Rounds Designer

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Chapter

1

Overview

Topics:

Overview of the Rounds Designer Module

In the Rounds Designer module, you can create Routes and define recurring tasks along those Routes for users of the Rounds Data Collection module to complete.

These recurring tasks, known as checkpoints, are composed of monitoring, inspection, and maintenance activities carried out on assets with the goal of mitigating known risks. Together, checkpoints pertaining to a particular asset are an integral part of an Asset Strategy, which may be continually updated to reflect the performance of an asset.

Routes and checkpoints can be template-based, scheduled independently, and tracked for compliance; they can also include conditions, so that their presence is contingent upon previous tasks, and allowable values, so that users collecting data are limited in what they can enter.

After a Route and its checkpoints have been created, it can then be assigned to users or teams for execution.

Access the RD Overview Page

Before You Begin

- You can access the **RD Overview** page only if you are a member of the following Security Groups:
    - MI Operator Rounds Administrator
    - MI Operator Rounds User
    - MAPM Security Group

    You can perform the various tasks on this page based on the privileges granted to these Security Groups.

Procedure

In the **Applications** menu, navigate to the **HEALTH** section, and then select **Rounds Designer**.
The **RD Overview** page appears.
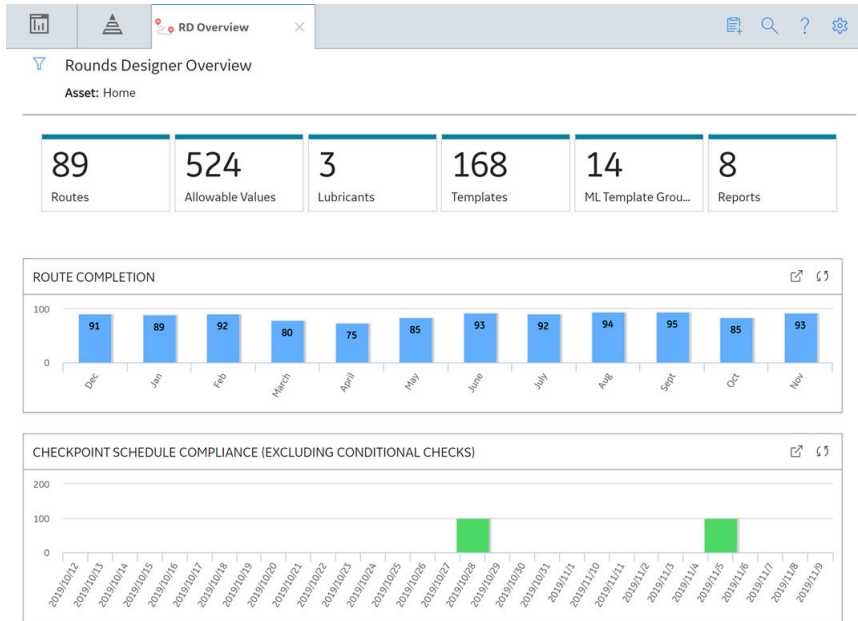
The tabs at the top of the page summarize Rounds Designer information in various categories. You can select a tab to view one of the following sections:

- **Routes**: Displays a list of existing Routes with a brief description and the status of the Routes.
- **Allowable Values**: Displays a list of allowable values categories.
- **Lubricants**: Displays a list of available Lubricants.
- **Templates**: Displays a list of available Measurement Location and Lubrication Requirement templates.
- **ML Template Groups**: Displays a list of available template groups.
- **Reports**: Displays a list of reports for Rounds.

Chapter

2

Workflow

Topics:

Rounds: Manage Rounds Routes Workflow

This workflow describes how the Rounds Analyst manages checkpoint templates and template groups. Rounds checkpoints represent recurring monitoring, inspection, and routine maintenance activities such as lubrication. To ensure consistency in how checkpoints are defined, and provide efficiencies in defining and maintaining Routes, checkpoints should be based on templates whenever possible.

In the following workflow diagram, the blue text in a shape indicates that the corresponding description has been provided in the sections that follow the diagram. For more information, refer to the Interpreting the Workflow Diagrams topic in the APM Product Workflows documentation.

Note: For information on the personas associated with a APM module, refer to the APM Product Workflows documentation.

Manage Asset Strategy

Persona: Analyst

The Asset Strategy defines the Actions required to mitigate known asset Risks. Actions may be implemented as Rounds checkpoints, which then need to be organized into Routes.

Manage Rounds Templates

Persona: Analyst

Checkpoint Templates and Template Groups are created in the Manage Rounds Templates workflow. In general, Checkpoint Templates should be created in advance based on the known likely Asset Strategies. However, the Analyst may find that a suitable Template does not exist, so a new Template should be created if it is expected that similar Checkpoints will be required by multiple strategies.

Go to the Manage Rounds Templates workflow.

