worker Cloud Service instance. Before you log in to Oracle IoT Connected Worker Cloud Service, you must have a user account. Oracle provides user account information when you subscribe to Oracle IoT Connected Worker Cloud Service.

1. Open on Internet browser and browse to the URL for the Oracle IoT Connected Worker Cloud Service instance provided by Oracle. Typically, the URL for cloud service instances is: `https://hostname/<cloud service acornym>`. For example, `https://hostname/cw` for Oracle IoT Connected Worker Cloud Service.

2. Enter your user name and password and click **Sign In**.

The Feedback Center

The Feedback Center notifies the administrator about system activity that may require administrator review and action.

For example, the system may need to notify you about storage capacity issues. Or the system may wish to report analytics issues, such as a metric computation being suspended. The administrator can review the details for an event of interest, mark the issue as acknowledged, and choose to comment against the event with updates or remarks for other administrators.

When you first log in to the application, you are placed into the Operations Center for your organization. To access the Feedback Center, click **Menu** ≡, and then click **Feedback Center**.

Add Reusable Widgets to Your Application or Web Page

A widget lets you quickly add Oracle IoT Connected Worker Cloud Service data to your applications or web pages. To add a widget, you copy the URL or the embedded code of an available widget into your application or web page.

These are the available widgets:

- Map view
- Users dashboard

- Projects dashboard
- Hazards dashboard
- Incidents dashboard
- Rules dashboard
- Messages dashboard
- Configuration dashboard

1. Log in to your Oracle IoT Connected Worker Cloud Service instance.

2. In a web browser, browse to this URL: `https://Your_CW_URL/cw/syndicatedWidgetExamples.html`.

   Replace `Your_CW_URL` with the URL of your Oracle IoT Connected Worker Cloud Service instance.

3. Select one of these options:

   - Click **Copy URL** to copy the URL for the widget.
   - Click **Copy Embed Code** to copy the code for the widget. The code includes the `iframe` element for your HTML page or application.

4. Paste the copied URL or code into your web page or application.

3

Create and Manage Organizations

Organizations are digital twin versions of your business. These are digital placeholders for the various heterogeneous entities that you have in your business, the locations where these entities operate from, and the associated users of these entities.

Your Oracle IoT Connected Worker Cloud Service instance includes a default organization. Your projects, locations, rules and other entities are created in the default organization. You can create additional organizations if you need multiple business domains.

Your application can contain one or more organizations. For example, businesses often divide organizational operations based on geography.

You may also want to have multiple organizations if you manage several clients, and you need to separate these clients into sub-tenants, so that each sub-tenant has its own set of projects and locations.

Create a New Organization

Organizations are digital placeholders for the various heterogeneous entities that you have in your business, the locations where these entities operate from, and the associated users of these entities.

This operation is meant for application administrators only. Log in using the administrator account to create organizations in your application.

1. In your IoT application, click **Menu** (≡), and then click **Settings**.

2. Click **IoT Organizations**, and then click **Manage Organizations**.

3. Click **Create Organization** in the Manage Organizations page.

   The Create Organization dialog appears.

4. Specify a **Name** for your organization.

   For example, *North America Operations.*

5. Specify an optional **Description.**

6. Click **Create**.

   The new organization is created along with its required artifacts. The operation status appears on the IoT Organizations page until the organization is ready for use.

Change Your Current Organization

If you are part of more than one organization, then you can change your current organization in the application.

1. In your IoT application, click **Menu** (≡), and then click **Settings**.

2. Click **IoT Organizations**, and then click **Manage Organizations**.

3. Click **Switch Organization** in the Manage Organizations page.

4. Under **Switch To**, select the organization name that you wish to change to, and click **Switch**.

   The current organization is changed in the Design Center and Operations Center.

Assign Users to an Organization

Edit the organization to add or update the list of authorized users for the organization.

If you need to assign users to an organization other than your current organization, then make sure that you switch to the organization before performing the following steps. See Change Your Current Organization for more information on switching organization contexts.

1. In your IoT application, click **Menu** (≡), and then click **Settings**.

2. Click **IoT Organizations**, and then click your organization name.

3. Click **User Access Control** on your organization page.

4. Under Users, select the users that you wish to include in the organization, and click the right-arrow icon ( ).

   The selected user moves to the list of authorized users.

   Tip: You can hold down the *Ctrl* key to select multiple users at a time.

5. Click **Save** to save the changes to the organization.

Delete an Organization

Only administrators can delete organizations. Log in using the administrator account to delete an organization in Oracle IoT Connected Worker Cloud Service.

> **Note:**
>
> Deleting an organization also deletes its projects, locations, and other entities.

1. In your IoT application, click **Menu** (≡), and then click **Settings**.

2. Click **IoT Organizations**, and then click **Manage Organizations**.

3. Click **Delete Organization** in the Manage Organizations page.

   The Delete Organization dialog appears.

4. Select the organization name that you wish to delete, and click **Delete**.

> **Note:**
>
> You cannot delete the organization that you are currently in. You must switch to another organization before you can delete the organization.

Export and Import Organizations and Settings

Export entities and settings from your application instance to import them into another instance. For example, you may wish to copy your entities and settings from a test instance to a production instance.

When you export an organization, the application adds all the organization entities, such as projects, workers, locations, hazards, and rules to the export file, together with the organization configuration settings. In addition, the application also exports your global configuration settings and global entities, such as certifications and wearable types.

> **Note:**
>
> For sensitive user data to be successfully imported into the target system, the target system must have the same user name with privileges equal or greater than the exported user. If the importing system doesn't have the same user with equal or greater privileges, the import of dependent entities for that user is skipped.

The application log dialog provides detailed information on the export and import. If the user browser uses a language other than English, and if the language is in the list of supported languages for Oracle IoT Intelligent Applications Cloud Service, then the log messages are shown in the user's language.

Export an Organization

Exporting an organization creates an `iot` export file that contains all the organizational entities, such as projects, workers, locations, hazards, and rules. The export file also contains your global configuration settings and entities, such as certifications and wearable types.

1. In your IoT application, click **Menu** (≡), and then click **Settings**.
2. Click **IoT Organizations**, and then click **Manage Organizations**.
3. Click **Export Organization** in the Manage Organizations page.

   The Export Organization dialog appears.
4. Select the **Organization** that you wish to export, and click **Export**.

   A `.iot` archive of the organization is generated.
5. Save the generated `.iot` archive file to your hard disk or a storage location.

   You will use this file when importing the organization into another instance of your IoT application.

Import an Organization

Import a previously exported `iot` file into your target instance to create the organizational artifacts exported from the source instance. The exported configurations are also imported.

1. In your IoT application, click **Menu** (≡), and then click **Settings**.
2. Click **IoT Organizations**, and then click **Manage Organizations**.
3. Click **Import Organization** in the Manage Organizations page.

The Import Organization dialog appears.

4. Under Upload File, click the **Drag and Drop** area to select a previously exported `.iot` archive file. Alternatively, you can also drag and drop the archive file to the **Drag and Drop** area in your browser window.

5. Click **Done.**

The organization is imported along with its containing artifacts. The organization appears in the list of existing organizations.

4

Add and Manage User Accounts

Add users to allow them to be monitored and assigned to projects.

Topics

Create a User Account

Add a user account to allow a user to access Oracle IoT Connected Worker Cloud Service functionality and participate in projects.

1. In your IoT application, click **Menu** (≡), and then click **Settings**.

2. Click **User Management**.

3. Click **Create User** (➕).

4. Select one or more roles in the **Roles** area:

   - • **Admin**: Select this option to assign administrator privileges to the user account. This **Common** role is shared between IoT Intelligent Applications.

   - • **Project Manager**: Select this option to assign project manager privileges to the user account.

   - • **Supervisor**: Select this option to assign supervisor privileges to the user account.

   - • **Worker**: Select this option to assign worker privileges to the user account.

5. Complete these fields in the **Name** area:

   - • **First Name**: Enter the first name of the user assigned to the user account.

   - • **Last Name**: Enter the last name of the user assigned to the user account.

   - • **Username**: Enter a user name for the user account.

6. Complete these fields in the **Email** area:

   - • **Work**: Enter the work email address of the user assigned to the user account.

   - • **Home**: (Optional) Enter the home email address of the user assigned to the user account.

   - • **Recovery**: Enter the email address the user can use to recover their access privileges.

   - • **Other**: (Optional) Enter an additional email address for the user assigned to the user account.

7. (Optional) Complete these fields in the **Telephone** area:

- **Work**: Enter the work telephone number of the user assigned to the user account.

- **Home**: Enter the home telephone number of the user assigned to the user account.

- **Recovery**: Enter the telephone number the user can use to recover their access privileges.

- **Other**: Enter an additional telephone number for the user assigned to the user account.

- **Mobile**: Enter the mobile phone number for the user assigned to the user account.

8. Click **Save**.

Edit a User Account

Edit a user account to change the account settings including the user first and last name, email address, and assigned roles(s).

1. In your IoT application, click **Menu** (≡), and then click **Settings**.

2. Click **User Management**.

3. Select a user in the Users list and then click **Edit** ✎ .

4. (Optional) Select a role in the **Roles** area:

- **Admin**: Select this option to assign administrator privileges to the user account. This **Common** role is shared between IoT Intelligent Applications.

- **Project Manager**: Select this option to assign project manager privileges to the user account.

- **Supervisor**: Select this option to assign supervisor privileges to the user account.

- **Worker**: Select this option to assign worker privileges to the user account.

5. (Optional) Edit these fields in the **Name** area:

- **First Name**: Enter the first name of the user assigned to the user account.

- **Last Name**: Enter the last name of the user assigned to the user account.

6. (Optional) Edit these fields in the **Email** area:

- **Work**: Enter the work email address of the user assigned to the user account.

- **Home**: (Optional) Enter the home email address of the user assigned to the user account.

- **Recovery**: (Optional) Enter the email address the user can use to recover their access privileges.

- **Other**: (Optional) Enter an additional email address for the user assigned to the user account.

7. (Optional) Edit these fields in the **Telephone** area:

- **Work**: Enter the work telephone number of the user assigned to the user account.

- • **Home**: Enter the home telephone number of the user assigned to the user account.
- • **Recovery**: Enter the telephone number the user can use to recover their access privileges.
- • **Other**: Enter an additional telephone number for the user assigned to the user account.
- • **Mobile**: Enter the mobile phone number for the user assigned to the user account.

8. Click **Save**.

Search for a User Account

Use the search function to locate a specific user account or user accounts matching specific search criteria.

1. In your IoT application, click **Menu** (≡), and then click **Settings**.

2. Click **User Management**.

3. Click **Filter** 🔽 to open the Filters dialog.

4. Click **Add** (➕) to add new filter criteria.

5. Choose one of these options in the list:

   - • **First Name**: Select this option to search for a user account by the user's first name.
   - • **Last Name**: Select this option to search for a user account by the user's last name.
   - • **Username**: Select this option to search for a user account by user name.
   - • **Email**: Select this option to search for a user account by email address.
   - • **Roles**: Select this option to search for a user account by role(s).

6. Enter your search criteria in the field and then press **Enter**.

7. (Optional) Click **Add** (➕) to add additional filter criteria.

8. (Optional) Click **Remove** (➖) to remove a search criteria.

9. Click **Apply** to apply your search criteria.

Sort the Users List

Sort the users list to group users by the name of the user, the user name, user email address, or group(s).

1. In your IoT application, click **Menu** (≡), and then click **Settings**.

2. Click **User Management**.

3. Right-click in a column, click **Sort**, and then select **Sort Ascending** or **Sort Descending**.

Associate Certifications with a User

If a user's projects or project locations require worker certifications, then you need to associate one or more certifications with the user. Use the Users page to associate certifications with your user.

1. Click **Menu** ☰ and then click **Design Center**.

   Make sure that the **User Management** tab is selected.

2. Select a user from the Users list and then click the **Certifications** icon against the user row.

3. Select an existing **Certification** to associate with the user account.

   You must have already created the certifications that you wish to associate with your user.

4. Select a certification **Issued** date and a certification **Expiry** date.

   The certification is no longer valid for the user after the expiry date.

5. (Optional) Click **Add Certification** to add additional certifications for the user.

6. Click **Save** when you have finished adding all the required certifications.

Delete a User Account

Delete a user account when it is no longer needed.

1. In your IoT application, click **Menu** (☰), and then click **Settings**.

2. Click **User Management**.

3. Select a user in the Users list and then click the **Delete** (🗑) icon.

4. Click **Yes**.

5

Use the Oracle IoT Connected Worker Mobile Application

Use the Oracle IoT Connected Worker Mobile Application to report safety issues, identify your location, and communicate with co-workers and management.

Topics

- How to Access the Oracle IoT Connected Worker Mobile Application
- Search for a Worker in the Mobile Application
- Change Your Status in the Mobile Application
- View Notifications in the Mobile Application
- Send a Message in the Mobile Application
- View Hazard Notifications in the Mobile Application
- Report a Hazard in the Mobile Application
- Respond to a Location Alert Message in the Mobile Application

How to Access the Oracle IoT Connected Worker Mobile Application

Use the Oracle IoT Connected Worker Mobile application to report safety issues, identify your location, and communicate with co-workers and management on a mobile device. Before you log in to the Oracle IoT Connected Worker Mobile Application, you must have a user account.

> **Note:**
>
> The steps in the following sections use the Android application. The Connected Worker mobile app is now also available for the iOS platform. The steps for the iOS platform are similar.

An Oracle IoT Connected Worker Cloud Service administrator can help with the automated provisioning of your mobile device.

1. Log in to Oracle IoT Connected Worker Cloud Service using an administrator account.

    The Oracle IoT Connected Worker Cloud Service URL is `https://hostname/cw`, where `hostname` is the host name of your Oracle Internet of Things Cloud Service instance.

2. Click **Menu** ☰ and then click **Design Center**.

    Make sure that the **User Management** tab is selected.

3. Click **Provision Device** ⟨icon⟩ against the user name for whom you are provisioning the device.

The Provision Dialog that appears contains the following:

- **QR Code**: This is a one-click session-specific provisioning link that the user can scan with the user's device.

- **Send Email**: Lets the administrator send the provisioning link to a user's registered email address.

- **Copy Link**: Lets the administrator copy the device provisioning link to share it with the user.

4. If the user is at the same location as the administrator, then scan the QR Code with the user's mobile device.

   a. Tap the link returned by the QR code.

      The following message appears in your mobile browser window prompting you to provision the device:

      ## Welcome to Connected Worker Device Provisioning

      Please use following link to install/provision the Connected Worker mobile application

   b. Tap the link in the prompt to provision the device.

      The device is provisioned using the IoT Connected Worker Service application on your mobile device. If you do not have the Oracle IoT Connected Worker Mobile application on your device, you are taken to Google Play to install the application before the device is provisioned.

   c. Open the Oracle IoT Connected Worker Mobile Application and then read and agree to the legal terms.

   d. Enter the user name for the Oracle IoT Connected Worker Cloud Service user account in the **Username** field.

   e. Enter the password for the Oracle IoT Connected Worker Cloud Service user account in the **Password** field.

   f. Tap the **Login** (⟨icon⟩) icon.

5. If the user is at a remote location, share the provisioning link using the **Send Email** or **Copy Link** options.

   The following steps are performed by the user on the user's mobile device:

   a. Look for the mail with the following subject: **"IoT Connected Worker Device Provisioning"**.

      Alternatively, if the link was shared using a different channel, find the link on your mobile device.

   b. Tap the link contained in the mail, or the shared link, to provision the device.

The device is provisioned using the IoT Connected Worker Service application on your mobile device. If you do not have the Oracle IoT Connected Worker Mobile application on your device, you are taken to Google Play to install the application before the device is provisioned.

c. Open the Oracle IoT Connected Worker Mobile Application and then read and agree to the legal terms.

d. Enter the user name for the Oracle IoT Connected Worker Cloud Service user account in the **Username** field.

e. Enter the password for the Oracle IoT Connected Worker Cloud Service user account in the **Password** field.

f. Tap the **Login** ( ) icon.

Manually Provision the Oracle IoT Connected Worker Mobile Device

An Oracle IoT Connected Worker Cloud Service administrator can also use a provisioning file and password to securely provision a user's device.

> **Note:**
>
> If you have previously installed the Oracle IoT Connected Worker mobile application, open the application and then complete steps 4 to 6 of this procedure. You cannot open the application if you have not registered the mobile device, downloaded the provisioning file to the mobile device, and provisioned the mobile device. See Register a Single Device Using the Management Console.

1. Register your mobile device and download the provisioning file to the mobile device. See Register a Single Device Using the Management Console.

2. Install the Oracle IoT Connected Worker Mobile and IoT Connected Worker Service applications:

      a. Open an internet browser on your mobile Android device.

      b. Browse to Google Play.

      c. Search for **Oracle IoT Connected Worker**.

      d. Install the Oracle IoT Connected Worker Mobile Application on your mobile device.

3. Provision the device on which the Oracle IoT Connected Worker Mobile Application is installed:

      a. Open the IoT Connected Worker Service application on your mobile device.

      b. Tap **Menu** ⋮ and then **Settings**.

      c. Tap **Provision Mobile Device**.

      d. Tap **Select Provisioning File**, browse to the location of the provisioning file you downloaded in step 1, and then tap the provisioning file.

      e. Enter the provisioning file password and then tap **OK**.

4. Open the Oracle IoT Connected Worker Mobile Application and then read and agree to the legal terms.

5. Enter the user name for the Oracle IoT Connected Worker Cloud Service user account in the **Username** field.

6. Enter the password for the Oracle IoT Connected Worker Cloud Service user account in the **Password** field.

7. Tap the **Login** (❯) icon.

Search for a Worker in the Mobile Application

Search for a worker to determine the worker's current location.

1. Tap the **Worker** (👤) icon.

2. Tap in the **Search** field and then select a worker.

The worker location is marked by a position indicator.
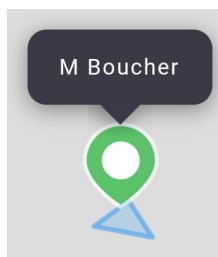
The preceding image shows a sample GPS position indicator. Positions derived using Wi-Fi based positioning are represented with the indoor icon 🏠.

Change Your Status in the Mobile Application

Change your status to inform the supervisor or project manager of your current status. Knowing your status helps the supervisor or project manager better manage staff allocation and emergencies. When you enter a geofence boundary, your status is automatically updated to on duty and on site.

1. Tap **Worker** .

2. Select one of these options in the **Status** list:

   • **Off Duty**: Select this option to indicate you are off duty.

   • **On Duty**: Select this option to indicate you are on duty.

   • **On Break**: Select this option to indicate you are taking a break. Update your status when you finish your break.

3. If work shifts are assigned to the project and you selected **On Duty**, select a work shift and click **Select**.

View Notifications in the Mobile Application

View notifications to view hazard notifications and messages from co-workers.

1. Tap the **Chat** ( ) or **Message** ( ) icons.

2. Tap a message to accept the message and view additional notification details.

3. (Optional) Respond to a notification:

   a. Tap the **Pencil** ( ) icon.

   b. Tap in the **Search** field and then select a location.

   c. Tap in the **Priority** field and then select the message priority.

   d. Tap in the **To** field and then select a message recipient.

   e. Tap in the **Your message goes here** area and then enter the message text.

   f. Tap the **Send** ( ) icon.

   g. Tap **OK**.

Send a Message in the Mobile Application

Send messages to co-workers to notify them of important information or workplace hazards.

1. Tap the **Chat** ( ) or **Message** ( ) icons.

2. Tap the **Pencil** ( ) icon.

3. Tap in the **Search** field and then select a location.

4. Tap in the **Priority** field and then select the message priority.

5. Tap in the **To** field and then select a message recipient.

6. Tap in the **Your message goes here** area and then enter the message text.

7. Tap the **Send** ( ) icon.

8. Tap **OK**.

View Hazard Notifications in the Mobile Application

View hazard notifications to view important information about workplace hazards.

1. Tap the **Hazard** ( ) icon.

2. Tap a hazard notification to view the hazard location.

Report a Hazard in the Mobile Application

Report a workplace hazard to inform co-workers about a hazard that could cause personal injury or requires a specific action such as wearing hearing protection or a respirator.

1. Tap the **Hazard** ( ) icon.

2. Tap **Report Hazard**.

3. Select one of these options to identify the location of the hazard:

   - Tap the **Area** field and then select the hazard location.

   - To search for a hazard location, tap **Location** ( ), enter a location in the **Search** field, tap a location in the list, and then tap **Confirm**.

4. Tap the **Severity** field and then select the hazard severity.

5. Tap the **Subject** field and then select a subject that identifies the hazard.

6. Tap the **Action** field and then select the action a worker takes when they encounter the hazard.

7. (Optional) Tap in the **Optional Custom Message** area and then enter optional message text.

8. Tap the **Send** ( ) icon.

9. Tap **OK**.

Respond to a Location Alert Message in the Mobile Application

When you leave an assigned work area, an alert message appears on your device. You must identify your status in the **Status** list.