Create Route

Persona: Analyst

Checkpoints are organized into logical Routes containing checks for one or more assets. Routes are frequently organized by location or by Technician sub-role (for example, Lubricator, Vibration Tech, Maintenance Tech, or Operator). One Route can contain Checkpoints that each have schedule with difference recurrences. However, Routes maintenance may be simplified by creating Routes based on required check frequency (for example, separate Routes for daily, weekly, or monthly checks), in which case the schedule may be maintained for the Route itself rather than individual Checkpoints.

Note: The Route Revision check prevents concurrent updates to a Route by two different users. The update made by the first user is applied to the Route. The second user must refresh the **Route Designer** tab before updating the Route.

Add Checkpoints to Route

Persona: Analyst

Checkpoints are added to the Route. Existing Checkpoints (for example, Checkpoints created to implement Strategy Actions) can be added to any Route. Alternatively, Checkpoints can be added by applying a selection of Templates or Template Groups for a selected asset, or individual Checkpoints can be created from scratch.

Sequence Route

Persona: Analyst

The Checkpoints on a Route are arranged to provide the Technician with a logical, efficient order to complete the checks. Route sequencing may include conditions, such that some checks will only be presented to the user if a preceding step produces a specified result.

Assign Route to Users

Persona: Analyst

Assign the Route to appropriate user(s) (for example, the Technician) in order for the Route to be available for them to download it to a tablet device.

Activate Route

Persona: Analyst

Routes are inactive by default when they are first created; this prevents Technicians from collecting data for the Route until the Rounds Analyst has completed their work on the Route. The final step in creating a Route is to activate it so that it can be used.

Collect Rounds Data

Persona: Technician

Data is collected for the Checkpoints on the Routes.

Select Existing Checkpoint to Implement Action

Persona: Analyst

If an existing Checkpoint exists for the asset, it can be used to implement the Action. This will be common where the client has imported existing checks from a legacy system to create Routes, and where the Strategy is being defined based on existing activity.

Create Checkpoint to Implement Action

Persona: Analyst

If there is no existing Checkpoint, a new Checkpoint or Checkpoint group is created to implement the Action. Checkpoint records define in detail the check to be done including any alert levels and recommended actions in case of alert. Checkpoint Task records define the schedule for the check including the next due (when the check is due) and the compliance interval (after which the check will be counted as overdue by the Monitor Rounds Compliance workflow).

Rounds: Manage Rounds Templates Workflow

This workflow describes how the Rounds Analyst manages Routes. Routes consist of a series of checkpoints that represent recurring monitoring, inspection, and routine maintenance activities such as lubrication. These activities need to be completed on one or more assets. Checkpoints may be defined as part of the Asset Strategy and implemented in that module, and then added to a Route for execution. Alternatively, checkpoints can be created in the context of Route management, and then later associated with Actions in an Asset Strategy. This workflow encourages the use of checkpoint templates or template groups when defining Routes to ensure consistency and provide efficiencies in ongoing Route maintenance.

In the following workflow diagram, the blue text in a shape indicates that the corresponding description has been provided in the sections that follow the diagram. For more information, refer to the Interpreting the Workflow Diagrams topic in the APM Product Workflows documentation.

Note: For information on the personas associated with a APM module, refer to the APM Product Workflows documentation.

Manage Asset Strategy

Persona: Analyst

If the Asset is not performing as desired, the existing Asset Strategy may need to be updated. This may require in an update to a Rounds Template that was used to implement an Action.

Define Required Checkpoint Templates

Persona: Analyst

The Analyst will review Asset Strategies and Strategy Templates to identify common PM and PdM tasks which are to be implemented as Checkpoints (that is, Measurement Locations and Lubrication Requirements) in Rounds. This defines the requirement to create Checkpoint Templates.

Once an Asset strategy is implemented, it may need to be updated based on whether asset performance is meeting expectations, changes in operating conditions, etc., which may require that a Template is added or updated.

Define Allowable Values

Persona: Analyst

Before creating Checkpoint Templates where the Technician will choose from a defined list of values, the ranges of Allowable Values, methods, lubricants, manufacturers, and components must be defined. A group of these attributes can be reused in any number of Checkpoints and Templates.

Define Templates

Persona: Analyst

The use of Checkpoint Templates improves consistency and avoids duplication of effort when managing Routes. The Analyst should create the majority of the required Checkpoint Templates based on the known likely Asset Strategies before starting the Manage Rounds Route workflow. The Checkpoint Template defines the characteristics of the data to capture when the Rounds Technician completes a specified check. The Template may include allowable value lists/ranges, schedules, limit levels, corrective actions, reference information, etc.

Define Template Groups

Persona: Analyst

In many cases, a certain type of asset may require a series of routine PM or PdM tasks (for example, checks for vibration, temperature, oil level, etc.) that are repeated each time the asset is inspected. To maintain consistency and reduce the time taken to create Routes for these assets, a series of related Checkpoint Templates can be combined into Template Groups that can be applied to one or more assets in a single step. Template Groups are managed like "mini-routes" using a process similar to that described in the Manage Rounds Routes sub-process.

Go to the Manage Rounds Routes workflow.

Note: A Checkpoint Template can be used in any number of Template Groups. In addition, Template Groups can include Conditions for more complex routes.

Update Template

Persona: Analyst

The Analyst will review Asset Strategies and Strategy Templates to identify common PM and PdM tasks which are to be implemented as Checkpoints (that is, Measurement Locations and Lubrication Requirements) in Rounds. This defines the requirement to create Checkpoint Templates.

Once an Asset Strategy is implemented, it may need to be updated based on whether asset performance is meeting expectations, changes in operating conditions, etc., which may require that a Template is added or updated.

Update Existing Checkpoints

Persona: Analyst

Template updates can be applied automatically to existing Checkpoints created from the Template. Selected Checkpoints (for example, ones that were originally created from the Template but then customized) can be excluded from the Template update.

Manage Rounds Routes

Persona: Analyst

Checkpoints are organized into Routes.

Go to the Manage Rounds Routes workflow.

Assess Asset Health

Persona: Analyst

Analysts will periodically review the asset's performance to check that it meets expectations for cost, reliability, and performance.

Recommend Strategy Change

Persona: Analyst

If the Asset is not performing as desired, the existing Asset Strategy may need to be updated. This may require in an update to a Rounds Template that was used to implement an Action.

Collect Rounds Data

Persona: Technician

Data is collected for the Checkpoints on the Routes.

Rounds: Monitor Rounds Compliance Workflow

This workflow describes how the Rounds Technician and Analyst can monitor Rounds Compliance. The Monitor Rounds Compliance process provides key performance indicators that the Rounds Analyst can use to identify whether Rounds are being completed as required by the Asset Strategy. Deviations from these requirements may be addressed via the Performance Recommendation process.

In the following workflow diagram, the blue text in a shape indicates that the corresponding description has been provided in the sections that follow the diagram. For more information, refer to the Interpreting the Workflow Diagrams topic in the APM Product Workflows documentation.

Note: For information on the personas associated with a APM module, refer to the APM Product Workflows documentation.

Collect Rounds Data

Persona: Technician

Data is collected for the Checkpoints on the Routes.

Review Compliance

Persona: Analyst

Periodically, the Analyst will review the Rounds Compliance KPIs which are displayed on the **RD Overview** page. If compliance is inadequate, further investigation is needed.

Review Geolocation Data

Persona: Analyst

Periodically, the Analyst will review the data from a Route on a Map to confirm that Rounds data is being collected at the expected locations. If data is tagged with unexpected locations, further investigation is needed.

Core Analysis

Persona: Analyst

The User or the Analyst investigates the causes of poor compliance using Core Analysis tools such as Queries.
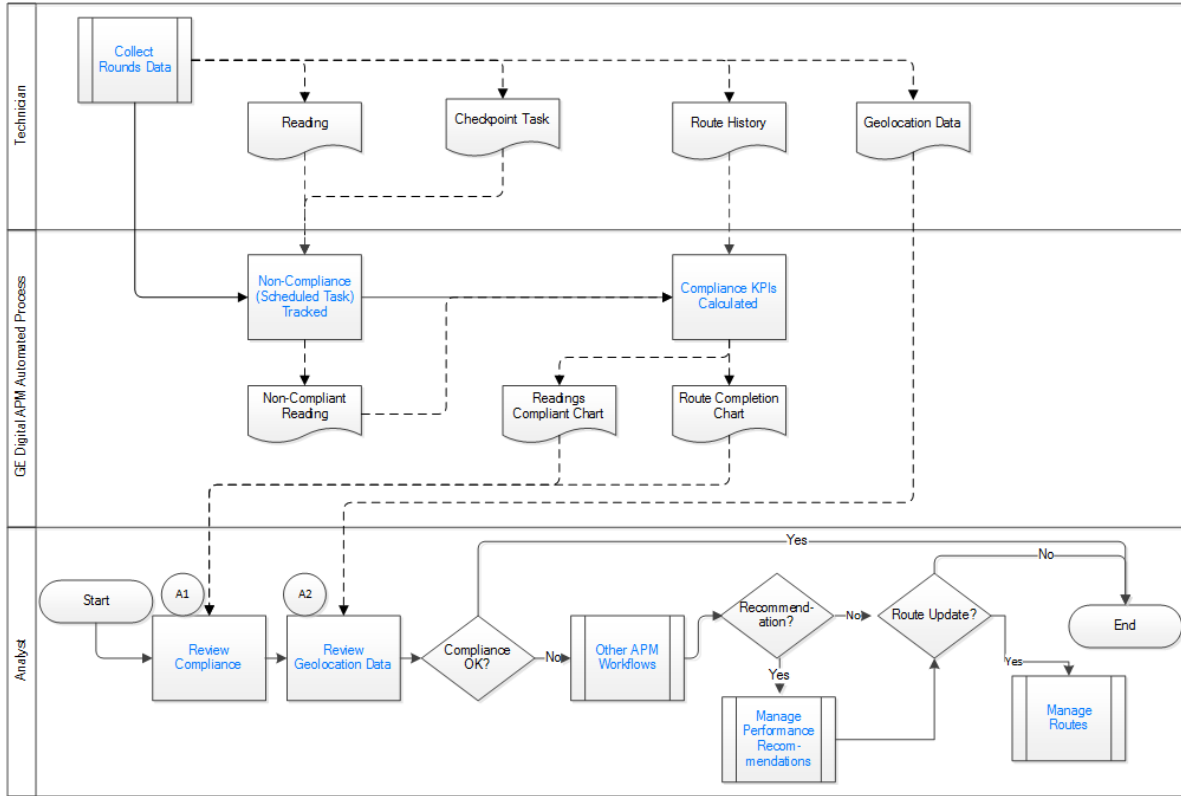
Non-Compliance (Scheduled Task) Tracked