1. Select one of these options in the **Status** list:

   - **Off Duty**: Select this option to indicate you are off duty.

   - **On Duty**: Select this option to indicate you are on duty.

- **On Break**: Select this option to indicate you are taking a break. Update your status when you finish your break.

2. Tap **OK**.

6
Register and Activate Devices

The administrator can register/provision a user mobile device using the QR code, or by sharing the automatic provisioning link.

You can also choose to register a device, or batch of devices, from the Oracle Internet of Things Cloud Service management console.

Topics

- Provision a User Device Using QR Code or Automatic Link
- Manually Provision the Oracle IoT Connected Worker Mobile Device
- Register a Single Device Using the Management Console
- Register a Batch of Devices Using the Management Console
- About CSV Batch Registration File Properties
- Associate a Device with a User

Provision a User Device Using QR Code or Automatic Link

Use the Oracle IoT Connected Worker Mobile application to provision the user device.

> **Note:**
>
> The steps in the following sections use the Android application. The Connected Worker mobile app is now also available for the iOS platform. The steps for the iOS platform are similar.

An Oracle IoT Connected Worker Cloud Service administrator can help with the automated provisioning of your mobile device.

If the user is at the same location as the administrator, then scan the provisioning QR Code with the user's mobile device. If the user is at a remote location, share the automatic provisioning link with the user.

1. Log in to Oracle IoT Connected Worker Cloud Service using an administrator account.

    The Oracle IoT Connected Worker Cloud Service URL is `https://hostname/cw`, where `hostname` is the host name of your Oracle Internet of Things Cloud Service instance.

2. Click **Menu** ≡ and then click **Design Center**.

    Make sure that the **User Management** tab is selected.

3. Click **Provision Device** ⟨ᴅ⟩ against the user name for whom you are provisioning the device.

    The Provision Dialog that appears contains the following:

- **QR Code**: This is a one-click session-specific provisioning link that the user can scan with the user's device.

- **Send Email**: Lets the administrator send the provisioning link to a user's registered email address.

- **Copy Link**: Lets the administrator copy the device provisioning link to share it with the user.

4. If the user is at the same location as the administrator, then scan the QR Code with the user's mobile device.

   a. Tap the link returned by the QR code.

   The following message appears in your mobile browser window prompting you to provision the device:

   # Welcome to Connected Worker Device Provisioning

   Please use following link to install/provision the Connected Worker mobile application

   b. Tap the link in the prompt to provision the device.

   The device is provisioned using the IoT Connected Worker Service application on your mobile device. If you do not have the Oracle IoT Connected Worker Mobile application on your device, you are taken to Google Play to install the application before the device is provisioned.

   c. Open the Oracle IoT Connected Worker Mobile Application and then read and agree to the legal terms.

   d. Enter the user name for the Oracle IoT Connected Worker Cloud Service user account in the **Username** field.

   e. Enter the password for the Oracle IoT Connected Worker Cloud Service user account in the **Password** field.

   f. Tap the **Login** ( ) icon.

5. If the user is at a remote location, share the provisioning link using the **Send Email** or **Copy Link** options.

   The following steps are performed by the user on the user's mobile device:

   a. Look for the mail with the following subject: **"IoT Connected Worker Device Provisioning"**.

   Alternatively, if the link was shared using a different channel, find the link on your mobile device.

   b. Tap the link contained in the mail, or the shared link, to provision the device.

The device is provisioned using the IoT Connected Worker Service application on your mobile device. If you do not have the Oracle IoT Connected Worker Mobile application on your device, you are taken to Google Play to install the application before the device is provisioned.

c.   Open the Oracle IoT Connected Worker Mobile Application and then read and agree to the legal terms.

d.   Enter the user name for the Oracle IoT Connected Worker Cloud Service user account in the **Username** field.

e.   Enter the password for the Oracle IoT Connected Worker Cloud Service user account in the **Password** field.

f.   Tap the **Login** ( ) icon.

Manually Provision the Oracle IoT Connected Worker Mobile Device

An Oracle IoT Connected Worker Cloud Service administrator can also use a provisioning file and password to securely provision a user's device.

> **Note:**
>
> If you have previously installed the Oracle IoT Connected Worker mobile application, open the application and then complete steps 4 to 6 of this procedure. You cannot open the application if you have not registered the mobile device, downloaded the provisioning file to the mobile device, and provisioned the mobile device. See Register a Single Device Using the Management Console.

1.   Register your mobile device and download the provisioning file to the mobile device. See Register a Single Device Using the Management Console.

2. Install the Oracle IoT Connected Worker Mobile and IoT Connected Worker Service applications:

   a. Open an internet browser on your mobile Android device.

   b. Browse to Google Play.

   c. Search for **Oracle IoT Connected Worker**.

   d. Install the Oracle IoT Connected Worker Mobile Application on your mobile device.

3. Provision the device on which the Oracle IoT Connected Worker Mobile Application is installed:

   a. Open the IoT Connected Worker Service application on your mobile device.

   b. Tap **Menu** ⋮ and then **Settings**.

   c. Tap **Provision Mobile Device**.

   d. Tap **Select Provisioning File**, browse to the location of the provisioning file you downloaded in step 1, and then tap the provisioning file.

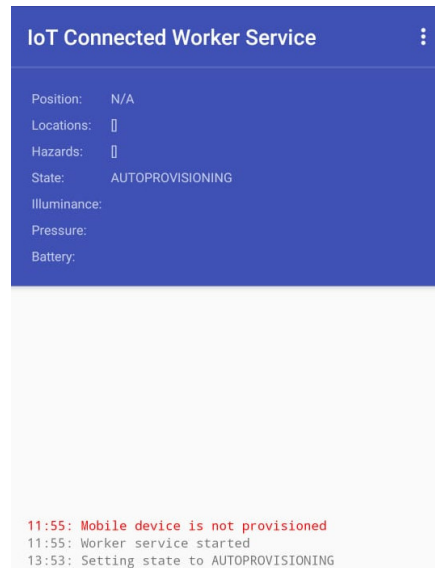   e. Enter the provisioning file password and then tap **OK**.

4. Open the Oracle IoT Connected Worker Mobile Application and then read and agree to the legal terms.

5. Enter the user name for the Oracle IoT Connected Worker Cloud Service user account in the **Username** field.

6. Enter the password for the Oracle IoT Connected Worker Cloud Service user account in the **Password** field.

7. Tap the **Login** (❯) icon.

Register a Single Device Using the Management Console

To communicate with Oracle Internet of Things Cloud Service, every device that is connected to Oracle Internet of Things Cloud Service must be registered and then activated. All devices are registered as a Directly Connected Device (DCD). During activation, the device indicates support for indirect enrollment. A device indicating indirect enrollment capability is automatically changed from DCD to gateway.

1. On your mobile device, open a web browser and browse to the URL of your Oracle Internet of Things Cloud Service instance. Typically, the URL is `https://hostname/ui`.

2. Enter your user name and password and then click **Sign In**.

3. Click the **Menu** (☰) icon next to the Oracle Internet of Things Cloud Service title on the Management Console.

4. Click **Devices**.

5. Click **Registration**.

6. Click **Register Single Device** in the right pane.

7. Enter `worker-device-` and then a unique activation name in the **Activation ID** field. For example, `worker-device-mymobiledevice`.

8. (Optional) Complete the remaining fields.

> **Note:**
>
> If you leave the **Activation Secret** field blank, a value is auto-generated and displayed when the device registration is confirmed. You can enter your own Activation Secret value. Any additional information, such as Name, Description, and Metadata are optional, but can be useful as search criteria when managing your registered devices.

9. Click **Register**.

10. Enter a password in the **File Protection Password** field to encrypt the provisioning file that contains the configuration and credentials to activate your device.

11. Enter the password again in the **Confirm Password** field.

12. Download the provisioning file:

    a. Click **Download Provisioning File**.

    b. Click **Save File**.

    c. Click **OK**.

    d. Browse to a location to save the provisioning file.

    e. Click **Save**.

13. Click **Finish**.

Register a Batch of Devices Using the Management Console

Registering a batch of devices reduces the time required to register multiple devices. You create a comma-separated values (CSV) file to define the settings for each device. You upload the CSV file to Oracle Internet of Things Cloud Service.

To view the information that you should include in the CSV file, see About CSV Batch Registration File Properties.

1. Open a web browser and browse to the URL of your Oracle Internet of Things Cloud Service instance. Typically, the URL is `https://hostname/ui`.

2. Click the **Menu** (☰) icon adjacent to the Oracle Internet of Things Cloud Service title on the Management Console.

3. Click **Devices**.

4. Click **Registration**.

5. Select one of these options:

    • Click **Download CSV template** to download a CSV template that you can complete.

> ✎ **Note:**
>
> The CSV file contains the mandatory and optional property values for each device. If a value is not provided for the optional properties, insert a comma to indicate that a value is not provided. In the last line of the sample CSV file, a comma indicates that property values are not provided for `ActivationId` and `Activation Secret`

- Click **Batch Registration** to upload an existing CSV file.

6. Click **Browse** and browse to the CSV file that contains the registration information for the devices you are registering.

7. Click **Next** when the CSV registration file is successfully uploaded.

   If the Review page contains a warning (⚠) icon, select one of these options:

   - **Update** - Choose this option if you want to update the information for an existing registered device. The registered device has the same manufacturer, model and serial number as one of the devices listed in the CSV registration file.

   - **Ignore** - Choose this option if you do not want to include the device in the current registration process.

8. Click one of these options:

   - **Next**: Click to proceed to register the items in the CSV registration file that have been identified as being viable candidates for registration.

   - **Cancel**: Click to discontinue the batch registration process.

9. Enter a password in the **File Protection Password** field to encrypt the provisioning file that contains the configuration and credentials to activate your device.

10. Enter the password again in the **Confirm Password** field.

11. Download the provisioning file:

    a. Click **Download Provisioning File**.

    b. Click **Save File**.

    c. Click **OK**.

    d. Browse to a location to save the provisioning file.

    e. Click **Save**.

12. Click **Finish**.

About CSV Batch Registration File Properties

The following table provides descriptions of the properties that appear in the Comma Separated Values (CSV) file used to register a batch of devices with Oracle Internet of Things Cloud Service. Mandatory and optional values are described in the table and are listed in the order they are expected to appear in the CSV file.

To register a batch of devices with Oracle Internet of Things Cloud Service, see Register a Batch of Devices Using the Management Console.
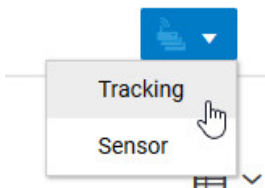
Property	Required / Optional	Description
Name	*Optional*	The `String` data type assigned to the registered device. This value can be modified after device registration.
Manufacturer	**Required**	The manufacturer of the device.
Model Number	**Required**	The model number of the device
Serial Number	**Required**	The serial number of the device.
Activation ID	*Optional*	A Device Unique Identifier (UID) that is required for device activation. If a value is not specified, an auto-generated value is assigned to the device after a successful registration. The value cannot be changed after the device is successfully registered.
Activation Secret	*Optional*	The Activation Secret (also known as Shared Secret) value required to activate your device. If a value is not specified, an auto-generated string value is assigned to the device after a successful registration. This value is available after a successful registration. This value can be modified before you modify your device.
Latitude	*Optional*	The decimal notation of the latitude of the device's position. For example: -43.5723 [World Geodetic System 1984]. If you specify the latitude, then you must also specify the longitude.
Longitude	*Optional*	The decimal notation of the longitude of the device's position. For example: , e.g. -43.5723 [World Geodetic System 1984]. If you specify the longitude, then you must also specify the latitude.
Altitude	*Optional*	The decimal notation of the altitude of the device's position, in meters above sea level.
Accuracy	*Optional*	The accuracy of the device's position in meters. This must be a positive number or zero. An accuracy value can only be specified if the latitude and longitude are provided.
Metadata	*Optional*	Key/value pairs that are listed in successive columns. There must be an even number of columns containing keys and values. If there is an odd number of columns, an error message is returned.

Associate a Device with a User

Associate a device with a user to identify the device that is assigned to them. Associating devices lets you track sensor data for workers appearing in the map view. Associating devices also lets you create employee rules.

1. Click **Menu** ☰ and then click **Design Center** .

2. Click the **Device Association** 📶 tab.

3. Select **Tracking** to attach tracking devices. Alternately, select **Sensor** to attach sensor devices.

4. Click **Create New** +.

5. Select the user from the **User** list.

6. Under **Devices**, select one or more devices.

7. Click **Create** to add the device associations for the selected user.

8. (Optional) Click **Edit** ✏ to assign an additional device or to remove an assigned device. When you remove all assigned devices, the user is removed from the Device Association dashboard.

Connect Wearable Devices to Oracle IoT Connected Worker Cloud Service

Wearable devices are a cost effective alternative to the provision of a smartphone to each of your workers and are often more robust in challenging work conditions. Like smartphones, wearable devices with Bluetooth functionality transmit worker location and environmental data.

Although the data that is sent from wearable deceives and smartphones to Oracle Internet of Things (IoT) Connected Worker Cloud Service is similar, the methodology used to transmit the data from wearable devices is significantly different. Unlike a smartphone, a wearable device is not directly connected to Oracle IoT Connected Worker Cloud Service. Instead, a wearable device first communicates with a node, the node connects to a central gateway, and then the gateway transmits data from the wearable device to Oracle IoT Connected Worker Cloud Service.

Architecture

Wearable, Bluetooth Low Energy (BLE) devices use the Bluetooth standard to communicate with a local node that is a Raspberry Pi Zero W, a Raspberry Pi 3 Model B, or similar. When a node detects a wearable device, it communicates with a gateway to determine if the wearable device is connected to another node. If the wearable device is not connected to another node, the node connects to it and starts sending data from the wearable device to the gateway. When the gateway receives node data, it registers unregistered wearable devices as indirectly connected devices and then forwards the data to Oracle Internet of Things (IoT) Connected Worker Cloud Service.

When a node detects a wearable device, device data is sent to the node, the node sends the device data to the gateway, and the gateway sends the device data to

Oracle IoT Connected Worker Cloud Service. To simplify implementation, Oracle provides the communications source code for node and gateway devices.
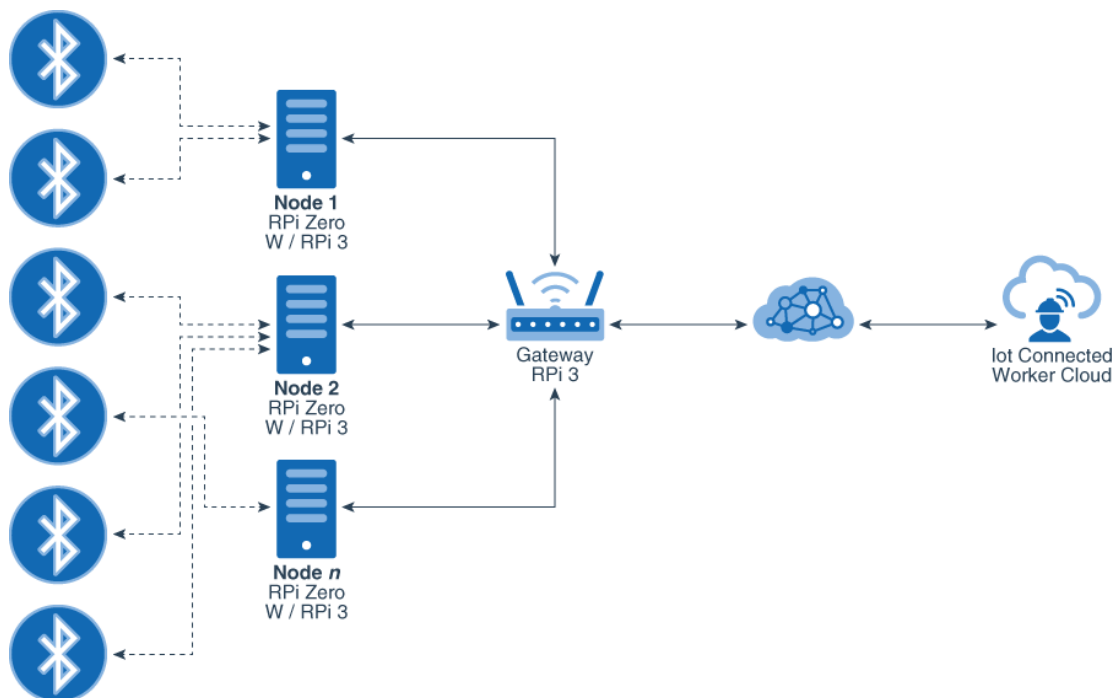
The architecture diagram illustrates this flow:

1. Wearable devices send data to and receive data from a node.

2. The nodes send and receive wearable device data and send and receive gateway data.

3. The gateway sends and receives node data and Oracle IoT Connected Worker Cloud Service data.

Prerequisites

To complete the set up of a stationary gateway, nodes, and wearable devices you should have experience downloading and installing software and assigning devices to users.

To connect wearable devices and Raspberry Pi computers to Oracle Internet of Things (IoT) Connected Worker Cloud Service, these items are required:

- Access to an instance of Oracle IoT Connected Worker Cloud Service.

- An existing Oracle IoT Connected Worker Cloud Service project with locations, assigned users, and hazardous locations.

- The Raspbian with Raspberry Pi Desktop image installed on your Raspberry Pi gateway and node computers. To simplify the process, write the Raspbian with Raspberry Pi Desktop image to a Secure Digital (SD) memory card and then use the SD card to install the image on each of your Raspberry Pi gateway and node computers.

- Wearable Bluetooth Low Energy (BLE) devices for each worker.

- Node devices with Bluetooth capability such as Raspberry Pi Zero W, a Raspberry Pi 3 Model B, or similar.

- A gateway device such as a Raspberry Pi Zero W, a Raspberry Pi 3 Model B, or similar.

Set Up the Gateway Device

You set up the gateway device so it can send and receive data from the nodes and Oracle Internet of Things (IoT) Connected Worker Cloud Service.

1. Connect the Raspberry Pi gateway computer to a monitor with an HDMI cable.

2. Log in to the Raspberry Pi gateway computer as the default user pi.

3. Download the `cw-gateway-tar.gz` archive from the Oracle IoT Connected Worker Cloud Service Gateway Software table on the Oracle IoT Cloud Service Gateway Software Downloads page.

4. Open LX Terminal.

5. Change the default password:

   a. Type `passwd` and press **Enter**.

   b. Enter the current password in the **(current) UNIX password** field and press **Enter**.

   c. Enter the new password in the **Enter new UNIX password** field and press **Enter**.

   d. Enter the new password a second time in the **Retype new UNIX password** field and press **Enter**.

6. Complete this step if your Raspberry Pi gateway computer uses a proxy server to access the internet. If you are not using a proxy server, move to step 7.

   a. Run this command: `export http_proxy=http://YOUR_PROXY:YOUR_PROXY_PORT/`.

   b. Run this command: `export https_proxy=http://YOUR_PROXY:YOUR_PROXY_PORT/`.

   c. Run this command: `sudo nano /etc/apt/apt.conf`.

   d. Run this command: `Acquire::http::Proxy "http://YOUR_PROXY:YOUR_PROXY_PORT";`.

7. Run this command to extract the `cw-gateway-tar.gz` archive: `tar xf cw-gateway.tar.gz`.

8. Use the `cd` command to move to the `cw-gateway/cw-gw-backend` directory and run this command: `sudo -E ./cw_stup`.

9. Enter **Y** in the **Setup Gateway** field.

10. Enter **N** in the **Setup Node** field.

Register the Gateway Device

You must register and activate every device that communicates with Oracle Internet of Things Cloud Service.

1. In a web browser, find your Oracle IoT Cloud Service instance. Typically, the URL format is `https://server host name/ui/login/login.html`.

2. Enter your user name and password, and click **Sign In**.

3. Click **Menu** ≡, click **Devices**, and then click **Registration**.

4. In the **Single Registration** section, click **Register Single Device**.

5. In the **Activation Secret** field, enter a value, record the value, and then click **Register**.

6. In the **File Protection Password** field, enter a password, and enter it again in the **Confirm Password** field.

7. Click **Download Provisioning File**, and click **Finish**.

8. Copy the provisioning file to the gateway directory:

    a. Move to the `Projects/metahub-gateway` directory.

    b. Run this command: `put <download-folder/provisioning-file-name>`.

9. In a web browser, enter the gateway host name or IP address to open the gateway console. Typically, the URL format is: `http://<gateway-name-or-gateway-ip>:9000/console`.

    If the Failed to fetch data error message appears, ignore it. The error message is removed when you update the provisioning file settings.

10. Update the provisioning file settings:

    • **Provisioning File Name:** Enter the name of the provisioning file you downloaded in step 7.

    • **Provisioning File Password:** Enter the password you created in step 6.

    • **IOTCS User Name:** Enter the user name used to access the Oracle Internet of Things Cloud Service instance.