Persona: APM Automated Process

Non-compliance with Checkpoint schedules is tracked by an automated task. This task checks all Checkpoints with a schedule (that is, first level checks only, not including those triggered by a condition, and not including those where Route-based schedules are used and the Checkpoint task schedule is empty). If the current date/time is after the Non-Compliance Date and the Non-Compliance Next Check Date, a reading with blank value and status of "Non-Compliant" is added to the Checkpoint. Note that the Next Date is not updated by this process. When a Non-Compliant reading is added, the Non-Compliance Next Check date is increased by either one day, or the schedule interval, whichever is less. This means that, for Checkpoints with schedule intervals of 1 day or longer, an additional Non-Compliant reading is added for each day that the Checkpoint is overdue.

It is recommended that the schedule for this task is configured to run frequently (for example, every 15 minutes so that compliance data is kept up to date) but not so frequently that the processing is a burden on system resources. This schedule is configured in the Rounds section of Application Settings.

Compliance KPIs Calculated

Persona: APM Automated Process

Rounds Compliance KPIs are calculated by means of queries. The Route Completion KPI measures the percentage of readings taken against readings expected for all Routes that were marked done on a specific day. This KPI does not measure whether Routes or readings were completed according to the defined schedules. It does include all Checkpoints, however, including those added to Routes when readings match defined Checkpoint conditions, thus providing insight into whether Routes are being completed as designed or whether significant portions are being skipped.

The Readings Compliance KPI measures the percentage of readings taken on any specific day that were Compliant vs. the total of Compliant plus Non-Compliant readings for that day. Note that this KPI does not include any "Ignored" readings (that is, readings taken ahead of schedule which do not reset the Checkpoint Task Next Date). This measure therefore gives insight into compliance with Checkpoint schedules: a low percentage will indicate that many Checkpoints are overdue for inspection.

Manage Performance Recommendation

Persona: Analyst

The new recommendation is managed for approval and implementation through the Manage Performance Recommendation workflow.

Chapter

3

Routes

Topics:

About Route Creation

Before you can define the Checkpoints that should be addressed along a Route, you must create a Route. The records that you create will depend upon the needs of your company.

Suggested Route Guidelines

When you create a Route, adhere to the following suggested guidelines to ensure optimal operation:

- A single Route should contain no more than 250 Checkpoints.
- A single condition should contain no more than 15 successor Checkpoints.

A Water Bottling Facility

Consider a water bottling facility, which contains a bottling system that consists of the following equipment:

- Filling Machine
- Capping Machine
- Labeling Machine

Assume that each day you want someone to perform a general plant check on each machine in the bottling system. In this case, you might want to create one Route that will be linked to multiple Measurement Locations, identifying detailed checks that should be performed on each piece of equipment. Alternatively, you could create one Route for a General Plant Check Route, which would include a general check of the entire plant. For a Route like this, you might want to include the following Checkpoints:

- Leak check
- Temperature check
- Ink level check
- Vibration check

The instructions in this documentation provide details on creating a Route.

Access a Route

Procedure

1. Access the **RD Overview** page.
2. Select the **Routes** tab.
   The **Routes** section appears, displaying a list of Routes.
3. Select the Route that you want to access.
   The datasheet for the selected Route appears.
4. As needed, modify values in the available fields.
5. Select 💾.
   The changes made to the Route are saved.

Create a Route

Procedure

1. Access the **RD Overview** page.
2. Select the **Routes** tab.
   The **Routes** section appears, displaying a list of Routes.
3. Select ＋ .

   A blank datasheet for the Route appears.
4. As needed, modify values in the available fields.
5. Optionally, create a Schedule for the Route.
6. Select 💾.

   The Route is created, and the **Route Management** page appears.

Next Steps

- Add a Checkpoint to the Route.

Assign a Route to Team Members

You must assign a Route to appropriate team members for the Route to be available to those users in Rounds Data Collection.