    • **IOTCS Password:** Enter the password used to access the Oracle Internet of Things Cloud Service instance.

11. Click **Save** and **Restart Server**.

Set Up a Node

You set up a node so it can send and receive data from wearable devices and Oracle Internet of Things (IoT) Connected Worker Cloud Service.

1. Connect the Raspberry Pi node computer to a monitor with an HDMI cable.

2. Log in to the Raspberry Pi node computer as the default user pi.

3. Download the `cw-gateway-tar.gz` archive from the Oracle IoT Connected Worker Cloud Service Gateway Software table on the Oracle IoT Cloud Service Gateway Software Downloads page.

4. Open LXTerminal.

5. Change the default password:

    a. Type `passwd` and press **Enter**.

    b. Enter the current password in the **(current) UNIX password** field and press **Enter**.

    c. Enter the new password in the **Enter new UNIX password** field and press **Enter**.

    d. Enter the new password a second time in the **Retype new UNIX password** field and press **Enter**.

6. Complete this step if your Raspberry Pi node computer uses a proxy server to access the internet. If you are not using a proxy server, move to step 7.

    a. Run this command: `export http_proxy=http://YOUR_PROXY:YOUR_PROXY_PORT/`.

    b. Run this command: `export https_proxy=http://YOUR_PROXY:YOUR_PROXY_PORT/`.

    c. Run this command: `sudo nano /etc/apt/apt.conf`.

    d. Run this command: `Acquire::http::Proxy "http://YOUR_PROXY:YOUR_PROXY_PORT";`.

7. Run this command to extract the `cw-gateway-tar.gz` archive: `tar xf cw-gateway.tar.gz`.

8. Use the `cd` command to move to the `cw-gateway/cw-gw-backend` directory and run this command: `sudo -E ./cw_stup`.

9. Enter **N** in the **Setup Gateway** field.

10. Enter **Y** in the **Setup Node** field.

11. To set up additional nodes, repeat steps 1 to 10 of this procedure on each node.

Assign the Gateway Device to a Project and Wearable Devices to Users

Assign the gateway device to a project to send wearable device data from workers assigned to a specific project to Oracle Internet of Things (IoT) Connected Worker Cloud Service.

1. In a web browser, enter the gateway host name or IP address to open the gateway console. Typically, the URL format is: `http://<gateway-name-or-gateway-ip>:9000/console`.

2. Click **Configuration** and expand **Connected Worker Configuration**.

3. Select an existing project in the **Project** list and click **Save**.

4. Turn on all of the nodes and wearable Bluetooth Low Energy (BLE) devices.

   When wearable devices are discovered by nodes, they appear on the gateway console dashboard with a status of not connected. To connect a device, you assign it to a user.

5. Assign wearable BLE devices to users:

   a. Log in to your Oracle IoT Connected Worker Cloud Service instance.

   b. Click **Menu** ☰ and then click **Configuration** .

   c. Click the **Device Association** 📶 tab.

   d. Click **Create New** ➕.

   e. Select a user in the **User** list, select a device in the **Devices** list, and click **Create**.

   f. (Optional) Click **Edit** ✏️ to assign an additional device or to remove an assigned device. When you remove all assigned devices, the user is removed from the Device Association dashboard.

Assign a Node to a Location

Assign a node to a location to identify its specific geographic location. The node collects data from all wearable devices within its assigned location. Knowing the specific location of a node can help identify the location of workers and aid in providing timely assistance in an emergency.

1. In a web browser, find your Oracle Internet of Things (IoT) Connected Worker Cloud Service instance. Typically, the URL format is: `https://hostname/cw`.

2. Enter your user name and password, and click **Sign In**.

3. Click **Menu** ≡ and then click **Projects**.

4. Select a project in the **Projects** list.

5. Select a location in the **Locations** list.

6. Click **Edit** 🖉 .

7. Click a polygon in the location map view where the node is located and record the latitude and longitude values. If a polygon is not in the same location as a node, move the polgon, select it, record the latitude and longitude values, and then click **Save**.

8. In a web browser, enter the node host name or IP address to open the node console. Typically, the URL format is: `http://<node-name-or-node-ip>:9000/console`.

9. Click **Dashboard** and update the location information for the node.

7

Create and Manage Projects

Create projects to define a location where workers work.

Topics

Create a New Project

Create a new project to identify the project location and the start and completion dates.

1. Click **Menu** ≡ and then click **Projects**.

2. Click **Create Project** ✚.

3. Complete these fields in the **Project Details** area:

   - **Name**: Enter a descriptive name for the project.

   - **Active**: (Optional) Select this check box to make the project active.

   - **Start Date**: (Optional) Click in the field and then select a start date. Edit the start time if required.

   - **Completion Date**: (Optional) Click in the field and then select a completion date. Edit the completion time if required.

   - **Description**: (Optional) Enter a description for the project.

   - **Address**: (Optional) Enter the project address.

4. (Optional) Assign personnel to the project:

   a. Click the **Project Personnel** tab.

   b. Select a user in the personnel list and then click **Add** .

   c. Select a project role for the user and then click **Yes**.

   d. (Optional) Repeat steps a to c to add additional personnel.

5. (Optional) Assign a work shift to the project:

   a. Click the **Work Shifts** tab.

> b. In the **Project Work Shifts** list, select a work shift and select the **Assign to the Project** check box.
>
> c. (Optional) Select the **Default** check box to make the work shift the default work shift for the project.

6. Click **Save** and **Back** to return to the **Project** list.

Assign Personnel to a Project

Assign personnel to a project to identify project participants and their roles.

1. Click the **Menu** (≡) icon and then click **Projects**.

2. Select a project in the **Projects** list in the left pane.

3. Click **Edit** (✎) in the right pane.

4. Click **Project Personnel** (👤).

5. Select a user in the personnel list and then click **Add** (⊕).

6. Select a project role for the user and then click **Yes**. This prompt appears for users with supervisor or project administrator permissions. This prompt does not appear for users with worker permissions.

7. (Optional) Repeat steps 5 and 6 to add additional personnel.

8. Click **Save**.

9. Click **Back** to return to the **Project** list.

Add a Location to a Project

Add a location to a project to identify the project boundaries.

1. Click **Menu** ≡ and then click **Projects**.

2. Select a project in the **Projects** list in the left pane.

3. Click **Add Location** ✚ in the right pane.

4. Complete these fields in the **Details** area:

    *   **Name**: Enter a descriptive name for the location.

    *   **Description**: (Optional) Enter a description for the location.

    *   **Tags**: (Optional) Enter optional tags that help identify the location.

    *   **Parent**: (Optional) Select a parent if you want to create a new location within an existing location. For example, if you created a building location, you can draw a new geo-fence within the building.

    *   **Floor Plan**: (Optional) Select one of these options:

        –   Select an existing floor plan from the list.

        –   Click **New Plan** and then drag and drop a floor plan into the application or click **Or Select a File to Upload** to upload a floor plan from your computer. Enter a name and an optional description for the floor plan, click

> > **Resize** ↖ to resize the floor plan, click **Background** ⇥ to change the floor plan background, click **Coordinates** 🌐 to add latitude and longitude coordinates for the floor plan. Click **Save** and then **Back** to return to the location dashboard.

- **Altitude**: (Optional) Enter the location minimum and maximum altitude values.

5. Draw the location geo-fence in the map view or move to step 6 and enter the latitude and longitude coordinates for the location.

   a. Click **Zoom in** ➕ to zoom in to a map location, or click **Zoom out** ➖ to zoom out from a map location.

   b. Click and hold the left mouse button to move the map.

   c. Click **Pencil** ✏️ .

   d. Click the left mouse button on the map to add a polygon and to start drawing the permitted location boundary.

   e. Click the left mouse button and drag it to a new location and then release the left mouse button.

   f. Continue drawing the permitted location boundary until all the points are joined.

6. To enter the latitude and longitude coordinates for the location:

   a. Click **Coordinates** [123] .

   b. Click **Add** and enter the latitude and longitude values.

   c. (Optional) Click **Add** to enter additional latitude and longitude values.

      A location must include a minimum of three points.

   d. Click **OK**.

7. (Optional) Click **Location Restrictions** ⇥ to include any time or employee restriction settings for the location.

   - **Restricted Time**: (Optional) Enter the maximum stretch of time, in seconds, that an employee can remain at the location. An alert is automatically created if the restricted time is crossed. You can use the alert condition in a rule to, say, send a message to the worker, or to raise an incident.
     For example, you may want to restrict the time an employee spends in the cold storage unit.

     If the location is part of another location, you can click **Inherit from Parent** to copy the settings from the parent location.

   - **Re-Enter Time Interval**: (Optional) Enter the minimum stretch of time, in seconds, that an employee must spend outside the location after leaving it, before attempting to re-enter the location. An alert is automatically created if the employee attempts to re-enter the location before the re-enter time interval has expired. You can use the alert condition in a rule to, say, send a message to the worker, or to raise an incident. For example, you may want to restrict an employee from re-entering a cold storage unit soon after the employee has left it.

     If the location is part of another location, you can click **Inherit from Parent** to copy the settings from the parent location.

   - **Certification Types**: Select one or more available certification types to associate with the location.

You must have already created the certification types that you wish to associate with the location.

A worker entering the project location would need to have at least one certification for each associated certification type.

- **Max Employee Count**: Enter the maximum number of employees that can be present at the location without an alert being generated.
  You can define the upper threshold for the number of employees based on the health and safety requirements for the location.

- **Max Employee Time**: Defines the maximum duration of time, in seconds, for which the employee count can remain above **Max Employee Count**. If the employee count for the location exceeds the **Max Employee Count** for more than the **Max Employee Time**, an alert is raised.
  So for example, if the **Max Employee Count** and **Max Employee Time** are set to 5 and 60 respectively, then an alert is raised if there are more than 5 employees present at the location for more than a minute.

8. Click **Save**.

9. Click **Back** to return to the **Project** list.

Set the Hazard Field Selections

Setting the hazard field selections defines what selections are available in the **Severity**, **Subject**, and **Action** fields when creating a new hazard.

1. Click **Menu** ≡ and **Projects**.

2. Click **Create Project** ✚, or select a project in the **Projects** list and click **Edit** ✎ in the right pane.

3. Click the **Hazards** ⊖ tab.

4. (Optional) Enter text in one or more of these fields:

   - **Severity — Low**: Enter the text that displays in the **Severity** list for a hazard of low severity.

   - **Severity — Medium**: Enter the text that displays in the **Severity** list for a hazard of medium severity.

   - **Severity — High**: Enter the text that displays in the **Severity** list for a hazard of high severity.

5. (Optional) Enter the text that displays in the **Subject** list in the **Subjects** field and then click **Add**. To remove an entry, click **Remove**.

6. Optional) Repeat step 6 to add additional **Subject** list entries.

7. (Optional) Enter the text that displays in the **Action** list in the **Actions** field and then click **Add**. To remove an entry, click **Remove**.

8. (Optional) Repeat step 8 to add additional **Action** list entries.

9. Click **Save.**

Create a Hazardous Location

Create a hazard to inform workers assigned to a project of issues that can cause personal injury or of conditions that require special precautions.

1. Click the **Menu** (≡) icon and then click **Projects**.

2. Select a project in the **Projects** list in the left pane.

3. Select a location in the **Locations** list.

4. Click the **Hazard** (⚠) icon in the map view.

5. Complete these fields in the **Details** area:

   - **Severity**: Select the hazard severity.

   - **Subject**: Enter a brief description of the hazard that informs a worker of the type of hazard they have encountered.

   - **Action**: Enter the action a worker should take when they are notified they have entered the hazardous location.

   - **Further Information**: (Optional) Enter additional information that will help the worker understand the hazard or what action they should take.

6. (Optional) Click in the **Locations** field and then select additional locations for the hazard.

7. Draw the hazard geo-fence in the map view:

   a. Click the **Zoom in** (➕) icon to zoom in to a map location, or click the **Zoom out** (➖) icon to zoom out from a map location.

   b. Click and hold the left mouse button to move the map.

   c. Click the **Pencil** (✏) icon.

   d. Click the left mouse button on the map to add a polygon and to start drawing the hazard location boundary.

   e. Click the left mouse button and drag it to a new location and then release the left mouse button.

   f. Continue drawing the hazard location boundary until all the polygons are joined.

8. Click **Save**.

9. Click **Back** to return to the **Project** list.

# Duplicate a Project Location

Duplicate a location to quickly copy existing geo-fence boundaries to a new location. For example, use the duplicate option to quickly add floors to a building.

1. Click the **Menu** (≡) icon and then click **Projects**.

2. Select a project in the **Projects** list in the left pane.

3. Select a location in the **Locations** list.

4. Click the **Duplicate** (▢) icon in the map view.

5. Select one of these options::

   - **Single**: Select this option to duplicate the location once.

   - **Multiple**: Select this option to duplicate the location multiple times, enter the number of duplicates and then the altitude increment in feet. This option is useful if you want to quickly add multiple floors to a building.

6. Click **Duplicate**.

Use Location Sensors

Use location sensors to associate locations with environmental sensor data. Define location sensors and the corresponding sensor attributes that you wish to monitor for your locations. For example, you may wish to monitor the ambient light and temperature for your project location.

You can add multiple sensor attributes to a location sensor. Each sensor attribute can use its own data type and measurement unit. For example, you may wish to define an `ambient_light` sensor attribute that uses the `Integer` data type for measurements. Similarly, you can define a `temperature` attribute and use the `Number` data type to measure whole and fractional values in `Fahrenheit` or `Celsius` units.

The sensor attribute abstracts the device model and device message field details. So, for example, if you have different locations using different brands of temperature monitors, you can use the same `temperature` attribute for these various devices.

After defining the location sensor, proceed to associate the location sensor with your project location. You also need to attach your sensor devices to your sensor attributes to complete the configuration.

Create a New Location Sensor

Use the Design Center to create a new location sensor.

1. Click **Menu** ≡ and then click **Design Center**.

2. Click the **Location Sensors** ⚙ tab.

3. Click **Create New** +.

4. Under Details, enter a **Name** for the new location sensor.

5. (Optional) Enter a description for the location sensor in the **Description** field.

6. Click **Add** + next to **Sensor Attributes** and then complete these fields:

   - **Name**: Enter a name for the sensor attribute.

   - **Data Type**: Select the data type for the sensor attribute. This should match the data type used by the message field for your devices.

   - **Description**: (Optional) Enter a description for the sensor attribute.

   - **Display Name**: (Optional) Enter an optional descriptive name. If you enter a value here, then the **Display Name** is used in the sensor attribute location charts. If not, then the **Name** attribute is used by default.

   - **Unit**: (Optional) Enter the measurement unit used by the sensor attribute.

7. Click **Create**.

8. (Optional) Repeat steps 6 and 7 to add additional sensor attributes for the location sensor.

9. Click **Save** to finish creating the new location sensor.

Add Location Sensor and Devices to a Project Location

Add a location sensor to a project location to assign specific environmental sensor data to the location. Assigning specific sensor data to the location lets you alert workers when environmental conditions exceed specific limits and pose a safety risk.

1. Click **Menu** ≡ and then click **Projects**.

2. Select a project in the **Projects** list.

3. Select a location in the **Locations** area.

4. Click **Add** ➕ next to **Location Sensors**.

5. Select a location sensor from the list and click **OK**.

   The location sensor is added.

6. Click **Attach Sensor** 📡 against a sensor attribute row.

7. Complete the following fields:

   • **Device Model**: Select the device model for the sensor attribute. Note that the device model should have already been selected for the Oracle IoT Connected Worker Cloud Service application in your Oracle Internet of Things Cloud Service management console (`https://iot_host_server/`**`ui`**`/`).
   The **Message URN** of the device model is automatically fetched.

   • **Message Field**: Choose the message field for the device that corresponds to your sensor attribute in Oracle IoT Connected Worker Cloud Service.

   • **Device**: Select a hardware device to associate.

8. Click **Attach**.

9. Repeat steps 7 and 8 if your location sensor has additional sensor attributes.

Use Employee Wearable Types

Define employee wearable types and the corresponding sensor attributes that you wish to monitor for your workers. For example, you may wish to add heart rate and body temperature monitors for your workers.

You can add multiple sensor attributes to a wearable type. Each sensor attribute can use its own data type and measurement unit. For example, you may wish to define a `heart_rate` sensor attribute that uses the `Integer` data type for measurements. Similarly, you can define a `temperature` attribute and use the `Number` data type to measure whole and fractional values in `Fahrenheit` or `Celsius` units.

The sensor attribute abstracts the device model and device message field details. So, for example, if you have different workers using different brands of heart rate monitors, you can use the same `heart_rate` attribute for these various devices.

After defining the employee wearable types, proceed to associate the devices for your wearable type. You need to map the sensor attributes to the device message fields to complete the association.

Associating one or more wearable devices with an individual worker is a one step process: You can select the worker and associate the devices. The sensor attribute mappings are automatically picked from the employee wearable type definition.

Define a New Employee Wearable Type

Use the Design Center to add a new employee wearable type.

1. Click **Menu** ≡ and then click **Design Center**.

2. Click the **Employee Wearable Types** 👤 tab.

3. Click **Create New** ➕.

4. Under Details, enter a **Name** for the new employee wearable type.

5. (Optional) Enter a description for the wearable type in the **Description** field.

6. Click **Add** ➕ next to **Sensor Attributes** and then complete these fields:

   • **Name**: Enter a name for the sensor attribute.

   • **Data Type**: Select the data type for the sensor attribute. This should match the data type used by the message field for your devices.

   • **Description**: (Optional) Enter a description for the sensor attribute.

   • **Display Name**: (Optional) Enter an optional descriptive name. If you enter a value here, then the **Display Name** is used in the sensor attribute employee charts. If not, then the **Name** attribute is used by default.

   • **Unit**: (Optional) Enter the measurement unit used by the sensor attribute.

7. Click **OK**.

8. (Optional) Repeat steps 6 and 7 to add additional sensor attributes.

9. Click **Save** to create the new employee wearable type.

Associate Devices with an Employee Wearable Type

After creating an employee wearable type, associate the sensor attributes for the employee wearable type with your employee devices. For each device association, you need to select the device model and the device message field that maps to the sensor attribute.

1. Click **Menu** ≡ and then click **Design Center**.

2. Click the **Employee Wearable Types** 👤 tab.

3. Click Device Association 📶 against the employee wearable type row.

4. Click **Create Association** ➕ against a sensor attribute name, and then complete these fields:

   • **Device Model**: Select the device model for the sensor attribute. Note that the device model should have already been selected for the Oracle IoT Connected

Worker Cloud Service application in your Oracle Internet of Things Cloud Service management console (`https://iot_host_server/ui/`).
The **Message URN** of the device model is automatically fetched.

- **Message Field**: Choose the message field for the device that corresponds to your sensor attribute in Oracle IoT Connected Worker Cloud Service.

- **Device**: Select a hardware device to associate.

5. Click **Create**.

6. Repeat steps 4 and 5 for each device that you wish to associate with the sensor attribute.

7. If you have multiple sensor attributes defined for the employee wearable type, repeat steps 4 and 5 for each additional sensor attribute.

Associate a Device with a User

Associate a device with a user to identify the device that is assigned to them. Associating devices lets you track sensor data for workers appearing in the map view. Associating devices also lets you create employee rules.

1. Click **Menu** ≡ and then click **Design Center** .

2. Click the **Device Association** 📶 tab.

3. Select **Tracking** to attach tracking devices. Alternately, select **Sensor** to attach sensor devices.

4. Click **Create New** +.

5. Select the user from the **User** list.

6. Under **Devices**, select one or more devices.

7. Click **Create** to add the device associations for the selected user.

8. (Optional) Click **Edit** ✎ to assign an additional device or to remove an assigned device. When you remove all assigned devices, the user is removed from the Device Association dashboard.

Edit Project Details

Edit a project to edit the project settings including the project name, the activation status, the start and completion dates, the description, and the project address.

> **Note:**
>
> You cannot delete a project once created, as deleting a project may lead to loss of related historical data. For example, incident records related to a project would be meaningless without the project details.

1. Click the **Menu** (≡) icon and then click **Projects**.

2. Select a project in the **Projects** list in the left pane.

3. Click the **Edit** (✏) icon in the right pane.

4. Edit these fields in the **Project Details** area:

   • **Name**: (Optional) Edit the descriptive name for the project.

   • **Active**: (Optional) Select this check box to make the project active or clear the check box to make the project inactive.

   • **Start Date**: (Optional) Click in the field and then edit the start date. Edit the start time if required.

   • **Completion Date**: (Optional) Click in the field and then edit the completion date and the completion time.

   • **Description**: (Optional) Edit the project description.

   • **Address**: (Optional) Edit the project address.

5. Click **Save**.

6. Click **Back** to return to the **Project** list.

Edit a Project Location

Edit a project location to change its properties or geofence.

> **Note:**
>
> You cannot delete a project location once created, as deleting a location may lead to loss of related historical data. For example, incident records related to a location would be meaningless without the location.

1. Click **Menu** ≡ and then click **Projects**.

2. Select a project in the **Projects** list in the left pane.

3. Select a location in the **Locations** list.

4. Click **Edit** ✏ .

5. (Optional) Edit these fields in the **Details** area:

    • **Name**: Edit the location descriptive name.

    • **Description**: Edit the location description .

    • **Tags**: Add or remove tags that help identify the location.

    • **Altitude**: Edit the location minimum and maximum altitude values.

6. (Optional) Edit the location geo-fence in the map view:

    a. Click **Zoom in** ✚ to zoom in to a map location, or click **Zoom out** ➖ to zoom out from a map location.

    b. Click and hold the left mouse button to move the map.

    c. To change the location of point, click the left mouse button on a point in the map view, drag the point to a new location, and then release the left mouse button.

    d. To remove a point, click the point and select **Remove point**.

    e. To edit polygon points, click the polygon, click **Edit polygon**, edit the latitude and longitude values, and then click **OK**.

    f. To add polygon points, click the polygon, click **Edit polygon**, click **Add**, enter latitude and longitude values, and then click **OK**.

    g. To delete an entire polygon, click the polygon and select **Delete polygon**.

7. Click **Save**.

8. Click **Back** to return to the **Project** list.

View Project Details in the Map View

In the map view, groups of projects are represented by a circle with an integer value. Projects are clustered when they are located in close proximity and the map view magnification is low. Clicking the circle automatically increases the map magnification and displays the individual projects that form the cluster.

1. Click **Menu** (≡) and then click **Map**.

2. Select **Projects** on the **Projects** tab at the bottom of the map view.

3. Search for a specific project or click the **Zoom Out** (➖) icon until a circle with an integer value appears in the location where the project is located. To search for a specific project, see Locate Workers, Projects, and Locations in the Map View.

4. Click the project icon until individual project icons appear, click a project icon, and then click **View** (👁) to view details for the specific project.

5. Click the map to return to the map view.

Create a Work Shift

A work shift identifies the hours of work for a specific period. Work shifts are typically used to identify work hours that fall outside of the standard work day.

1. Click **Menu** ≡and then click **Design Center**.

2. Click the **Work Shifts** 🕐 tab.

3. Click **Create New** ➕.

4. Complete these fields:

    • **Name:** Enter a name for the work shift.

    • **Description:** (Optional) Enter a description for the work shift.

    • **Time from:** Select a start time for the work shift and click **OK**.

    • **Time to:** Select an end time for the work shift and click **OK**.

5. Click **Save** and **Back** to return to the Work Shift dashboard.

6. (Optional) Click **Make default** to make the work shift the default work shift for your Oracle Internet of Things (IoT) Connected Worker Cloud Service instance.

Edit a Work Shift

Edit a work shift when the hours of work change or you want to update the work shift name or description.

1. Click **Menu** ☰ and then click **Design Center**.

2. Click the **Work Shifts** 🕐 tab.

3. Select a work shift in the **Work Shifts** list and click **Edit** ✏️.

4. Edit these fields:

    • **Name:** Enter a name for the work shift.

    • **Description:** Enter a description for the work shift.

    • **Time from:** Select a start time for the work shift and click **OK**.

    • **Time to:** Select an end time for the work shift and click **OK**.

5. Click **Save** and **Back** to return to the Work Shift dashboard.

6. (Optional) Click **Make default** to make the work shift the default work shift for your Oracle Internet of Things (IoT) Connected Worker Cloud Service instance.

Assign a Work Shift to a Project

Assign a work shift to a project when project personnel work outside of standard work hours.

1. Click **Menu** ☰ and then click **Projects**.

2. Select a project in the **Projects** list in the left pane.

3. Click **Edit** ✏️ in the right pane.

4. Click the **Work Shifts** 🕐 tab.

5. In the **Project Work Shifts** list, select a work shift and select the **Assign to the Project** check box.

6. (Optional) Select the **Default** check box to make the work shift the default work shift for the project.

7. Click **Save** and **Back** to return to the **Project** list.

Add Worker Certifications to Monitor Worker Access

You can monitor worker access to your projects and locations using worker certifications. When a worker enters the project location, the worker must have a valid certification for each of the required certification types. If the worker does not have the required certifications, a server alert is raised.

You can configure rules based on these alerts to generate corresponding incidents, employee alerts, and messages. For example, say a worker enters a designated project location without the required certification. A pre-configured rule may trigger an incident and send a push notification message to the worker's mobile device.

You can associate certification type requirements with your projects and locations. If you associate a certification type with a project, it applies to all locations in the project.

Each certification type can include one or more certifications. For example, Vision Corporation may be using two different certifications for its US and EU employees. The Vision Corporation project certification type will include both these certifications.

You can associate your projects and locations with one or more certification types. When a worker enters the project location, the worker should possess a valid certification of each certification type required by the project or location.

You can add certifications for your workers, and specify the validity dates for these certifications. Before you can associate certifications with workers, and certification types with your projects and locations, you must create the certifications and certification types.

Here's the workflow for using certifications and certification types:

1. Create the required certifications and certification types.
   See Create a New Certification and Create a New Certification Type for more information.

2. Add the required certification types to your projects or locations.
   See Associate Certification Types with a Project and Add a Location to a Project

   for more information.

3. Add the required certifications for your users.
   See Associate Certifications with a User for more information.

4. Create rules for triggering responses to certification violation errors.
   When creating rules for triggering responses to certification violation errors, select the following alert type as the condition for your rule:

   ```
   CertificateTypesViolation -
   urn:com:oracle:iot:cw:location:certificate_types_violation
   ```

   See Create and Manage Rules for more information on creating rules.

Create a New Certification

Use certifications to provide project and location access to your workers. Use the Design Center to add and manage certifications.

1. Click **Menu** ≡ and then click **Design Center**.

2. Click the **Certifications** 📇 tab.

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3. Click **Create New** +.

4. Enter a name for the certification in the **Title** field.

5. (Optional) Enter a **Description** for the certification.

6. Enter the **Issuer** for the certification.

   For example, the issuer can be the name of your organization or group.

7. (Optional) Choose an **Expiry Notification** period to receive a notification when the certification is about to expire for a worker.

ORACLE® IoT Connected Worker Cloud Service   Back   Save

Create Certificate

Title *   Description
Vision Corporation USA   Certificate for USA Employees

Issuer *   Expiry Notification
Vision Corporation   1 Week

8. Click **Save** to save the new certification.

Create a New Certification Type

Create a new certification type that you can later associate with a project, or with individual project locations. Each certification type can contain multiple certifications.

1. Click **Menu** ≡ and then click **Design Center**.

2. Click the **Certification Types** 📋 tab.

3. Click **Create New** +.

4. Enter a **Name** for the certification type.

5. (Optional) Enter a description for the certification type in the **Description** field.

6. Select one or more pre-existing **Certifications** to include in the certification type.

You must have already created the certifications to be able to select them. If you'd like to associate certifications later, you can do so by editing the certification type.

7. Click **Save** to save the new certification type.

Associate Certification Types with a Project

You can associate one or more certification types with a project. When you associate a certification type with a project, it applies to all locations for the project.

1. Click **Menu** ≡ and then click **Projects**.

2. Select the project from the **Projects** list in the left pane.

3. Click **Edit Project Details** ✏ in the right pane.

4. Click the **Project Certification Types** 📋 tab.

5. Select one or more available certification types under **Project Certification Types**.

   You must have already created the certification types that you wish to associate with the project.

   A worker entering a location in the project would need to have at least one certification for each associated certification type.

Add Asset Associations and Asset Locations for a Project

If you have managed assets in Oracle IoT Asset Monitoring Cloud Service that your project workers work with, you can choose to add these assets to your project in Oracle IoT Connected Worker Cloud Service. Fetching asset sensor parameters and locations from Oracle IoT Asset Monitoring Cloud Service lets you maintain a safe and efficient work environment for your workers.

When you add an asset type association for your project, all assets of the asset type in Oracle IoT Asset Monitoring Cloud Service are synced with Oracle IoT Connected Worker Cloud Service.

Creating project asset associations in Oracle IoT Connected Worker Cloud Service lets you efficiently manage your workers and project:

- You can track asset locations, sensor parameters, and worker histories associated with your assets. Each asset location includes real-time data on the workers, incidents, and hazard conditions associated with the asset location.

- You can define vicinity radii for assets. For example, you may have an asset like a high-temperature furnace or an asset with radiation hazard. An alert is automatically generated if a worker violates the vicinity radius for the asset. You can use the alert condition in a rule to, say, send a message to the worker, or to raise an incident.

- You can restrict the time that a worker can work at an asset location. For example, you may want to restrict the time an employee spends in the cold storage unit. An alert is automatically created if the restricted time is crossed. You can create rules to act upon the alert.

- You can use asset sensor parameter values in your rule conditions to create incidents, or take other actions. For example, you may wish to create a rule to generate employee alerts and hazards if the boiler pressure approaches the threshold value.

Add an Asset Type Association

Use the Project Details page to associate an Oracle IoT Asset Monitoring Cloud Service asset type with your project.

You must have already created the asset type in Oracle IoT Asset Monitoring Cloud Service before you can associate it with a project in Oracle IoT Connected Worker Cloud Service.
See Also: Create and Manage Asset Types and Create and Manage Assets in the *Using Oracle Internet of Things Asset Monitoring Cloud Service* guide for detailed information on asset types and assets.

1. Click **Menu** ≡ and then click **Projects**.

2. Select a project in the **Projects** list in the left pane.

3. Click **Edit Project Details** ✎ in the right pane.

4. Click the **Project Integration** 👤 ⦻ tab.

5. Click **Add New Asset Monitoring Integration** ➕ next to Asset Monitoring Integrations.

6. Specify the **Asset Type**, **Radius**, and other optional details.

   - **Asset Type:** Select an existing asset type in Oracle IoT Asset Monitoring Cloud Service. All existing assets of the asset type are automatically fetched into Oracle IoT Connected Worker Cloud Service. Any new assets that you subsequently create in Oracle IoT Asset Monitoring Cloud Service are also synced.

   - **Radius:** Enter a radius, in meters, for the asset location on the map. A circle of the specified radius marks the asset location on the map in Oracle IoT Connected Worker Cloud Service.
     The **Radius** for an asset location must be less than 1000 meters.

   - **Vicinity Radius:** (Optional) Enter a vicinity radius in meters. The vicinity radius must be greater than the **Radius**. You can use the vicinity radius to raise alerts when workers approach the asset.

For example, you may have an asset like a high-temperature furnace or an asset with radiation hazard. An alert is automatically generated if a worker violates the vicinity radius for the asset. You can use the alert condition in a rule to, say, send a message to the worker, or to raise an incident.

The **Vicinity Radius** for an asset location must be less than 1000 meters.

- **Restricted Time**: (Optional) Enter the maximum stretch of time, in seconds, that an employee can remain at the asset location. An alert is automatically created if the restricted time is crossed. You can use the alert condition in a rule to, say, send a message to the worker, or to raise an incident.
  For example, you may want to restrict the time an employee spends in the cold storage unit.

- **Re-Enter Time Interval**: (Optional) Enter the minimum stretch of time, in seconds, that a worker must spend outside the asset location after leaving it, before the worker can attempt to re-enter the asset location. An alert is automatically created if the employee attempts to re-enter the asset location before the re-enter time interval has expired. You can use the alert condition in a rule to, say, send a message to the worker, or to raise an incident.
  For example, you may want to restrict an employee from re-entering a cold storage unit soon after the employee has left it.

- **Certification Types**: Select one or more available certification types to associate with the asset location.
  You must have already created the certification types that you wish to associate with the location.

  A worker entering the asset location would need to have at least one certification for each associated certification type.

7. Click **Create** to create the asset type association.

   The asset type association appears under Asset Monitoring Integrations.

Use Wi-Fi Based Positioning for Non-GPS Locations

Your project can use Wi-Fi based positioning for indoor scenarios where GPS signal is lacking. Your wireless devices and Access Points (APs) must support the Wi-Fi RTT (Round Trip Time) feature.

Wi-Fi RTT (Round-Trip-Time) lets your Wi-Fi devices measure the distance to nearby RTT-capable Wi-Fi access points and peer devices. Several Android 9 and Android 10 mobile devices support Wi-Fi RTT. Wi-Fi based positioning results usually have accuracy precisions between one and two meters.

To use Wi-Fi based positioning in Oracle IoT Connected Worker Cloud Service, you need to configure your Wi-Fi RTT access points and positioning settings. You can then add the positioning settings to your project.

You need to create a Cartesian coordinate system for your location, such that each point can be identified by its $x,y,$ and z coordinates. You do this by specifying the coordinates for the start point and end point. The start point and end point can be the opposite corners of your location. You also specify the latitude, longitude, and altitude values for the start point and end point to complete the mapping.

For example, if you choose the bottom left corner of your floor plan as the start point, you can choose the top right corner as the end point. The floor plan would usually have the distance measurements for your location. You can also physically measure the distances. The Cartesian coordinates are specified in millimeters (mm).

Wi-Fi RTT access points, such as Wi-Fi routers, are identified by their hardware MAC addresses. You also need to specify the Cartesian coordinates of the access points based on their distances from the start point.

After configuring the access points and the positioning settings, you can add one or more set of positioning settings for your project. The following sections describe these steps.

Identify Your Wi-Fi Access Points

Each Wi-Fi access point is identified by its hardware or MAC address. For successful trilateration of a device or user position, at least three access points are required in a plane. For 3-dimensional space, at least four access points are required.

1. Click **Menu** ☰ and then click **Design Center**.

2. Click the **Access Points** 📶 tab.

3. Click **Create New** ➕.

4. Enter a **Name** for the access point.

5. (Optional) Enter a **Description** for the access point.

6. Specify the **MAC** address for the access point.

   The MAC address consists of six pairs of hexadecimal numbers separated by colons (:) or hyphens (-).

7. Click **Save**.

Repeat the preceding steps to identify additional access points.

Configure Positioning Settings and Access Points

Complete the Cartesian mapping for your location by specifying the Cartesian coordinates and the corresponding latitude, longitude, and altitude values for two points in the location. Also specify the Cartesian coordinates for your access points.

1. Click **Menu** ≡ and then click **Design Center**.

2. Click the **Positioning** ◤ tab.

3. Click **Create New** ✛.

4. Enter a **Name** for the positioning settings.

5. (Optional) Enter a **Description** for the positioning settings.

6. Enter the **Number of History Points** to use.

   Specifies the number of historical points to be included in the moving average. Multiple points in an average help get more precise locations. Every access point has an associated entry in the history of observed ranging results.

7. Enter the **Ranging Request Period** in milliseconds.

   Ranging requests are used to measure the distances to nearby RTT-capable Wi-Fi access points and peer Wi-Fi devices. The ranging request period is the time period, in milliseconds, between successive ranging requests.

8. Complete the Start Point Cartesian Mapping.

   You need to specify the Cartesian coordinates, latitude, longitude, and altitude values for the start point. The start point can be one corner of your floor plan.

   a. Specify **Coordinate X**, **Coordinate Y**, and **Coordinate Z** values for your start point.

      These are the $x, y,$ and z coordinates for your start point in millimeters. For example, start coordinates of [0,0,300] implies that the start point for your Cartesian map is 300 mm or 30 cms on the z-axis. The x and y coordinates are 0.

   b. Specify the **Latitude**, **Longitude**, and **Altitude** values for the start point.

      This maps the Cartesian coordinates to their corresponding Geo-coordinates.

9. Complete the End Point Cartesian Mapping.

   You need to specify the Cartesian coordinates, latitude, longitude, and altitude values for the end point. The end point can be the corner opposite to your start point on the floor plan. For example, if the start point is the lower left hand corner, the end point can be the upper right corner.

   a. Specify **Coordinate X**, **Coordinate Y**, and **Coordinate Z** values for your end point.

      These are the $x, y,$ and z coordinates for the end point in millimeters. For example, end coordinates of [30000,20000,300] implies that the start point for your Cartesian map is 30 meters along the x-axis, 20 meters along the y-axis, and 30cms along the z-axis.

      The floor plan would usually have the distance measurements for your location. You can also physically measure the distances.

   b. Specify the **Latitude**, **Longitude**, and **Altitude** values for the end point.

      This maps the Cartesian coordinates to their corresponding Geo-coordinates.

10. Complete the configuration for your Wi-Fi access points.

   a. Click **Add Access Point** + to add an access point configuration to the positioning settings.

   b. Specify **Cartesian Position: X**, **Cartesian Position: Y**, and **Cartesian Position: Z** values for your access point.

   These are the *x, y,* and *z* coordinates for the access point in millimeters.

   c. Specify any distance **Offset** to be used for the access point.

   The offset value is specified in millimeters.

   Offsets are used for precision tuning of the access point. Usually, this value is zero. However, if your access point reports a non-zero distance even when an android device requesting distance is at the access point, then this non-zero distance is used as the offset for the access point. The offset distance is automatically subtracted from reported distances.

   d. Under **Access Point**, select the existing access point name.

   e. Click **Create** to complete the access point configuration.

   Repeat the above steps to configure additional access points.

11. Click **Save** to save the positioning settings.

Repeat the preceding steps to create positioning settings for other locations.

Associate Positioning Settings with a Project

To use Wi-Fi based positioning in a project, you need to associate your positioning settings with the project.

1. Click **Menu** ≡ and then click **Projects**.

2. Select your project in the **Projects** list in the left pane.

3. Click **Edit Project Details** ✏ in the right pane.

4. Click the **Project Positionings** ⌁ tab.

5. Under **Project Positionings**, select your project positioning name.

   If your project has multiple locations, and you have created more than one positioning settings, you can select all the positioning setting names that apply.

6. Click **Save** and close the window to return to the Projects page.

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Create and Manage Rules

Create rules to warn workers of work hazards and monitor their location.

Topics

Use System Rules to Detect and Respond to Emergency Alerts

As a project manager or supervisor, you want to know if an employee has fallen, or if there is a potential man-down condition. Oracle IoT Connected Worker Cloud Service system rules automatically detect accident-related device alerts, create incidents, and trigger messages to the superiors and to other workers at the location.

Smart wearable devices, or devices with accelerometer and gyroscope, can detect employee motion and falls, and generate device alerts for potential falls or man-down conditions. Oracle IoT Connected Worker Cloud Service system rules detect and respond to these alerts.

The following pre-existing system rules are available:

- Man Down Rule: The worker's sensor device raises an alert (`urn:com:oracle:iot:cw:motion:man_down_detected`) if it detects no motion for a worker for a configurable time period. In response to the alert, the system rule creates an accident-type incident and triggers high priority messages to the supervisor and project manager.

- Employee Fallen Over Rule: The worker's sensor device raises an alert (`urn:com:oracle:iot:cw:motion:fall_detected`) if it detects that the worker has fallen from a height. In response to the alert, the system rule creates an accident-type incident and triggers high priority messages to the supervisor and project manager.

Configure Accident Detection Settings and Emergency Numbers

Oracle IoT Connected Worker Cloud Service uses predefined rules to respond to accidents, such as a worker falling or remaining motionless.

Use the Configurable Parameters page to configure accident detection settings, such as auto fall detection or man-down conditions where workers report no motion for a minimum specified period.

You can also configure emergency contact numbers for these conditions. If an accident condition is detected, the corresponding emergency phone number is auto-dialed from the worker's mobile device, and the device is put on speaker phone.

1. Click **Menu** ≡and then click **Design Center**.

2. Click the **Configurable Parameters** ⊶ tab.

3. Select whether the settings apply globally, or to an individual project:

    Global: Applies the settings to all projects.

    Project: Applies the settings to the chosen project. All projects inherit the global settings by default. However, you can change the settings inherited by an individual project.

4. If you selected **Project** in the previous step, then choose the name of your project.

5. Specify the emergency phone numbers to be auto-dialed for the following events:

    •   **Fall Detection**

    •   **Man Down Detection**

    •   **Restricted Location Violation**

    You may prefix the country code (for example +1 for USA) to the number if required.

6. Specify the **Fall detection height (meters)**.

    An altitude fall equal to or greater than the **Fall Detection Height** in meters triggers a fall alert.

7. Under **No motion time for man down detection (seconds)**, specify the number of seconds after which a man-down alert is triggered in case no motion is detected for a worker during the specified period.

8. Click **Save** to save your configuration settings.

Create a Project Rule

Create a project rule to generate a location notification, an alert, or a device message when a worker assigned to a project meets or exceeds the rule criteria. Project rules can also use environmental location sensors attached to the project location to detect and report hazards, such as low light conditions or high temperature.

1. Click **Menu** ≡and click **Rules**.

2. Click **Create a rule** ✚.

3. Enter a name for the rule in the **Name** field.

4. (Optional) To set a time limit for the rule, specify a weekly or monthly schedule during which the rule is in force.

    A rule is active at all times, by default. You can change this behavior to choose a custom schedule for the rule.

    a. Under Rule Schedule, select **Custom**.

    b. Select **Repeat Weekly** to create a weekly schedule. Alternatively, select **Repeat Monthly** to create a monthly schedule.

c. Click or drag inside the rows to select a data window.