About This Task

Note:

- To assign a Route to team members, you must be a member of the MI Operator Rounds Administrator or MI Lubrication Management Administrator Security Group, a member of a Security Role that includes one of these groups (that is, MI Health Admin), or a Super User.
- Routes can only be assigned to team members with access to Rounds Data Collection.
- To enhance usability for data collectors, assign to team members only Routes that are relevant to those team members. In other words, GE Vernova does not recommend assigning all Routes to all team members.
- For the mobile devices with Windows operating systems, the Download Queries are used to assign users. By default, all Routes are available to all users.

  Note: Team assignments are not available on Windows Mobile Devices.

Procedure

1. Access the **RD Overview** page.
2. Select the **Routes** tab.
3. In the table, select the check box next to the Route that you want to assign to team members, and then select **Assign**.

   Note: You can assign only one Route at a time. If you select check boxes next to multiple Routes, the **Assign** button is disabled.

   The **Assign to Team Members** window appears.

4. In the **<number> Selected** section of the window, select one of the following options:

Choice	Description
People	Select this option if you want to assign individual team members to the Route.
Teams	Select this option if you want to assign a group of team members to the Route.

Depending on your selection, either a list of people or a list of teams appears.

Tip: If you want to modify the details of a team, select the **<Team Name>** link, and then in the **Teams** page, modify the required details.

5. In the **<number> Selected** section of the window, select the check box next to one or more team members or teams to which you want to assign the Route, and then select .

The teams or team members that you selected are moved from the **<number> Selected** section of the window to the **<number> Assigned** section.

Note: The team members to whom you assign the Route must have access to the site for the Route.

6. **Optional:** If you want to remove a Route assignment from a team or team member, in the **<number> Assigned** section of the window, select the check box next to the team or team member from which you want to remove the Route assignment, and then select .

The teams or team members that you selected are moved from the **<number> Assigned** section of the window to the **<number> Selected** section.

7. When you have finished assigning team members to the Route, select **Assign** to save your changes and close the window.
The specified teams or team members are assigned to the Route. The number in the **User Count** column for the Route is updated to display the number of team members to whom the Route is assigned.

Results

- When the Route is active and due, or when any Checkpoints on the Route are due or overdue, it will appear in Rounds Data Collection for the specified user(s).

Next Steps

- Activate the Route

Activate a Route

Before You Begin

- Fully configure and schedule a Route.
- Assign the Route to the appropriate user(s).

About This Task

You must activate a Route in order for it to be available in Rounds Data Collection.

Procedure

1. Access the Route that you want to activate.

The datasheet for the selected Route appears.

2. In the **Status** box, select **Active**.

3. Select 💾.
   The Route is now active and can be accessed by assigned users in Rounds Data Collection when it is due.

Reorder Nodes within a Route

About This Task

Checkpoint conditions can be arranged on a route. There are three ways to reorder nodes within a Route:

- Changing the order number
- Drag-and-drop
- Drag-and-drop to the Node Pin Board

Note: You cannot use either drag-and-drop method with touch interfaces. When using a touch interface, you must reorder nodes within a Route by changing the order number.

Tip: You can select ⁝ to open a menu that includes options to expand or collapse all Checkpoints, enabling you to reorder routes more easily.

Reorder Routes by Changing the Order Number

Procedure

1. In the left pane, select the node whose order you want to change.
2. In the **Order** box, enter the order number denoting where you would like the item to appear in the left pane.
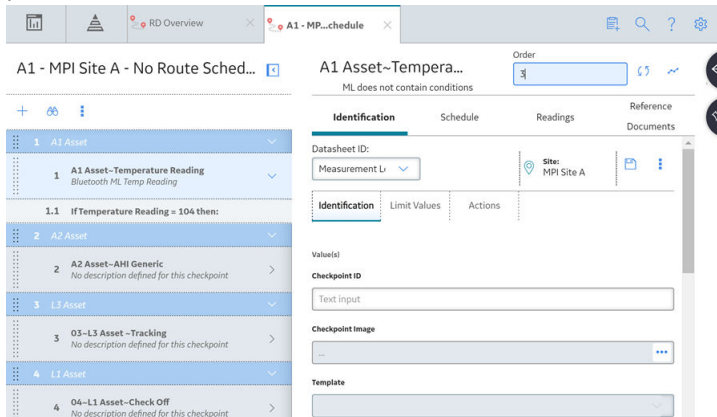
3. Select 🔄.
   The nodes in the left pane are reordered.
4. To make the new Route sequence available immediately for Windows Mobile handheld devices, select the route level, and then select **Save Route Sequence**.
   The defined sequence is saved to Rounds Sequence Information records.

Reorder Nodes within a Route using the Drag-and-Drop Method

Procedure

1. In the left pane, select the ⠿ .
2. Drag the selected item to the new location in the left pane, and then drop it.

   Tip: A blue insertion marker will appear when the node is positioned at a location where it can be dropped.

   The node is reordered.
3. To make the new Route sequence available immediately for Windows Mobile handheld devices, select the route level, and then select **Save Route Sequence**.
   The defined sequence is saved to Rounds Sequence Information records.

Reorder Nodes within a Route Using the Node Pin Board

Procedure

1. Access the Node Pin Board by selecting ⚲ .

   The **Node Pin Board** expands.
2. In the left pane, select the ⠿ button next to the node whose order you want to change, drag it to the **Node Pin Board** pane, and then drop it.

   The node is grayed out in its original location in the left pane.

   Tip: You can repeat this step to move as many nodes to the **Node Pin Board** as required to complete the reordering operation. Nodes can be left on the **Node Pin Board** while you compete other tasks on the Route.
3. In the left pane, navigate to the new location where you want the node to appear.
4. In the **Node Pin Board** pane, next to each node that you want to move, select the check box.

   The drag feature is enabled.
5. Select the ⠿ button next to one of the nodes in the **Node Pin Board** pane, drag the node to the left pane, and drop it in the new location.

   Tip: A blue insertion marker will appear when the node placeholder is positioned at a location where it can be dropped.

   A confirmation dialog appears, noting the number of first-level measurement locations and Checkpoint conditions that will be dropped into the Route.
6. Select **Yes**.

   The node is reordered.
7. To make the new Route sequence available immediately for Windows Mobile handheld devices, select the route level, and then select **Save Route Sequence**.
   The defined sequence is saved to Rounds Sequence Information records.

Remove a Node from a Route

This topic describes how to remove assets, Checkpoints, and Checkpoint conditions from a Route.

Procedure

1. [Access the Route](#) from which you want to remove related records.
2. In the left pane, select the node representing the asset, Checkpoint, or Checkpoint condition that you want to remove.
3. In the left pane, select ⁝ , and then select **Remove**.

Results

- The selected node is removed from the Route. Any removed Checkpoint conditions are deleted from the database. Any removed Checkpoints and related Readings remain in the database. Removing an Equipment or Functional Location from the Route moves all the nodes under that asset node to the Node Pin Board.

Delete a Route

About This Task

Important: You cannot delete a Route that is assigned to a user.

Procedure

1. [Access the **RD Overview** page](#).
2. In the workspace, select the **Routes** tab.

   The **Routes** section appears, displaying a list of Routes.
3. In the grid, select the check box for each Route that you want to delete.

   Note: You can select multiple Routes.
4. In the upper-right corner of the section, select 🗑.

   A confirmation dialog box appears, asking if you really want to delete the Route.
5. Select **Yes**.

Results

The Route is deleted and removed from the **Routes** section. Checkpoints are kept in the database while the Checkpoint conditions and the Route History is deleted.

Chapter
4

Allowable Values

Topics:

About Allowable Values

When you are to enter a reading value for a Measurement Location on a device, you can enter the exact value (for numeric Measurement Locations only) or select a value from a list (for both numeric and character Measurement Locations). If you want the device user to be able to select a value from a list, you will need to configure that list in APM.

After you have defined the allowable values and selected them in a Measurement Location, you can use the allowable values to set up alerts that will be displayed to a user if a certain reading value is recorded. The allowable values that are selected in the **Allowable Values** list in the Identification section will be available for selection in the **Limit Values** section of the datasheet.

In addition, when you are defining a condition for allowable values on a Route, allowable values are used to specify which reading value should trigger conditional Checkpoints to appear to the mobile device user.

> **Example: Tank Level Check**
>
> Typically, you will not need to define allowable values in Measurement Locations where the ML Type field contains the value Numeric because the actual readings recorded against that Checkpoint are likely to vary too much. For instance, for a Temperature Check, you might want users to enter the exact temperature, and you would not configure a list of allowable values.
>
> For certain numeric readings, however, you might want to limit the user's choices to match the values that will be valid, if this is a limited range of values. For example, if a tank has level markings in eighths (0, 1/8, 1/4, 3/8, etc.), you could limit the valid choices to the numeric values 0, 0.125, 0.25, 0.375, etc.
>
> Allowable values are stored in the Rounds Allowable Values family. Each record contains a value, the category of each value, and type of each value. The value in the record represents a value that will be available in a list on the device.
>
> To completely configure a list of values for device users, you will need to:
>
> 1. Create the necessary Rounds Allowable Values to store the values that will be available in the list.
> 2. Select the values in the Allowable Values list in the Measurement Location representing the Checkpoint at which users will need to select a reading value.
>
> For example, suppose device users need to check the general condition of a pump, and you want them to select one of the following values: Leak, Motor Temp. High, Noise, OK, or Vibration.
>
> To configure this list of values, you would need to create one Rounds Allowable Value record for each of the acceptable values, as shown in the following image.

Note: The type and category for each record is the same. Only the value varies from one record to the next.