You can click an incorrectly selected cell to deselect it. Alternatively, click **Clear** to start afresh.

The following example shows a weekly schedule for a rule that it is active from 8:00 a.m. to 6:00 p.m. on weekdays.

5. Under **Source Type**, select whether your rule is based on sensors associated with workers, such as employee location and motion detectors, or sensors associated with locations, such as temperature and humidity sensors.

   • Select **Employee** to create a rule based on sensors associated with workers.

   • Select **Location** to create a rule based on environmental sensors associated with a location.
   Location source type rules are applied to locations or projects. If a project is chosen, then the rule applies to all locations in the project.

   You can use location rules to create incidents, alerts, messages, or automatic hazards when an environmental attribute, such as humidity or temperature, crosses the rule threshold.

6. Select one of these options in the **Apply To** list:

   • **All Projects**: To assign the rule to all projects, select this option.

   • **Specific Projects**: To assign the rule to a specific project, select this option and then select one or more projects.

7. Select one of these options in the **Condition** area:

   • **All Conditions Apply**: Select this option to generate a location notification, an alert, or a device message when all of the conditions are met or exceeded.

   • **Any Conditions Apply**: Select this option to generate a location notification, an alert, or a device message when any of the conditions are met or exceeded.

8. Select one of these options in the **Type** list:

- **Alert**: Select this option to activate the rule when an alert message of the selected type is received.
  For example, a time restriction violation alert (`urn:com:oracle:iot:cw:location:time_restriction_violation`) is raised if an employee exceeds the maximum contiguous time period allowed for a location.

  If you are using asset integrations for your project, you can also select asset location related alerts. For example, an asset vicinity violation alert (`urn:com:oracle:iot:cw:location:asset_vicinity_violation`) is raised if a worker violates the vicinity radius for the asset.

- **Location**: Select this option to generate an incident, alert, or a message when the location conditions are met.

- **Device Message**: Select this option to generate an alert, incident, or a message when the device rule conditions are met.

- **Attribute**: Select this option to generate an alert, incident, or a message when the rule conditions for the attribute are met. For example, you can use the `employee.devices.offline.time` attribute to trigger an incident if all devices for an employee have been marked offline for the specified number of seconds. This helps take action in case of disconnected employees.
  If the **Source Type** of your rule is **Location**, you can also use the **Attribute** value to create a location-based hazard. For example, you can create a hazard corresponding to high temperature at a location.

  If you are using asset integrations for your project, you can also specify asset sensor attribute related conditions. For example, you can create a hazard corresponding to pressure values of a boiler exceeding its threshold.

9. Complete the configuration settings for the option you selected in the **Type** list.

10. (Optional) Add additional alert, location, attribute, or device message conditions.

11. Select one of these options:

    - **Create Incident**: Select this option to create an incident report when the rule conditions are met.

    - **Create Alert**: Select this option to generate an alert message when the rule conditions are met.

    - **Send Message**: Select this option to send a push-notification to the user's mobile device when the rule conditions are met.

    - **Trigger Employee Alert**: Select this option to generate an alert and trigger supported device actions on the user's device. You can use employee alerts to trigger visual and haptic feedback supported by your device models.
      For example, you can configure a rule to trigger employee alerts to all employees at a location in case an employee has fallen. The employees' MetaWear LED sensors would blink and their android devices would display the alert notification.

    - **Create Hazard**: Select this option to create an automatic hazard condition when the rule conditions are met.
      This option is only available if the **Source Type** of your rule is **Location**, which corresponds to environmental sensors associated with a location.

12. Complete the mandatory and optional fields that appear when you made your selection in step 10. The mandatory and optional fields include:

- **Summary**: Enter a summary of the incident or alert.

- **Type**: Select the incident or alert type.

- **Priority**: (Optional) Select the incident, message, or employee alert priority.

- **Tags**: (Optional) Enter tags that can help you identify incidents in the logs.

- **Description**: (Optional) Enter a description of the incident.

- **Severity**: (Optional) Select the alert message severity.

- **Suppression**: (Optional) Enter a wait time, in minutes, to wait before another alert or warning is generated for unresolved issues.

- **Message**: Enter a message to send to workers.

- **Recipients**: Select the recipients of the message. For example, if you select `LOCATION`, then the message is sent to all employees present at the location.

- **Sender**: Select the sender of the message.

- **Action**: Specify an action corresponding to a location hazard.

13. Click **Save**.

14. Click **Back** to return to the **Rules** list.

Create a Project Hazard Rule

Create a project hazard rule to generate a location notification, an alert, or a device message for all members of a project when a specific hazard is activated.

1. Click **Menu** ≡ and click **Rules**.

2. Click **Create a rule** ➕.

3. Enter a name for the rule in the **Name** field.

4. (Optional) To set a time limit for the rule, specify a weekly or monthly schedule during which the rule is in force.

   A rule is active at all times, by default. You can change this behavior to choose a custom schedule for the rule.

   a. Under Rule Schedule, select **Custom**.

   b. Select **Repeat Weekly** to create a weekly schedule. Alternatively, select **Repeat Monthly** to create a monthly schedule.

   c. Click or drag inside the rows to select a data window.

      You can click an incorrectly selected cell to deselect it. Alternatively, click **Clear** to start afresh.

   The following example shows a weekly schedule for a rule that it is active from 8:00 a.m. to 6:00 p.m. on weekdays.

5. Under **Source Type**, select **Employee**.

6. Select **Specific Hazard** in the **Apply To** list.

7. Select a project in the second list.

8. Select a hazard in the third list.

9. Select one of these options in the **Condition** area:

   • **All Conditions Apply**: Select this option to generate a location notification, an alert, or a device message when all of the conditions are met or exceeded.

   • **Any Conditions Apply**: Select this option to generate a location notification, an alert, or a device message when any of the conditions are met or exceeded.

10. Select one of these options in the **Type** list:

    • **Alert**: Select this option to activate the rule when an alert message of the selected type is received.
      For example, a time restriction violation alert (`urn:com:oracle:iot:cw:location:time_restriction_violation`) is raised if an employee exceeds the maximum contiguous time period allowed for a location.

    • **Location**: Select this option to generate an incident, alert, or a message when the location conditions are met.

    • **Device Message**: Select this option to generate an alert, incident, or a message when the device rule conditions are met.

    • **Attribute**: Select this option to generate an alert, incident, or a message when the rule conditions for the attribute are met. For example, you can use the `employee.devices.offline.time` attribute to trigger an incident if all devices for an employee have been marked offline for the specified number of seconds. This helps take action in case of disconnected employees.

11. Complete the configuration settings for the option you selected in the **Type** list.

12. (Optional) Add additional alert, location, or device message conditions.

13. Select one of these options:

- **Create Incident**: Select this option to receive an incident notification when the rule conditions are met.

- **Create Alert**: Select this option to generate an alert message when the rule conditions are met.

- **Send Message**: Select this option to send a push-notification to the user's mobile device when the rule conditions are met.

- **Trigger Employee Alert**: Select this option to generate an alert and trigger supported device actions on the user's device. You can use employee alerts to trigger visual and haptic feedback supported by your device models.
  For example, you can configure a rule to trigger employee alerts to all employees at a location in case an employee has fallen. The employees' MetaWear LED sensors would blink and their android devices would display the alert notification.

14. Complete the mandatory and optional fields that appear when you made your selection in step 12. The mandatory and optional fields include:

    - **Summary**: Enter a summary of the incident or alert.

    - **Type**: Select the incident or alert type.

    - **Priority**: (Optional) Select the incident, message, or employee alert priority.

    - **Tags**: (Optional) Enter tags that can help you identify incidents in the logs.

    - **Description**: (Optional) Enter a description of the incident.

    - **Severity**: (Optional) Select the alert message severity.

    - **Suppression**: (Optional) Enter a wait time, in minutes, to wait before another alert or warning is generated for unresolved issues.

    - **Message**: Enter a message to send to workers.

    - **Recipients**: Select the recipients of the message. For example, if you select `LOCATION`, then the message is sent to all employees present at the location.

    - **Sender**: Select the sender of the message.

15. Click **Save**.

16. Click **Back** to return to the **Rules** list.

Create a Worker Rule

Create a worker rule to generate a location notification, an alert, or a device message for all workers or a specific worker.

1. Click **Menu** ≡ and click **Rules**.

2. Click **Create a rule** ➕.

3. Enter a name for the rule in the **Name** field.

4. (Optional) To set a time limit for the rule, specify a weekly or monthly schedule during which the rule is in force.

   A rule is active at all times, by default. You can change this behavior to choose a custom schedule for the rule.

   a. Under Rule Schedule, select **Custom**.

b. Select **Repeat Weekly** to create a weekly schedule. Alternatively, select **Repeat Monthly** to create a monthly schedule.

c. Click or drag inside the rows to select a data window.

You can click an incorrectly selected cell to deselect it. Alternatively, click **Clear** to start afresh.

The following example shows a weekly schedule for a rule that it is active from 8:00 a.m. to 6:00 p.m. on weekdays.

5. Under **Source Type**, select **Employee**.

6. Select one of these options in the **Apply To** list:

   • **All Workers**: To assign the rule to all workers, select this option.

   • **Specific Workers**: To assign the rule to a specific worker, select this option and then select a worker.

7. Select one of these options in the **Condition** area:

   • **All Conditions Apply**: Select this option to generate a location notification, an alert, or a device message when all of the conditions are met or exceeded.

   • **Any Conditions Apply**: Select this option to generate a location notification, an alert, or a device message when any of the conditions are met or exceeded.

8. Select one of these options in the **Type** list:

   • **Alert**: Select this option to activate the rule when an alert message of the selected type is received.
     For example, a time restriction violation alert (`urn:com:oracle:iot:cw:location:time_restriction_violation`) is raised if an employee exceeds the maximum contiguous time period allowed for a location.

     If you are using asset integrations for your project, you can also select asset location related alerts. For example, an asset vicinity violation alert (`urn:com:oracle:iot:cw:location:asset_vicinity_violation`) is raised if a worker violates the vicinity radius for the asset.

- **Location**: Select this option to generate an incident, alert, or a message when the location conditions are met.

- **Attribute**: Select this option to generate an alert, incident, or a message when the rule conditions for the attribute are met. For example, you can use the `employee.devices.offline.time` attribute to trigger an incident if all devices for an employee have been marked offline for the specified number of seconds. This helps take action in case of disconnected employees.
  You can also use attributes to track the time workers spend *on duty* or *on break*. Use the attributes `employee.onBreak.time`, `employee.onDuty.time`, and `employee.checkedIn.time` to define rule conditions for the employees. For example, you can trigger an incident if an employee's checked-in duration is less than the lower threshold.

  If you are using asset integrations for your project, you can also specify asset sensor attribute related conditions. For example, you can create a hazard corresponding to pressure values of a boiler exceeding its threshold.

- **Device Message**: Select this option to generate an alert, incident, or a message when the device rule conditions are met.

9. Complete the configuration settings for the option you selected in the **Type** list.

10. (Optional) Add additional alert, location, attribute, or device message conditions.

11. Select one of these options:

   - **Create Incident**: Select this option to receive an incident notification when the rule conditions are met.

   - **Create Alert**: Select this option to generate an alert message when the rule conditions are met.

   - **Send Message**: Select this option to send a push-notification to the user's mobile device when the rule conditions are met.

   - **Trigger Employee Alert**: Select this option to generate an alert and trigger supported device actions on the user's device. You can use employee alerts to trigger visual and haptic feedback supported by your device models.
     For example, you can configure a rule to trigger employee alerts to all employees at a location in case an employee has fallen. The employees' MetaWear LED sensors would blink and their android devices would display the alert notification.

12. Complete the mandatory and optional fields that appear when you made your selection in step 10. The mandatory and optional fields include:

   - **Summary**: Enter a summary of the incident or alert.

   - **Type**: Select the incident or alert type.

   - **Priority**: (Optional) Select the incident, message, or employee alert priority.

   - **Tags**: (Optional) Enter tags that can help you identify incidents in the logs.

   - **Description**: (Optional) Enter a description of the incident.

   - **Severity**: (Optional) Select the alert message severity.

   - **Suppression**: (Optional) Enter a wait time, in minutes, to wait before another alert or warning is generated for unresolved issues.

   - **Message**: Enter a message to send to workers.

   - **Recipients**: Select the recipients of the device message. For example, if you select `LOCATION`, then the message is sent to all employees present at the location.

- **Sender**: Select the sender of the device message.

13. Click **Save**.

14. Click **Back** to return to the **Rules** list.

Create a Location Rule

Create a location rule to generate a notification, an alert, or a device message for all locations or a specific location.

1. Click **Menu** ≡ and click **Rules**.

2. Click **Create a rule** ✚.

3. Enter a name for the rule in the **Name** field.

4. (Optional) To set a time limit for the rule, specify a weekly or monthly schedule during which the rule is in force.

   A rule is active at all times, by default. You can change this behavior to choose a custom schedule for the rule.

   a. Under Rule Schedule, select **Custom**.

   b. Select **Repeat Weekly** to create a weekly schedule. Alternatively, select **Repeat Monthly** to create a monthly schedule.

   c. Click or drag inside the rows to select a data window.

      You can click an incorrectly selected cell to deselect it. Alternatively, click **Clear** to start afresh.

   The following example shows a weekly schedule for a rule that it is active from 8:00 a.m. to 6:00 p.m. on weekdays.

5. Under **Source Type**, select whether your rule is based on sensors associated with workers, such as employee location and motion detectors, or sensors associated with locations, such as temperature and humidity sensors.

   - Select **Employee** to create a rule based on sensors associated with workers.

- Select **Location** to create a rule based on environmental sensors associated with a location.
  Location source type rules are applied to locations or projects. If a project is chosen, then the rule applies to all locations in the project.

  You can use location rules to create incidents, alerts, messages, or automatic hazards when an environmental attribute, such as humidity or temperature, crosses the rule threshold.

6. Select one of these options in the **Apply To** list:

   - **All Locations**: To assign the rule to all locations, select this option.

   - **Specific Locations**: To assign the rule to a specific location, select this option and then select a location.

7. Select one of these options in the **Condition** area:

   - **All Conditions Apply**: Select this option to generate a location notification, an alert, or a device message when all of the conditions are met or exceeded.

   - **Any Conditions Apply**: Select this option to generate a location notification, an alert, or a device message when any of the conditions are met or exceeded.

8. Select one of these options in the **Type** list:

   - **Alert**: Select this option to activate the rule when an alert message of the selected type is received.
     For example, a time restriction violation alert (`urn:com:oracle:iot:cw:location:time_restriction_violation`) is raised if an employee exceeds the maximum contiguous time period allowed for a location.

     For locations with employee count restrictions, an employee count violation alert (`urn:com:oracle:iot:cw:location:employee_count_time_violation`) is raised if the employee count exceeds the maximum employee count allowed for the location.

     If you are using asset integrations for your project, you can also select asset location related alerts. For example, an asset vicinity violation alert (`urn:com:oracle:iot:cw:location:asset_vicinity_violation`) is raised if a worker violates the vicinity radius for the asset.

   - **Location**: Select this option to generate an incident, alert, or a message when the location conditions are met.

   - **Attribute**: Select this option to generate an alert, incident, or a message when the rule conditions for the attribute are met.
     For example, you can use the `employee.devices.offline.time` attribute to trigger an incident if all devices for an employee have been marked offline for the specified number of seconds. This helps take action in case of disconnected employees.

     If you are using asset integrations for your project, you can also specify asset sensor attribute related conditions. For example, you can create a hazard corresponding to pressure values of a boiler exceeding its threshold.

     If the **Source Type** of your rule is **Location**, you can use the **Attribute** value to define a condition on the number of employees (`location.employeesCount`) that can be present at the location.

     You can also use the **Attribute** value to create a location-based hazard. For example, you can create a hazard corresponding to high temperature at a location.

   - **Device Message**: Select this option to generate an alert, incident, or a message when the device rule conditions are met.

9. Complete the configuration settings for the option you selected in the **Type** list.

10. (Optional) Add additional alert, location, attribute, or device message conditions.

11. Select one of these options:

    • **Create Incident**: Select this option to receive an incident notification when the rule conditions are met.

    • **Create Alert**: Select this option to generate an alert message when the rule conditions are met.

    • **Send Message**: Select this option to send a push-notification to the user's mobile device when the rule conditions are met.

    • **Trigger Employee Alert**: Select this option to generate an alert and trigger supported device actions on the user's device. You can use employee alerts to trigger visual and haptic feedback supported by your device models.
      For example, you can configure a rule to trigger employee alerts to all employees at a location in case an employee has fallen. The employees' MetaWear LED sensors would blink and their android devices would display the alert notification.

    • **Create Hazard**: Select this option to create an automatic hazard condition when the rule conditions are met.
      This option is only available if the **Source Type** of your rule is **Location**, which corresponds to environmental sensors associated with a location.

12. Complete the mandatory and optional fields that appear when you made your selection in step 10. The mandatory and optional fields include:

    • **Summary**: Enter a summary of the incident or alert.

    • **Type**: Select the incident or alert type.

    • **Priority**: (Optional) Select the incident, message, or employee alert priority.

    • **Tags**: (Optional) Enter tags that can help you identify incidents in the logs.

    • **Description**: (Optional) Enter a description of the incident.

    • **Severity**: (Optional) Select the alert message severity.

    • **Suppression**: (Optional) Enter a wait time, in minutes, to wait before another alert or warning is generated for unresolved issues.

    • **Message**: Enter a message to send to workers.

    • **Recipients**: Select the recipients of the device message. For example, if you select `LOCATION`, then the message is sent to all employees present at the location.

    • **Sender**: Select the sender of the device message.

    • **Action**: Specify an action corresponding to a location hazard.

13. Click **Save**.

14. Click **Back** to return to the **Rules** list.

Edit a Rule

Edit a rule to change the rule settings including the rule name, rule type and add or remove conditions, incidents, alerts, or device messages.

1. Click **Menu** ≡ and click **Rules**.

2. Select a rule in the **Rules** list.

3. Click **Edit** ✏ .

4. (Optional) Edit the rule name.

5. (Optional) Edit the time limitations for the rule, or select **Rule Time Limit** to apply time limitations to the rule.

6. (Optional) Edit the **Source Type** for the rule.

    You can choose between sensors associated with employees and those associated with a location.

7. (Optional) Select an option in the **Apply To** area.

8. (Optional) Edit the settings in the **Condition** area.

9. (Optional) Select an option in the **Type** list.

10. (Optional) Edit the settings in the **Create Incident** area.

11. (Optional) Edit the settings in the **Create Alert** area.

12. (Optional) Edit the settings in the **Send Message** area.

13. (Optional) Edit the settings in the **Create Hazard** area.

14. Click **Save**.

15. Click **Back** to return to the **Rules** list.

Duplicate a Rule

Duplicate a rule to quickly copy the settings of an existing rule to a new rule.

1. Click **Menu** ≡ and click **Rules**.

2. Select a rule in the **Rules** list.

3. Click **Duplicate** 🗐 .

4. Enter a name for the rule in the **Name** field and then modify the other rule settings including the apply to, condition, type, create incident, create alert, and send message values.

5. Click **Save**.

6. Click **Back** to return to the **Rules** list.

Activate or Deactivate a Rule

Activate an existing rule to generate an incident or alert report when the incident rule criteria are met. Deactivate a rule to stop incident or alert report generation.

1. Click **Menu** ≡ and click **Rules**.

2. Select a rule in the **Rules** list.

3. Select one of these options:

    a. To deactivate a rule, clear the **Enabled** checkbox.

b. To enable a rule, select the **Enabled** checkbox.

Delete a Rule

Delete a rule when it is no longer required.

1. Click **Menu** ☰ and click **Rules**.

2. Select a rule in the **Rules** list.

3. Click **Delete** 🗑.

4. Click **Yes**.

9

View and Manage Incidents

Incident reports identify issues that require your attention.

Topics

View the Incidents List

The incidents list displays incident information.

Click the **Menu** (≡) icon, and then click **Incidents**.

Search for an Incident

Use a search filter to locate a specific incident.

1. Click **Menu** ≡, and then click **Incidents**.

2. Click **Filter** ▼ .

3. Select one of these options in the first list:

   - **Show All**: Select this option to display all incidents.

   - **Priority**: Select this option to search for a incidents by their priority.

   - **Reported Time**: Select this option to search for a incidents by their reporting time.

   - **Last Edited**: Select this option to search for a incidents by the their last edited time.

   - **Status**: Select this option to search for incidents by their status.

   - **Type**: Select this option to search for incidents by their type.

   - **Summary**: Select this option to search for incidents by their summary.

4. Select one of these options in the second list:

   - **is**: Select this option to search for an incident with a specific priority, status, or type.

   - **is not**: Select this option to search for an incident by excluding a specific priority, status, or type.

   - **before**: Select this option to search for an incident that was reported or last edited before a specific date.