In addition, you would need to create a Measurement Location and select the following values in the following fields:

Field	Value
ML Type	Character
Category	Pump Check
Allowable Values	Leak, Noise, Motor Temp. High, Vibration, and OK.

The Allowable Values can then be selected in the **Limit Values** tab of the **Measurement Location** datasheet to define whether an alert will be displayed to the user of the mobile device, as shown in the following image:

Access Allowable Values

Procedure

1. Access the **RD Overview** page.
2. Select the **Allowable Values** tab.

   The **Allowable Values** section appears, displaying a list of Allowable Values categories. The Allowable Values categories are groups of Allowable Values records that have the same value in the Category field.

   By default, all the allowable values are displayed in the **Allowable Values** section. You can filter the list by selecting ▽.

   You can select and filter the allowable values by selecting one or all of the following:
   - Numeric
   - Character

Create the First Allowable Value for a Specific Category and Type

Procedure

1. Access the **Allowable Values** section.
2. Select ＋.
   The **Allowable Values** window appears.
3. In the **Category** box, enter the name for the Allowable Values category.
4. In the **Type** box, select ∨, and then select the type of Checkpoint to which this Allowable Values category applies: **Character** or **Numeric**.
5. Select **Add Values**, and then select a value and assign a site.

   A value and site are specified for the Allowable Value.
6. Select **Save**.

   The Allowable Value record is saved.

Results

The specified values appear as an option in the **Allowable Values** drop-down list on the Measurement Location and Measurement Location Template datasheets where the relevant Category value is selected in the **Category** field.

Note: New Categories and Allowable Values may take up to 30 seconds to appear in the relevant drop-down lists on the Measurement Location and Measurement Location Template datasheets.

Next Steps

- Create subsequent Allowable Values.

Create Subsequent Allowable Values for a Specific Category and Type

This topic describes how to use the **Allowable Values** section to create subsequent Allowable Values with a specific category and type. You can also use these instructions to modify values in an Allowable Value.

Before You Begin

- Create the first Allowable Value.

Procedure

1. Access the **Allowable Values** section.
2. In the **Category Name** column, select the link for the category for which you want to create subsequent Allowable Values.
   The **Allowable Values** window appears with the category and type values populated. The following image shows an example of the **CONDITION of: Availability** category.
3. Select **Add Values**, and then enter the value as needed.
   A value and site are specified for the Allowable Value.
4. For each allowable value that you want to create in the selected category, repeat step 3.
5. Select **Save**.
   The Allowable Values are created.

Results

The specified values appear as an option in the **Allowable Values** drop-down list on the Measurement Location and Measurement Location Template datasheets where the relevant Category value is selected in the Category field.

Note: New Categories and Allowable Values may take up to 30 seconds to appear in the relevant drop-down lists on the Measurement Location and Measurement Location Template datasheets.

Chapter

5

Lubricants

Topics:

About Lubricants

Before creating a Lubrication Requirement or Lubrication Requirement Template, you must enter lubrication information used by your company in the form of Lubrication Component, Lubrication Method, Lubricant, or Lubricant Manufacturer records.

You can also create Lubrication Management Recommendations for users to select after collecting data at Checkpoints.

Access a Lubricant

Procedure

1. Access the **RD Overview** page.
2. Select the **Lubricants** tab.
   The **Lubricants** section appears.

3. Optionally, select ▽ .
4. In the **Lubricant** column, select the Lubricant that you want to access.
   The datasheet for the selected Lubricant appears on a new page.

Create Lubrication Components, Methods, Manufacturers, and Lubricants

About This Task

Values from Lubrication Component, Lubrication Method, Lubricant, and, indirectly, Lubricant Manufacturer records are used to populate lists that appear on the Lubrication Requirement and Lubrication Requirement Template datasheets.

Therefore, before you create a Lubrication Requirement or Lubrication Requirement Template record, you must create one or more records in each of these families to identify the various lubrication information used by your company.

Tip: You can also create a Lubricant record from the **Lubricants** section of the **RD Overview** page.

Procedure

1. On the top navigation bar, select 🗎₊.

   A menu appears.
2. In the menu, in the search bar, enter one of the following family names:
   - Lubrication Component
   - Lubrication Method
   - Lubricant Manufacturer
   - Lubricant
3. Select the family in the list of search results.

   A blank datasheet appears.

4. As needed, enter values in the available fields for the family:

- Lubrication Component
- Lubrication Method
- Lubricant Manufacturer

    Note: At least one Lubricant Manufacturer record must be created before you can create a Lubricant record.

- Lubricant

    Note: If needed, select the site to which you want to assign the record, or designate the record as a Global record.

    Tip: For more information, refer to the Site Filtering section of the documentation.

5. Select 🖫.

    A new record is created.
6. Repeat these steps until you have created records for each lubrication component, method, manufacturer, and lubricant used by your company.

Next Steps

- Create a Lubrication Requirement Template.