   - **after**: Select this option to search for an incident that was reported or last edited after a specific date.

- **starts with**: Select this option to search for an incident using a full or partial search phrase. For example, you can locate the incident Noise Hazard by searching for N, No, or Noise.

- **matches**: Select this option to search for an incident using an exact match. For example, to locate the incident Noise Hazard, enter Noise Hazard in the search field.

- **does not match**: Select this option to search for an incident by excluding the search criteria you enter. For example, entering Noise Hazard returns all incidents except Noise Hazard.

5. Enter or select the search parameters in the third field.

6. (Optional) Click the **Add** ( ) or **Remove** ( ) icons to add or remove search filters.

7. (Optional) Click **Clear Search** to remove the search filters.

Sort the Incident List

Sort the incident list to group incidents by status, priority, type, reported time, last edited, or summary.

1. Click the **Menu** ( ) icon, and then click **Incidents**.

2. Use one of these methods to sort the incidents:

   - Click the Sort arrow in a column header to sort the incident list. Clicking the arrow toggles the sort order between ascending and descending.

   - Right-click in a column, click **Sort**, and then select **Sort Ascending** or **Sort Descending**.

View Incident Details in the Map View

In the map view, incidents are represented by a circle with an integer value. In the map view, incidents in close geographic proximity are represented by a circle with an integer value. Clicking the circle automatically increases the map magnification and displays the individual incidents that form the cluster.

1. Click the **Menu** ( ) icon, and then click **Map**.

2. Select **Incidents** on the **Personnel** tab at the bottom of the map view.

3. Click **Zoom Out** ( ) until it reaches its maximum setting and all continents are visible.

4. Click the incident icon until individual incident icons appear, click an incident icon, and then click **View** ( ) to view details for the specific incident.

5. Click the map to return to the map view.

10
Create and Manage Hazards

Create hazards to notify your workers of issues that could cause personal injury.

Topics

View the Hazards List

The hazards list displays a list of hazards created for your projects.

Click the **Menu** (≡) icon, and then click **Hazards**.

Sort the Hazards List

Sort the hazard list to group hazards by status, severity, creation date, subject, location, or by action.

1. Click the **Menu** (≡) icon, and then click **Hazards**.
2. Click a pie chart segment, or right-click in a column, click **Sort**, and then select **Sort Ascending** or **Sort Descending**.

Search for a Hazard

Use a search filter to locate a specific hazard.

1. Click **Menu** ≡, and then click **Hazards**.

2. Click **Filter** ▼ .

3. Select one of these options in the first list:
   - • **Show All**: Select this option to display all hazards.
   - • **Status**: Select this option to search for hazards by their status.
   - • **Severity**: Select this option to search for hazards by severity.
   - • **Created**: Select this option to search for hazards by the creation date.
   - • **Subject**: Select this option to search for hazards by their subject.

- **Location**: Select this option to search for hazards by their location.

- **Action**: Select this option to search for hazards by their action.

4. Select one of these options in the second list:

    - **is**: Select this option to search for a hazard with a specific status or severity.

    - **is not**: Select this option to search for a hazard by excluding a specific status or severity.

    - **before**: Select this option to search for a hazard that was created before a specific date.

    - **after**: Select this option to search for a hazard that was created after a specific date.

    - **starts with**: Select this option to search for a hazard using a full or partial search phrase. For example, you can locate a Noise Hazard by searching for N, No, or Noise.

    - **matches**: Select this option to search for a hazard using an exact match. For example, to locate a Noise Hazard, enter Noise Hazard in the search field.

    - **does not match**: Select this option to search for a hazard by excluding the search criteria you enter. For example, entering Noise Hazard returns all incidents except Noise Hazard.

5. Select the search parameters in the second field.

6. (Optional) Click the **Add** (➕) or **Remove** (➖) icons to add or remove search filters.

7. (Optional) Click **Clear Search** to remove the search filters.

Create a Hazard

Create a hazard to inform workers of issues that can cause personal injury or of conditions that require special precautions. For example, notify a worker of a hearing hazard. When the worker crosses the defined hazard geo-fence boundary they receive a notification.

1. Click the **Menu** (≡) icon, and then click **Hazards**.

2. Click the **Create Hazard** (➕) icon.

3. Complete these fields in the **Details** area:

    - **Severity**: Select the hazard severity.

    - **Subject**: Enter a brief description of the hazard that informs a worker of the type of hazard they have encountered.

    - **Action**: Enter the action a worker should take when they are notified they have entered the hazardous location.

    - **Further Information**: (Optional) Enter additional information that will help the worker understand the hazard or what action they should take.

4. Select the project or projects to which the hazard should apply in the **Projects** area.

5. Select the location or locations to which the hazard should apply in the **Locations** area.

6. Draw the hazard geo-fence in the map view:

   a. Click the **Zoom in** (➕) icon to zoom in to a map location, or click the **Zoom out** (➖) icon to zoom out from a map location.

   b. Click and hold the left mouse button to move the map.

   c. Click the **Pencil** (✎) icon.

   d. Click the left mouse button on the map to add a polygon and to start drawing the permitted location boundary.

   e. Click the left mouse button and drag it to a new location and then release the left mouse button.

   f. Continue drawing the permitted location boundary until all the polygons are joined.

7. (Optional) Repeat step 6 to add additional hazard geo-fences.

8. Click **Save**.

9. Click **Back** to return to the **Hazards** list.

Add Comments to a Hazard

Add comments to a hazard to provide additional information about the hazard or to indicate how or why the hazard was resolved.

1. Click the **Menu** (≡) icon, and then click **Hazards**.

2. Select a hazard in the **Hazards** list.

3. Click the **Edit** (✎) icon.

4. Enter your comments in the **Comments** area.

5. Click **Post**.

6. (Optional) Repeat steps 4 and 5 to add additional comments.

7. Click **Back** to return to the **Hazards** list.

Mark a Hazard Location as Safe

Mark a hazard location as safe when the hazard is no longer a concern to workers.

1. Click the **Menu** (≡) icon, and then click **Hazards**.

2. Select a hazard in the **Hazards** list.

3. Click the **Edit** (✎) icon.

4. Left-click within a hazard location geo-fence boundary and then select **Mark as safe**.

5. (Optional) Repeat step 4 to identify additional hazard locations as safe.

6. Click **Back** to return to the **Hazards** list.

Resolve a Hazard

Resolve a hazard when the hazard is no longer applicable or the hazard is no longer a concern to workers.

1. Click the **Menu** (≡) icon, and then click **Hazards**.

2. Select a hazard in the **Hazards** list.

3. Click the **Edit** (✎) icon.

4. Select the **Resolved** check box in the **Details** area.

5. Click **Save**.

6. Click **Back** to return to the **Hazards** list.

11

Manage Messages

Use the messages dashboard to search for specific messages, determine if a message has been acknowledged by the recipients, send a message reminder, and view message details.

Topics

Search for a Specific Message

Use the search function to locate a specific message that matches the search criteria you specify.

1. Click **Menu** ≡, and then click **Messages**.

2. Click **Filter** ▼ .

3. Select one of these options in the first list:

   - **Show All**: Select this option to display all messages.

   - **Acknowledged**: Select this option to search for a message by its acknowledgement status.

   - **Priority**: Select this option to search for a message by its priority..

   - **Sent**: Select this option to search for a message sent on a specific date and time.

   - **Sender**: Select this option to search for a message sent by a specific sender.

   - **Message**: Select this option to search for a message that meets the criteria you specify.

4. Select one of these options in the second list:

   - **is**: Select this option to search for a message with a specific acknowledgement status or priority.

   - **is not**: Select this option to search for a message by excluding a specific acknowledgement status or priority.

   - **before**: Select this option to search for a message that was sent before a specific date and time.

   - **after**: Select this option to search for a message that was sent after a specific date and time.

   - **starts with**: Select this option to search for a message sender or message content that starts with specific letters or words.

- **matches**: Select this option to search for a message sender or message content that matches specific letters or words.

- **does not match**: Select this option to search for a message sender or message content by excluding specific letters or words.

5. Enter or select your search criteria in the second field and then press **Enter**.

6. (Optional) Click the **Add** (⊕) icon to add additional search criteria.

7. (Optional) Click the **Remove** (⊖) icon to remove additional search criteria.

8. (Optional) Click **Clear Search** to clear your search criteria.

Sort the Messages List

Sort the messages list to group messages by acknowledgement status, priority, sent date, sender, location, or by message content.

1. Click the **Menu** (≡) icon, and then click **Messages**.

2. Click a pie chart segment, or right-click in a column, click **Sort**, and then select **Sort Ascending** or **Sort Descending**.

Send a Reminder Message

Send a message reminder when a project participant fails to acknowledge a message.

1. Click the **Menu** (≡) icon, and then click **Messages**.

2. Select a message in the **Messages** list.

3. Click **Send Reminder** (🔔).

4. Click **Send**.

View Message Details

View message details to view the message content, the date and time a message was sent, the last reminder date and time, acknowledgement status, and recipients. You can also send a message reminder from the message details screen.

1. Click the **Menu** (≡) icon, and then click **Messages**.

2. Select a message in the **Messages** list.

3. Click **View** (👁).

4. (Optional) Click **Send Reminder** and then **Send** to send a message reminder to the message recipients.

5. Click **Back** to return to the messages list.

12

# Manage Workers, Locations, and Projects in the Map View and Workers View

Use the map view to locate and manage your workers, locations, and projects.

Topics

Use the Personnel and Projects Ribbon

Personnel and project metrics are displayed in a ribbon at the bottom of the map view. Use the metrics ribbon to quickly locate personnel and projects.

1. Click the **Menu** (≡) icon, and then click **Map**.

2. (Optional) Click the **Zoom in** (➕) icon to zoom in to a map location, or click the **Zoom out** (➖) icon to zoom out from a map location.

   To include all available workers or projects in your search, zoom out until all continents are visible.

3. To locate workers or incidents, select one of these options on the **Personnel** tab:

   - **Workers**: Select this option to view all of the workers in the current view. The numeric value indicates the number of workers in the current view. When map magnification is low, workers in the same geographic location are grouped in clusters.

   - **Incidents**: Select this option to view all of the incidents in the current view. The numeric value indicates the number of incidents in the current view. When map

magnification is low, incidents in the same geographic location are grouped in clusters.

4. To locate projects, locations, and hazardous locations, select one of these options on the **Projects** tab:

    *   **Projects**: Select this option to display the number of projects in the selected view. The numeric value indicates the number of projects in the current view.

    *   **Locations**: Select this option to display the number locations in the selected view. The numeric value indicates the number of locations in the current view.

    *   **Hazardous**: Select this option to display the hazardous locations in the selected view. The numeric value indicates the number of hazardous locations in the current view.

Locate Workers, Projects, and Locations in the Map View

Use a search filter to locate a worker, a project, or a location in the map view.

1. Click **Menu** ≡, and then click **Map**.

2. (Optional) Click **Zoom in** ✚ to zoom in to a map location, or click **Zoom out** ━ to zoom out from a map location.

    To include all available workers or projects in your search, zoom out until all continents are visible.

3. Click **Filter map content** ▼ .

4. Select **Show All** and then select one of these options in the first list:

    *   **Employee**: Select this option to display all workers that meet the search criteria.

    *   **Project**: Select this option to display all projects that meet the search criteria.

    *   **Location**: Select this option to display all locations that meet the search criteria.

5. Select one of these options in the second list:

    *   **is**: Select this option to search for a worker, a project, or a location that matches the specified search criteria.

    *   **is not**: Select this option to search for a worker, a project, or a location that does not match the specified search criteria.

6. Enter the search parameters in the second field and then press **Enter**.

7. (Optional) Enter additional search criteria and then press **Enter**.

8. (Optional) Click **Add** ⊕ or **Remove** ⊖ to add or remove search filters.

9. (Optional) Click **Clear Search** to remove the search filters.

View Worker Details in the Map View

In the map view, groups of workers are represented by a circle with an integer value. Workers are clustered when they are located in close proximity and the map view

magnification is low. Clicking the circle automatically increases the map magnification and displays the individual workers that form the cluster.

1. Click **Menu** ☰ and then click **Map**.

2. Select **Workers** on the **Personnel** tab at the bottom of the map view.

3. Search for a specific worker or click **Zoom Out** ▬ until a circle with an integer value appears. To search for a specific worker, see Locate Workers, Projects, and Locations in the Map View.

4. Click the worker icon until individual worker icons appear, click a worker 📍 icon, and then click **View** 👁.

   The worker details screen has the following tabs:

   • ℹ **Information:** Shows details on the worker, such as the worker name, role, email, project name, and location name. Also includes the current worker status, such as whether the worker is *On Duty*, *Off Duty*, or *On Break*. A worker status history is available. You can also see any certifications issued to the worker for project or location access.

   • 📍 **Position History:** Plots the recent position history of the worker on the map. You can adjust the slider to select the time period in minutes.

   • 🎚 **Location History:** Helps track the time spent by the worker at different locations in the project area.

   • 📡 **Sensor Data:** Shows the data plots for sensors associated with the worker. You can select the sensor(s) and time period to view. You can also choose to zoom in or zoom out over the time axis.

5. Click the map to return to the map view.

Display Worker Roles Instead of Worker Names

You can choose to show worker roles in place of worker names in the map view, worker details screen, and in search filters.

Use this option if you need the individual worker names to remain anonymous. Use the Configurable Parameters page to set the worker display mode to anonymous. Note that any rules generating incidents or alerts, for example, will continue to show the worker name in the incident and alert details.

1. Click **Menu** ☰ and then click **Design Center**.

2. Click the **Configurable Parameters** 🎚 tab.

3. Select whether the settings apply globally, or to an individual project:

   Global: Applies the settings to all projects.

   Project: Applies the settings to the chosen project. All projects inherit the global settings by default. However, you can change the settings inherited by an individual project.

4. If you selected **Project** in the previous step, then choose the name of your project.

5. Change the **Worker Display Mode** to **Anonymised**.

6. Click **Save** to save your configuration settings.

View the Worker Position History in the Map View

View the worker Position History dashboard to view worker activity and safety data and position history. In the map view, groups of workers are represented by a circle with an integer value. Workers are clustered when they are located in close proximity and the map view magnification is low. Clicking the circle automatically increases the map magnification and displays the individual workers that form the cluster.

1. Click **Menu** ☰ and then click **Map**.

2. Select **Workers** on the **Personnel** tab at the bottom of the map view.

3. Search for a specific worker or click **Zoom Out** ━━ until a circle with an integer value appears. To search for a specific worker, see Locate Workers, Projects, and Locations in the Map View.

4. Click the worker icon until individual worker icons appear, click a worker 🔵 icon, and then click **View** 👁.

5. Click the **Position History** 🔵 tab.

6. (Optional) Move the **Position History** slider to increase or decrease the position history interval.

7. Click the map to return to the map view.

View the Worker Location History in the Map View

View the worker Location History dashboard to view location data for a specific period. The worker location history can help determine the efficiency and punctuality of workers.

1. Click **Menu** ☰ and then click **Map**.

2. Select **Workers** on the **Personnel** tab at the bottom of the map view.

3. Search for a specific worker or click **Zoom Out** ━━ until a circle with an integer value appears. To search for a specific worker, see Locate Workers, Projects, and Locations in the Map View.

4. Click the worker icon until individual worker icons appear, click a worker 🔵 icon, and then click **View** 👁.

5. Click the **Location history** 🎚 tab.

6. (Optional) Select a period for the location history.

7. Click the map to return to the map view.

View Sensor Attributes Associated with a Worker

The **Sensor Data** tab shows data plots for sensors associated with the worker. You can select the sensor(s) and time period to view. You can also choose to zoom in or zoom out over the time axis.

1. Click **Menu** ≡ and then click **Map**.

2. Select **Workers** on the **Personnel** tab at the bottom of the map view.

3. Search for a specific worker or click **Zoom Out** ━━ until a circle with an integer value appears. To search for a specific worker, see Locate Workers, Projects, and Locations in the Map View.

4. Click the worker icon until individual worker icons appear, click a worker ⊕ icon, and then click **View** ◉.

5. Click the **Sensor Data** 📶 tab.

6. Select the sensor attribute that you wish to see.

   You can select multiple attributes if you are comparing or correlating the values for multiple attributes.

7. Select a **Data Time Window** to view sensor data.

   For example, select **Last 24 Hours** to view the preceding day's data. You can zoom in or zoom out of the data plot.
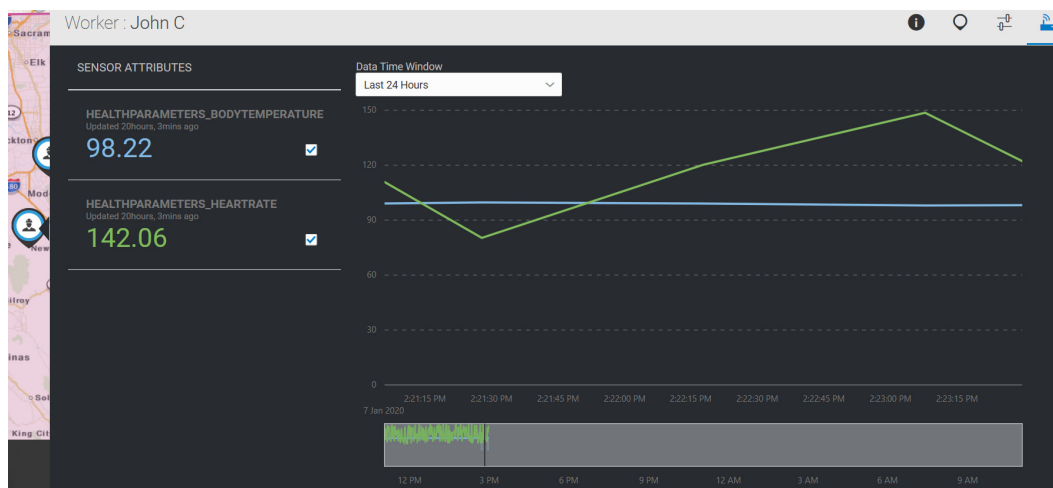
Hover over the data plot at any point to show the attribute name and data values.

8. Click the map to return to the map view.

Send a Broadcast Message to All Workers in the Map View

Send a broadcast message to all workers in the map view to inform them of important information.

1. Click the **Menu** (≡) icon, and then click **Map**.

2. Select **Workers** on the **Personnel** tab at the bottom of the map view.

3. Click the **Zoom Out** (▬) icon until it reaches its maximum setting and all continents are visible.

4. Click the **Broadcast** (⬚) icon.

5. Enter your message text.

6. Select the message priority.

7. Click **Send**.

8. Click the **Broadcast** (⬚) icon to close the broadcast dialog.

Send a Broadcast Message to Specific Workers in the Map View

Send a broadcast message to specific workers in the map view to inform them of important information.

1. Click the **Menu** (≡) icon, and then click **Map**.

2. Select **Workers** on the **Personnel** tab at the bottom of the map view.

3. Search for a specific worker or click the **Zoom Out** (▬) icon until a circle with an integer value appears in the location you want to send your broadcast message. To search for a specific worker, see Locate Workers, Projects, and Locations in the Map View.

4. Click the circle.

   The map view magnification increases to show the workers contained in the cluster.

5. Select one of these options:

   • Click the **Broadcast** (⬚) icon to send a broadcast message to all workers in the cluster.

   • Click the **Worker** (◉) icon and then click the **Broadcast** (⬚) icon to send a broadcast message the specific worker.

6. Enter your message text.

7. Select the message priority.

8. Click **Send**.

9. Click the **Broadcast** (⬚) icon to close the broadcast dialog.

Send a Broadcast Message to All Locations in the Map View

Send a broadcast message to all locations in the map view to inform all workers in all locations of important information.

1. Click the **Menu** (≡) icon, and then click **Map**.

2. Select **Locations** on the **Project** tab at the bottom of the map view.

3. Click the **Zoom Out** (➖) icon until it reaches its maximum setting and all continents are visible.

4. Click the **Broadcast** (📢) icon.

5. Enter your message text.

6. Select the message priority.

7. Click **Send**.

8. Click the **Broadcast** (📢) icon to close the broadcast dialog.

Send a Broadcast Message to a Specific Location in the Map View

Send a broadcast message to inform workers in specific locations of important information. In the map view, locations in close geographic proximity are represented by a circle with an integer value. Clicking the circle automatically increases the map magnification and displays the individual locations that form the cluster.

1. Click the **Menu** (≡) icon, and then click **Map**.

2. Select **Locations** on the **Projects** tab at the bottom of the map view.

3. Click the **Zoom Out** (➖) icon until a circle with an integer value appears in the location you want to send your broadcast message.

4. Select one of these options:

   • Click a circle and then click the **Broadcast** (📢) icon to send a broadcast message to all workers in all locations in the cluster.

   • Click the location icon until individual location icons appear, click a location icon, and then click the **Broadcast** (📢) icon to send a broadcast message to all workers at the specific location.

5. Enter your message text.

6. Select the message priority.

7. Click **Send**.

8. Click the **Broadcast** (📢) icon to close the broadcast dialog.

View Location Details in the Map View

In the map view, locations are represented using location icons. Locations in close geographic proximity are represented by a circle with an integer value, representing the number of locations in the cluster. Clicking the circle automatically increases the map magnification and displays the individual locations that form the cluster.

1. Click the **Menu** (≡) icon, and then click **Map**.

2. Select **Locations** on the **Projects** tab at the bottom of the map view.

3. Search for a specific location or click **Zoom Out** (➖) until a circle with an integer value appears. To search for a specific location, see Locate Workers, Projects, and Locations in the Map View.

4. Click the location icon until individual location icons appear.

    If you have integrated with assets in Oracle IoT Asset Monitoring Cloud Service, then you may also see asset location icons.

    The following image shows an asset location contained in a project location. Notice that the location icons are different for the project location and the asset location. The asset radial boundary also appears around the asset location.
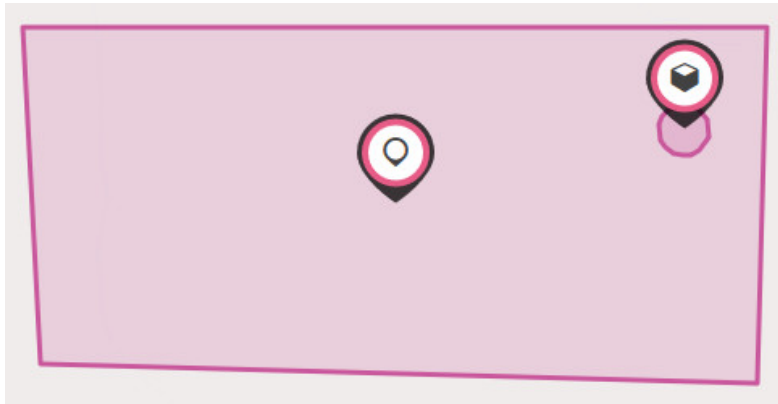
5. Click a location icon, and then click **View** (⬤) to view information for the specific location.

    The **Information** tab 🛈 shows information about the project, workers, incidents, and hazard conditions associated with the location.

6. To look at the worker history for the location, click the **Workers History** 👤 tab.
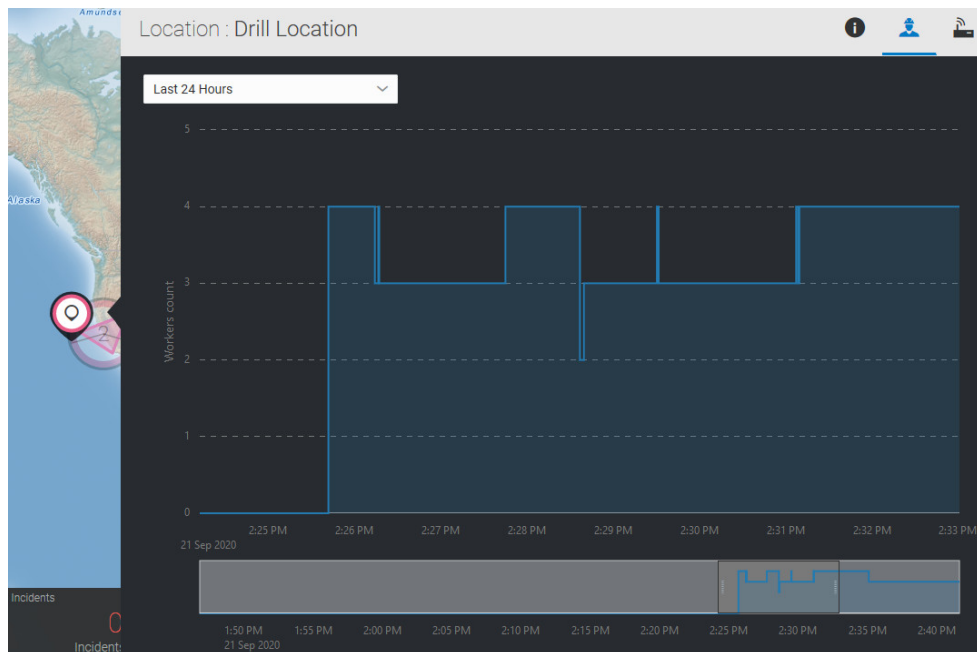
The workers history tab shows a time-wise chart of the number of workers present at the project location. Select the time period to view. Alternatively, zoom in or zoom out to see the desired time period.

a. Click and drag in any region of the chart to see a list of workers present for the selected time period. Workers entering or leaving the location during the selected time period are also displayed.

b. Click **Close** (**X**) to return to the Workers History chart.

7. To view the data for location-based sensors, click the **Sensor Data** tab.

   For example, your location may support ambient light, temperature, humidity, and other measurements.

> **✎ Note:**

For sensor values to show, your location sensor devices should have been associated with the sensor attributes defined for the location sensor.

If you have integrated with assets in Oracle IoT Asset Monitoring Cloud Service, then you can also see asset sensor data for your asset location. The following image shows the sensor data associated with an asset location.
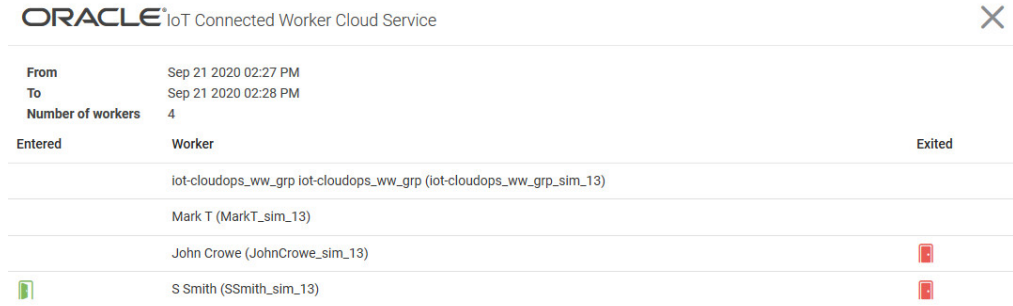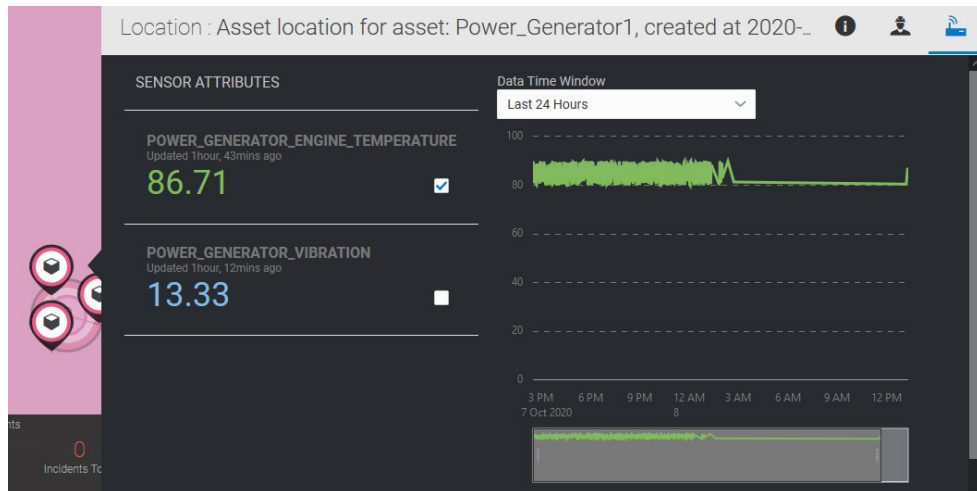
8. Select the sensor attribute that you wish to see.

   You can select multiple attributes if you are comparing or correlating the values for multiple attributes.

9. Select a **Data Time Window** to view sensor data.

   For example, select **Last 24 Hours** to view the preceding day's data. You can zoom in or zoom out of the data plot.
   Hover over the data plot at any point to show the attribute name and data values.

10. Click the map to return to the map view.

Display a Floor Plan in the Map View

A floor plan provides a visual representation of the physical space within a location or building. Display a floor plan to identify the specific location of a worker or project participant within a location or building.

1. Click **Menu** (≡) and then click **Map**.

2. Click **Zoom in** (➕) or **Zoom out** (➖) to increase or decrease the map magnification.

3. Select a location.

4. Click **Floor Plan** (⬚) to display a floor plan.

5. (Optional) Click **Floor Plan** (⬚) again to hide a floor plan.

Use the Workers Dashboard

The Workers dashboard provides a role-wise and status-wise summary of your workers. The dashboard also includes information on worker projects, worker device statuses, and worker incident statuses.

You can search and filter the list of workers using parameters such as worker name, worker role, or worker status.

1. Click **Menu** ≡, and then click **Workers**.

2. To quickly filter workers by role and duty status, click the appropriate segments in the pie chart under Workers Summary.

For example, the following dashboard filters for on-site and on-duty administrators and workers.
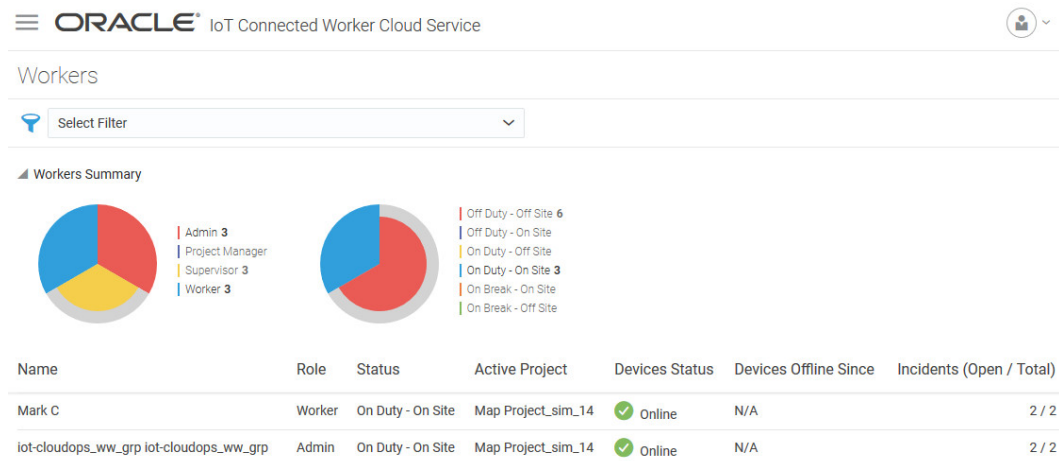
3. To search using filters for **Name**, **Role**, and **Status**, use the search filter options above the Workers Summary section.

You can combine multiple criteria in your searches.

4. Click any column header in the workers table below the pie chart to sort the table using that column.

For example, click **Incidents** to sort the table by the number of incidents against a worker. You can click the column header again to alternate between ascending and descending order.

The workers table includes the following details:

- **Name**: Name of the worker.

- **Role**: Role of the worker, such as supervisor, worker, or admin.

- **Status**: Status of the worker, such as on-site or off-site.

- **Active Project**: Name of the active project assigned to the worker.

- **Device Status**: The device status of the worker's device, such as online or offline.

- **Devices Offline Since**: Specifies the duration for which a worker has been offline.

- **Incidents (Open/Total)**: The count of open and total incidents for the worker.

13
Simulate Worker Activities and Device Data

Use the simulator to simulate worker activities and device data. You can use the data sent by the simulator to test data transfer and create simulated alerts and incidents. Simulations save you the time and expense of connecting real, physical devices to Oracle IoT Connected Worker Cloud Service.

Simulated devices and worker activities behave like real, physical devices and workers. Simulations can be turned on and off and can be configured to perform a number of simulated functions such as trip and fall or entering hazardous locations.

Use the simulated data returned in real-time to test and configure Oracle IoT Connected Worker Cloud Service features and functionality and customize the application to meet your unique business requirements.

Access the Simulator

Use the Oracle IoT Connected Worker Cloud Service simulator to simulate worker activities and device data. An Oracle IoT Connected Worker Cloud Service user account is required to access the simulator. Oracle provides user account information when you subscribe to the cloud service.

1. Open a web browser, enter the URL for the Oracle IoT Connected Worker Cloud Service simulator, and then press **Enter**.

   The URL for the Oracle IoT Connected Worker Cloud Service simulator is typically `http://hostname/cw-sim/login/login.html`. Replace `hostname` with the host name of your Oracle IoT Connected Worker Cloud Service instance. Your host name was provided in an email sent to you when you subscribed to the service.

2. Enter your user name and password and then click **Sign In**.

Create a Custom Simulation

Use the Oracle IoT Connected Worker Cloud Service simulator to simulate personnel activities.

1. Create a new user. See Create a User Account.

2. Create a project and then assign the user you created in step 1 to the project. See Create a New Project and Assign Personnel to a Project.

3. Open a web browser, enter the URL for the Oracle IoT Connected Worker Cloud Service simulator, and then press **Enter**.

   The URL for the Oracle IoT Connected Worker Cloud Service simulator is typically `http://hostname/cw-sim/login/login.html`. Replace `hostname` with the host name of your Oracle IoT Connected Worker Cloud Service instance. Your host was provided in an email sent to you when you subscribed to the service.

4. Enter your user name and password and then click **Sign In**.

5. Click **Menu** ≡ and then **Simulations**.

6. Click **Add** ╋.

7. Click **Custom.**

8. Select the **Source Organization** that provides the data for the custom simulation model, and click **Next**.

9. Enter a name for the simulation in the **Name** field.

10. Select personnel to simulate:

    a. Click the **Personnel** tab.

    b. Click **New** ╋.

    c. Select an employee in the **Add employees** list and then click **Save**.

11. Set the path for the employee to follow:

    a. Click **Set Path**.

    b. Click **Zoom in** ╋ to zoom in to a map location, or click **Zoom out** ━ to zoom out from a map location.

    c. Click and hold the left mouse button to move the map.

    d. Click the **Pencil** (✎) icon.

    e. Click the left mouse button on the map to add the first point and to start drawing the path.

    f. Click the left mouse button and drag it to a new location and then release the left mouse button.

    g. Continue drawing the path until all the points are joined.

    h. Click **Save**.

12. Click the **Wearables** tab and then select the devices you want to associate with the employee.

13. Click **Save**.

14. Click **Close** to close the Simulator Configuration window.

15. Add and activate simulated activities to the simulation:

    a. Click the name of a simulation model.

    b. Click **Add** ╋.

    c. Expand **Customize**, enter a name in the **Name** field and then enter an optional description in the **Description** field.

    d. Choose the target **Organization** to which the simulation is deployed.

    e. Click **Create**.

    f. Click **Activate** ⊖ in the **Running** column to activate the simulation.

Simulate Personnel Activities

You can use a simulation to simulate the duty status of personnel (on duty, on break, off duty) and simulate a fall event. When you change the duty status or simulate a fall event, the information is sent to your Oracle IoT Connected Worker Cloud Service instance.

1. Open a web browser, enter the URL for the Oracle IoT Connected Worker Cloud Service simulator, and then press **Enter**.

   The URL for the Oracle IoT Connected Worker Cloud Service simulator is typically `http://hostname/cw-sim/login/login.html`. Replace `hostname` with the host name of your Oracle IoT Connected Worker Cloud Service instance. Your host was provided in an email sent to you when you subscribed to the service.

2. Enter your user name and password and then click **Sign In**.

3. Click **Menu** ≡ and then **Simulations**.

4. Click the name of a simulation.

5. Click **View** 👁.

6. (Optional) To change the duty status, select one of these options in the **Events** area:

   • **On Duty**: Select this option to change the status to on duty.

   • **On Break**: Select this option to change the status to on break.

   • **Off Duty**: Select this option to change the status to off duty.

7. (Optional) To simulate a fall event, click **Fall Down** in the **Events** area.

8. (Optional) To view messages sent to simulated personnel, click **Messages** ✉.

Export a Simulation Model

Export a simulation model to save the simulation model settings, or to use the simulation model in another Oracle IoT Connected Worker Cloud Service instance.

1. Open a web browser, enter the URL for the Oracle IoT Connected Worker Cloud Service simulator, and then press **Enter**.

   The URL for the Oracle IoT Connected Worker Cloud Service simulator is typically `http://hostname/cw-sim/login/login.html`. Replace `hostname` with the host name of your Oracle IoT Connected Worker Cloud Service instance. Your host was provided in an email sent to you when you subscribed to the service.

2. Enter your user name and password and then click **Sign In**.

3. Click **Menu** ≡ and then **Simulations**.

4. Click the name of a simulation.

5. Click **Export Connected Worker model** ⬆.

6. Click **Save File**, click **OK**, browse to a location to the save the file, enter a name for the compressed simulation model file, and then click **Save**.

Import a Simulation Model

Import a simulation model to quickly add an existing simulation model to an Oracle IoT Connected Worker Cloud Service instance.

1. Open a web browser, enter the URL for the Oracle IoT Connected Worker Cloud Service simulator, and then press **Enter**.

   The URL for the Oracle IoT Connected Worker Cloud Service simulator is typically `http://hostname/cw-sim/login/login.html`. Replace `hostname` with the host name of

your Oracle IoT Connected Worker Cloud Service instance. Your host was provided in an email sent to you when you subscribed to the service.

2. Enter your user name and password and then click **Sign In**.

3. Click **Menu** ≡ and then **Simulations**.

4. Click **Add** ✚.

5. Click **Import From File** 📥.

6. Browse to the location of the simulation model, select it, and then click **Open**.

14

Integrate Oracle IoT Connected Worker Cloud Service with Other Applications

Use integrations to share information between Oracle Internet of Things (IoT) Connected Worker Cloud Service and other applications. You can integrate Oracle IoT Connected Worker Cloud Service with payroll applications.

Application integration provides numerous benefits, including:

- Increased agility. Respond to customer requests and business opportunities more quickly.

- Information sharing. Integration allows information to flow between separate applications operating inside and outside your business.

- Process automation. Streamline processes that include data from multiple applications.

- Reduced complexity. Integration combines the information and functionality of multiple applications into a single, easy-to-use interface.

Integrations let you realize the full benefit of your software investment. Integrate with other applications to use all of the data you collect as fully as possible.

Integrate Oracle Human Capital Management Cloud with Oracle IoT Connected Worker Cloud Service

Integrate Oracle Internet of Things (IoT) Connected Worker Cloud Service with Oracle Human Capital Management Cloud to automate time card entries, and to sync incidents reported in Oracle Internet of Things (IoT) Connected Worker Cloud Service with Oracle Human Capital Management Cloud.

When workers update their statuses in Oracle IoT Connected Worker Cloud Service, a time card entry is automatically generated in Oracle Human Capital Management Cloud. Automatic time card entries increase reporting accuracy and reduce reliance on manual processes.

When a rule creates an incident in Oracle IoT Connected Worker Cloud Service, the incident is imported into Workforce Health and Safety Incidents in Oracle Human Capital Management Cloud. You can then update the incident directly in Oracle Human Capital Management Cloud.

Architecture

To automate time card and incident creation in Oracle Human Capital Management Cloud, you connect Oracle Internet of Things (IoT) Connected Worker Cloud Service to Oracle Human Capital Management Cloud.

To integrate Oracle Human Capital Management Cloud with Oracle IoT Connected Worker Cloud Service, you import worker data from Oracle Human Capital Management Cloud and then map the data to matching Oracle IoT Connected Worker Cloud Service worker accounts. Following account synchronization, status information is automatically sent to Oracle Human

Capital Management Cloud when workers enter or leave a work location geofence boundary or changes their status to on break or off site. These arrival, departure, and status updates automatically create worker time card entries in Oracle Human Capital Management Cloud.
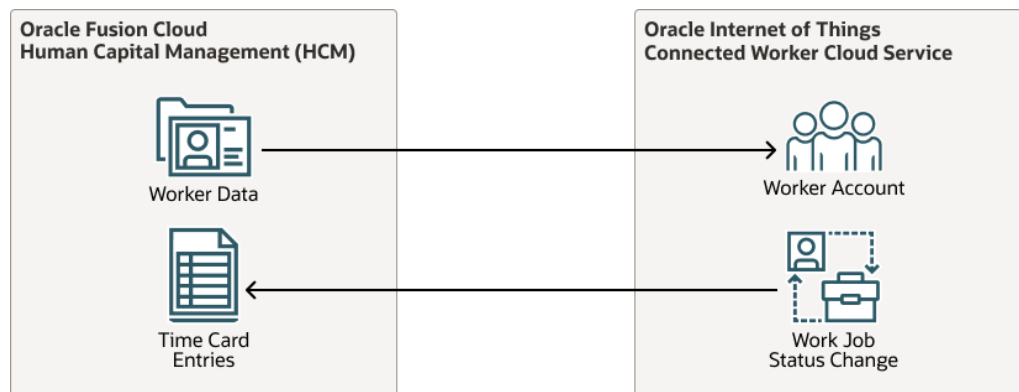
The architecture diagram illustrates this flow:

1. Worker data is imported from Oracle Human Capital Management Cloud and synchronized with matching Oracle IoT Connected Worker Cloud Service worker accounts.

2. A worker enters or leaves a work location or changes his or her status to on break and this status information is sent to Oracle Human Capital Management Cloud where worker time card entries are automatically created.

About Required Services and Roles

This solution requires the following services:

- Oracle Internet of Things (IoT) Connected Worker Cloud Service

- Oracle Human Capital Management Cloud

These are the roles needed for each service.

Service Name: Role	Required to...
Oracle IoT Connected Worker Cloud Service: Administrator	The administrator sets up and maintains the application. The administrator creates user accounts and manages user data.
Oracle Human Capital Management Cloud: Manager	The manager manages user data and integrations.

See *Learn how to get Oracle Cloud services for Oracle Solutions* to get the cloud services you need.

Before You Begin

Before synchronizing data between Oracle Internet of Things (IoT) Connected Worker Cloud Service and Oracle Human Capital Management Cloud, you should read the following design solution:

- Learn about options for connecting devices to Oracle Internet of Things applications

Identify the Oracle Human Capital Management Cloud Time Card Data Lookup Supplier

To identify the source for the time card lookup entry data, create a time card lookup supplier entry.

1. In a web browser, find your Oracle Human Capital Management Cloud instance.

2. Enter your user name and password, and click **Sign In**.

3. Click **Menu** ≡, scroll to **Others**, expand **Others**, and then click **Setup and Maintenance**.

4. Click **Tasks** ▤ , and click **Search**.

5. Enter `Manage Workforce Management Lookups` in the search field, and click **Search** 🔍 .

6. Click **Manage Workforce Management Lookups** in the **Name** list, and click **ORA_HWM_TCD_SUPPLIERS**.

7. In the **ORA_HWM_TCD_SUPPLIERS: Lookup Codes** area, click **New**, ➕ and complete these fields:

    - **Lookup Code:** Enter `CONNECTED_WORKER`.

      > ✎ **Note:**
      >
      > If you enter a different lookup code, the lookup code must precede the lookup entry name.

    - **Display Sequence:** (Optional) Enter a display sequence value to identify the lookup priority. The lower the number, the higher the priority.

    - **Start Date:** (Optional) Enter a start date for the lookup.

    - **End Date:** (Optional) Enter an end date for the lookup.

    - **Meaning:** Enter `CONNECTED_WORKER`.

    - **Description:** (Optional) Enter a description for the lookup entry.

    - **Tag:** (Optional) Enter tags that will make it easier to find the lookup in searches.

8. Click **Save and Close**.

Create the Oracle Human Capital Management Cloud Time Card Lookup Entries

Time card lookup entries identify the worker status data that you want to capture from Oracle Internet of Things (IoT) Connected Worker Cloud Service.

1. In the **Name** list, click **ORA_HWM_TCD_SUPPLIER_EVENTS** .

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2. In the **ORA_HWM_TCD_SUPPLIER_EVENTS: Lookup Codes** area, click **New** ➕ and complete these fields:

   - **Lookup Code:** Enter `CONNECTED_WORKER_ON_DUTY`.

     > ✎ **Note:**
     >
     > If you entered a different code for the lookup supplier, the lookup supplier code must precede the lookup code.

   - **Display Sequence:** (Optional) Enter a display sequence value to identify the lookup priority. The lower the number, the higher the priority.

   - **Start Date:** (Optional) Enter a start date for the lookup.

   - **End Date:** (Optional) Enter an end date for the lookup.

   - **Meaning:** Enter `On duty`.

   - **Description:** (Optional) Enter a description for the lookup entry.

   - **Tag:** (Optional) Enter tags that will make it easier to find the lookup in searches.

3. Repeat step 2 twice to create lookup entries named `CONNECTED_WORKER_ON_BREAK` and `CONNECTED_WORKER_OFF_DUTY`.

4. Click **Save and Close**.

5. Click **Done**.

Create Oracle Human Capital Management Cloud Event Mappings

Map Oracle Internet of Things (IoT) Connected Worker Cloud Service events (worker status updates) to lookups in Oracle Human Capital Management Cloud.

1. Enter `Time Device` in the search field, and click **Search** 🔍 .

2. In the **Name** list, click **Manage Time Device Event Mapping**

3. In the **Search Results** area, click **Create** ➕, and complete these fields:

   - **Name:** Enter `CONNECTED_WORKER_ON_DUTY`.

   - **Description:** (Optional) Enter a description for the map.

   - **Device Supplier:** Select **CONNECTED_WORKER**.

   - **Supplier Device Event:** Select **CONNECTED_WORKER_ON_DUTY**.

   - **Application Event:** Select **In**.

4. Click **Save and Close**, and click **OK**.

5. Repeat steps 3 and 4 twice to create the `CONNECTED_WORKER_ON_BREAK` and `CONNECTED_WORKER_OFF_DUTY` mappings. Select **Out** as the application event for the `CONNECTED_WORKER_ON_BREAK` and `CONNECTED_WORKER_OFF_DUTY` mappings.

6. Click **Done**.

Create an Oracle Human Capital Management Cloud Event Mapping Set

To reduce processing time, create an event mapping set to bundle event mappings with similar processing requirements .

1. Enter `Manage Time Device Event Mapping Sets` in the search field, and click **Search** 🔍 .

2. In the **Name** list, click **Manage Time Device Event Mapping Sets** .

3. In the **Search Results** area, click **Create** ➕ , and complete these fields:

   • **Name:** Enter `CONNECTED_WORKER_EVENT_MAPPING_SET`.

   • **Description:** (Optional) Enter a description for the event mapping set.

4. In the **Event Set Members** area, click **Add Row** ➕.

5. In the **Available** list, select **CONNECTED_WORKER_OFF_DUTY**, **CONNECTED_WORKER_ON_BREAK**, and **CONNECTED_WORKER_ON_DUTY**.

6. Click **Move selected items** ❯ , and click **OK**.

7. Click **Save and Close**, and click **OK**.

8. Click **Done**.

Create an Oracle Human Capital Management Cloud Device Processing Profile

A device processing profile validates time card submissions by mapping Oracle Internet of Things (IoT) Connected Worker Cloud Service worker status updates to Oracle Human Capital Management Cloud validation and submission rules.

1. Enter `Manage Time Device Processing Profiles` in the search field, and click **Search** 🔍 .

2. In the **Name** list, click **Manage Time Device Processing Profiles** .

3. In the **Search Results** area, click **Create** ➕ .

4. Complete these fields in the **Profile Details** area:

   • **Profile Name:** Enter `CONNECTED_WORKER_PROFILE`.

   • **Description:** (Optional) Enter a description for the profile.

5. In the **Profile Values** area, enter a start date in the **Effective Start Date** field, or accept the default value for the profile.

6. In the **Time Device Processing Profile Options** area, select `CONNECTED_WORKER_EVENT_MAPPING_SET` for the **Time Device Event Mapping Set**. Leave the remaining fields blank.

7. Click **Next** until **Save and Close** is available.

8. Click **Save and Close**, and click **OK**.

9. Click **Done**.

Connect Oracle IoT Connected Worker Cloud Service to Oracle Human Capital Management Cloud

To send Oracle Internet of Things (IoT) Connected Worker Cloud Service worker status data to Oracle Human Capital Management Cloud, you enable the integration and provide the access credentials and mapping information for the Oracle Human Capital Management Cloud instance.

1. In a web browser, find your Oracle IoT Connected Worker Cloud Service instance.

2. Enter your user name and password, and click **Sign In**.

3. Click **Menu** ☰ , click **Design Center**, and click the **Oracle Human Capital Management** ⵗ tab.

4. Enter the **HCM Server URL** for your Oracle Human Capital Management Cloud instance.

   The endpoint URL should refer to the REST API URL for your Oracle Human Capital Management Cloud instance. For example:

   `https://servername.oraclecloud.com/hcmRestApi/resources/latest`

   In the preceding example, `servername` is your cloud server instance.

5. Enter the **User Name** and **Password** for your Oracle Human Capital Management Cloud instance.

   This should be the user account used for creating and managing integrations in Oracle Human Capital Management Cloud.

6. Click **Save** to save and test your connection.

   A confirmation banner appears for a successful connection.

7. (Optional) Click **Import HCM Users** to import Oracle Human Capital Management Cloud users.

   This imports Oracle Human Capital Management Cloud user data and creates corresponding Oracle IoT Connected Worker Cloud Service user profiles and IDs. If an identical user name appears in both Oracle Human Capital Management Cloud and Oracle IoT Connected Worker Cloud Service, the import stops and an error message is displayed.

8. (Optional) Click **Create Mapping** to map Oracle Human Capital Management Cloud user profiles to existing Oracle IoT Connected Worker Cloud Service user profiles.

   You can use this option if you don't wish to import all your Oracle Human Capital Management Cloud users through the **Import HCM Users** option.

   You can create the required Oracle IoT Connected Worker Cloud Service users with exactly the same name as the Oracle Human Capital Management Cloud users, and then map these users through the **Create Mapping** option.

9. To configure **Time and Labour**, select the corresponding option, and complete the following settings that appear:

   - **TCD supplier:** Enter CONNECTED_WORKER.

   - **On-Duty event:** Enter CONNECTED_WORKER_ON_DUTY.

- **Off-Duty event:** Enter CONNECTED_WORKER_OFF_DUTY.

- **On-Break event:** Enter CONNECTED_WORKER_ON_BREAK.

- **Time Device Processing Profile Source Id:** Enter CONNECTED_WORKER_PROFILE.

- **Enable user-ID mapping:** Select the option to map Oracle Human Capital Management Cloud user accounts to Oracle Internet of Things (IoT) Connected Worker Cloud Service user accounts.

10. If you made updates to the **Time and Labour** section, then click **Save**.

11. To sync **Incidents**, select the corresponding option, and complete the following settings that appear:

    When you sync incidents with Oracle Human Capital Management Cloud, the incidents become read-only in Oracle Internet of Things (IoT) Connected Worker Cloud Service, as soon as the incidents are successfully exported, and the incident statuses change to *Processed Externally*.

    - **Incident String:** The incident string used for fields in Oracle Human Capital Management Cloud that do not have corresponding values in Oracle Internet of Things (IoT) Connected Worker Cloud Service. For example, `IOT_CW_INCIDENT`.

    - **Employee:** Select the Oracle Internet of Things (IoT) Connected Worker Cloud Service employee ID that creates the incident in Oracle Human Capital Management Cloud.
      Note that the specified employee ID is used as the reporter for location incidents in Oracle Human Capital Management Cloud. For employee incidents, the affected employee automatically becomes the reporter for the incident.

    - **Default Event Code:** The Oracle Human Capital Management Cloud event code to use for location-based incidents. For example, `ORA_NEAR_MISS`.

    - **Employee Event Code:** The Oracle Human Capital Management Cloud event code to use for worker-based incidents. For example, `ORA_NEAR_MISS`.

12. If you made updates to the **Incidents** section, then click **Save**.

13. (Optional) Click **User Mapping** to view the current mapping of IoT users to HCM user profiles along with their reporter IDs.

Verify Data Transmission from Oracle IoT Connected Worker Cloud Service to Oracle Human Capital Management Cloud

When incidents or worker status updates happen in Oracle Internet of Things (IoT) Connected Worker Cloud Service, corresponding incidents and time card entries are automatically created in Oracle Human Capital Management Cloud.

1. In a web browser, find your Oracle Human Capital Management Cloud instance.

2. Enter your user name and password, and click **Sign In**.

3. Click **Home** and select the **My Client Groups** tab.

4. To view and manage incidents, under **My Client Groups**, click **Safety Incidents**.

   The Workforce Health and Safety Incidents page appears. You can view, search, and update incidents.

5. To view and manage time cards, under **My Client Groups**, click **Time Management**.

6. Click **Manage Time Cards**.

7. Enter the employee's name in the **Person Name** field, or enter their employee number in the **Person Number** field, and click **Search**.

   Worker status event data appears in the **Search Results** area.

8. Click **Done**, and click **Home** .

15

Customize Your Application

Add a corporate logo or modify the application name to personalize your application. Use the Settings page in Oracle IoT Intelligent Applications Cloud Service to manage your application storage and capacity.

The data usage and capacity settings are shared between all the applications that you are using under Oracle IoT Intelligent Applications Cloud Service.

Show or Hide the Application Name

Show or hide the application name when business requirements change.

1. In the Operations Center, click **Menu** (≡), and then click **Settings**.

> **Note:**
>
> If you wish to change the appearance for an individual organization only, navigate to **Menu > Settings > IoT Organizations > *Organization Name***.

2. Click **Appearance** on the Settings page.

3. Select one of these options:.

    a. Select **Show Application Name** to display the application name on all application pages.

    b. Clear **Show Application Name** to remove the application name from all application pages.

4. Click **Save**.

Add or Update an Application Logo

Add or update corporate logos when business requirements change or a new corporate logo is issued.

1. In the Operations Center, click **Menu** (≡), and then click **Settings**.

> **Note:**
>
> If you wish to change the appearance for an individual organization only, navigate to **Menu > Settings > IoT Organizations > *Organization Name***.

2. Click **Appearance** on the Settings page.

3. Under **Title Bar Logo**, select **Custom**.

Under Image, click the **Drag and Drop** area to select an image file to upload. Alternatively, you can also drag and drop the image file to the **Drag and Drop** area in your browser window.

4. Click **Save**.

Remove an Application Logo

Remove a logo when an application logo is no longer required.

1. In the Operations Center, click **Menu** (≡), and then click **Settings**.

> **✎ Note:**
>
> If you wish to change the appearance for an individual organization only, navigate to **Menu > Settings > IoT Organizations > *Organization Name***.

2. Click **Appearance** on the Settings page.

3. Under **Title Bar Logo**, select **None**.

4. Click **Save**.

Set Default Units of Measure

Set the default units of measurement for your application. You can select between the US Imperial and Metric unit systems.

1. In the Operations Center, click **Menu** (≡), and then click **Settings**.

> **✎ Note:**
>
> If you wish to change the measurement units for an individual organization only, navigate to **Menu > Settings > IoT Organizations > *Organization Name***. For example, you may want to set different measurement units for your US and Europe organizations.

2. Click **Units and Measurement**.

3. Click **Edit** to change the unit system.

4. Under **Unit System**, select between **US Imperial** and **Metric**.

The US Imperial setting uses the following units for *Distance*, *Speed*, *Temperature*, and *Volume* respectively: *Miles*, *Miles per Hour*, *Fahrenheit*, and *Gallons*.

The Metric setting uses the following units for *Distance*, *Speed*, *Temperature*, and *Volume* respectively: *Kilometers*, *Kilometers per Hour*, *Celsius*, and *Liter*.

5. Click **Save**.

Change the Map Provider

You can change the map provider to replace Oracle maps with the maps provided by a third-party map provider. Currently, only maps provided by HERE Technologies are supported. When you change the map provider, the maps in the Oracle IoT Connected Worker Mobile Application are also updated.

> **✎ Note:**
>
> To change the map provider, you must be an administrator. To review the Oracle maps terms of use, see Oracle Maps Cloud Service Enterprise Hosting and Delivery Policies.

1. In the Operations Center, click **Menu** (≡) and choose **Settings** .

> **✎ Note:**
>
> If you wish to change the map provider for an individual organization only, navigate to **Menu > Settings > IoT Organizations > *Organization Name***.

2. Click **Map Provider**.

3. Select one of these options in the **Map Provider** list:

   • **Oracle Maps**: (Default) Select this option to use the maps provided by Oracle.

   • **HERE Maps**: Select this option to use the maps provided by HERE Technologies.

4. Enter your HERE Technologies application ID in the **Application ID** field.

5. Enter your HERE Technologies application code in the **Application Code** field.

6. Click **Save.**

Monitor Data Storage and Manage Capacity Usage

As an administrator, you can monitor the data storage for your Oracle IoT Intelligent Applications Cloud Service. Use the Data Storage page to review storage data in the system, to set up or adjust the time window for data retention, and to run data deletion jobs.

> **✎ Note:**
>
> If you are using more than one application in Oracle IoT Intelligent Applications Cloud Service, then the data storage settings are shared between these applications. Also, any operations that you perform under data management, such as tweaking data life spans or creating deletion jobs, affects data in all these applications.
>
> So, for example, if you are using the Oracle IoT Asset Monitoring Cloud Service and Oracle IoT Production Monitoring Cloud Service applications, the data usage includes usage across both these applications. Also, if you were to delete metric data older than, say, 30 days, then metric data that is older than 30 days is deleted in both your applications.

When you log in to your IoT application as an administrator, a notification appears with details on the storage capacity used. Notifications may also appear periodically for every 10% of capacity that is used up. High-priority notifications are sent after you have used up more than half of the storage capacity. You can use the Data Storage page to manage your storage capacity.

The **Storage Management** option under application **Settings** lets you monitor and manage the data storage for your application. The Data Storage page has the following sections:

- **Summary:** Shows you the total data storage capacity available for your account, and the currently used up capacity. Depending on your current usage, the status is indicated using one of the following colors:

  – **Green:** Indicates that more than 50% of the available capacity remains.

  – **Orange:** Indicates that between 25% and 50% of the available capacity remains. A recommendation on ways to manage your data is also included.

  – **Red:** Indicates that less than 25% of the available capacity remains, and you must take steps to manage your storage data.

- **Data Management:** Lets you manage data, change settings, and create data deletion jobs. The data capacity usage percentages are shown category-wise:

  – **Device Data:** Comprises application messages, connector messages, integration-related messages, log messages, and other related messages. Device data is stored for 30 days, by default.

– **Training Data:** Comprises incoming sensor data, visualization and training data. By default, training data is stored indefinitely in the system until manually deleted.

– **Custom Metric Data:** Comprises data specific to custom metrics or KPIs. Custom metrics are metrics that you create in the application for your production environment and scenarios.
By default, custom metric data is stored indefinitely in the system until manually deleted.

– **System Metric Data:** Comprises data specific to system metrics or KPIs. System metrics are the built-in metrics that are calculated automatically in your application. System metric data is stored for 90 days, by default.

You can select the data life span for each category. The data life span is the time period for which data is retained.

You can choose to create data deletion jobs to delete selective data. A data deletion job lets you select the data type and time span for which you wish to delete data.

Perform Data Management Tasks

Use the Data Management section to manage data storage settings for your application. You can select the data life span for the various data types. You can also create data deletion jobs to delete selective data.
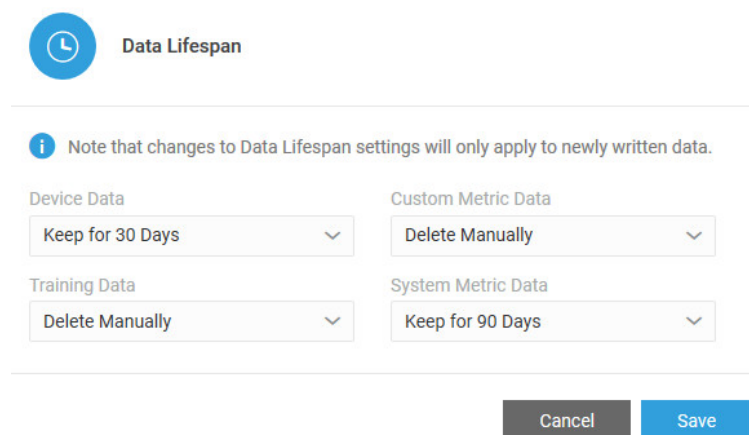
1. Click **Menu** (≡) and then click **Settings** .

2. Click **Storage Management**.

   The Data Storage page appears.

3. To change the data life span, click **Edit** 🖉 under **Data Life Span**.

   The Data Life Span section appears under the Data Management section.

   a. Select the data life span for **Device Data**, **Training Data**, **Custom Metric Data**, and **System Metric Data**.

   b. Click **Save** to save your settings.

4. (Optional) To run a data deletion job, click **Create Data Deletion Job**.

   a. Select one or more data types for which you wish to delete data.

The available choices are:

- **Device Data**
- **Metric Data**
- **Training Data**

b. Under **Delete Data**, choose the time period for which you wish to delete the data.

For example, you may want to delete training data that is **Older than 30 days**. You can also choose a custom **Time Range** for which to delete data. For example, you may wish to delete data for a particular day or hour.

c. Click **Delete** to create the delete job.

You can monitor the job progress, and the number of records that were deleted, under the Data Deletion Jobs section. When the data delete job completes, its status changes from **In Progress** to **Completed**.

You can also choose to delete a data deletion job. If the job is still running when you delete it, then the job is terminated and deleted. If the job has already failed or completed, then deleting the job simply removes it from the list of failed or completed jobs.

DATA DELETION JOBS

↻ In progress	✓ Completed	✕ Failed		

INITIATED	TIME WINDOW	TYPE	DELETED	SCANNED	
10/12/20 12:01:55	01/01/70 to 10/05/20	Device	0	1	🗑

+ Create Data Deletion Job