Create a Lubrication Management Recommendation Record

Procedure

1. On the top navigation bar, select 🗏⁺.
2. In the menu, in the search bar, enter `Lubrication Management Recommendation`, and then select the record from the list.
   The datasheet for the Lubrication Management Recommendation record appears.
3. As required, enter values In the available fields to create the Lubrication Management Recommendation record.
4. Select 🖫.
   A new Lubrication Management Recommendation record is created.

Chapter

6

Checkpoints

Topics:

About Route Checkpoints

Checkpoints are the stops along a Route at which a user will need to record a reading. For each Checkpoint that you want to include in a Route, you will need to add one Measurement Location or Lubrication Requirement to the Route. The order in which the Checkpoint nodes are displayed in the left pane represents the order in which the Checkpoints will appear to the user on the mobile device. Additionally, you can change the order in which the Checkpoint nodes are displayed.

Details

A Checkpoint can be linked to the following:

One Route as a successor	In the left pane, a node representing a successor Checkpoint that is linked to the Route appears directly below the Route node. When a Route is initially opened, and a Checkpoint is selected, the **Identification** tab is displayed. If you select a different tab on a Checkpoint (**Schedule**, **Readings**, **Reference Documents**), and then select a different Checkpoint, the same tab appears for the new Checkpoint.
Checkpoint conditions as a predecessor or successor	In the left pane, a node representing a successor Checkpoint that is linked to a Checkpoint condition appears below the Checkpoint condition node representing that Checkpoint condition. Likewise, a node representing a predecessor Checkpoint record that is linked to a Checkpoint condition record is displayed. When a Route is initially opened, and a Checkpoint condition is selected, the **Identification** tab is displayed. If you select a different tab on a Checkpoint condition (**Readings** or **Reference Documents**), and then select a different Checkpoint condition, the previous tab appears for the new Checkpoint condition. If you select the **Schedule** tab for a Checkpoint, and then select a Checkpoint condition, the **Identification** tab appears as there is no **Schedule** tab for a Checkpoint condition. If you select a condition or use search, then the next time a Checkpoint is selected, the same tab is displayed.

Checkpoint records that appear below a Checkpoint condition record will appear to a device user only if the condition defined in the Checkpoint condition is met.

When you add a Checkpoint record to a Route, the new node that appears in the left pane for that record will appear in a location that is relevant to the currently selected node. Before you create a Checkpoint record, use the following guidelines to determine which node to select in the left pane so that the new node will appear in the desired location:

- If you want the new Checkpoint node to appear below a Checkpoint node, select that Checkpoint node.
- If you want the new Checkpoint node to appear below a Checkpoint condition node, select that Checkpoint condition node.
- If you want the new Checkpoint record to appear below the last node in the pane, select that Route node.

When you are adding Checkpoint records to a Route, keep in mind that the values in the record define the Checkpoint and directly represents what the device user will see on the mobile device. More specifically,

the values stored in some Checkpoint family fields are displayed directly on the **Rounds Data Collection** page when you are recording a reading for the corresponding Checkpoint.

About Route Checkpoint Arrangement

The order in which the Checkpoints are presented on the device corresponds to the order in which the Checkpoint nodes appear in the left pane when viewing a route in Route Designer.

In order to maximize system performance, sequence information for each Route is stored as a single record in a database table , not on the route, Checkpoint, or condition records themselves. When changing the sequence of a Route, the value representing the Route sequence in the supporting database table will be updated automatically to reflect the current location of each node. In order to support Rounds on Windows Mobile devices — which use Catalog queries - sequence information is also stored as Rounds Sequence Information records.

Selecting the **Save Route Sequence** button on a Route after reordering allows the Route sequence to be immediately reflected when you download the route to a handheld. Otherwise, Rounds Sequence Information records will be updated after the route has been closed or on a defined schedule.

Checkpoint represented by a Measurement Location

A Checkpoint represented by a Measurement Location with the Sequence value 1 will appear before a Checkpoint represented by a Measurement Location with the Sequence value 2. On the Measurement Location datasheet, the Sequence field is disabled and populated automatically by the APM system, based upon the current location of that Measurement Location node in the left pane.

You can use the left pane to sequence the Measurement Location nodes according to the order in which you want the Checkpoints to appear to a user on the mobile device. We recommend that you sequence the Route by arranging Measurement Location nodes in an order that corresponds to the proximity of the associated equipment and locations. For example, suppose you want to perform a visual inspection of a pump. You will want to create Measurement Locations that represent each Checkpoint on the pump that you will need to visually inspect. Further, you will want to arrange the Measurement Location nodes in the order in which the user should conduct the visual inspection. For example, you may want the user to start at the back of the pump and move towards the front.

Measurement Locations are sequenced automatically starting with 1, based upon the record to which they are linked as a successor. In other words, all the Measurement Locations that are linked directly to the Route as successors will be numbered 1, 2, 3, and 4 and all the Measurement Locations that are linked to Checkpoint conditions will be numbered as 1, 2, 3, and 4 within that condition.

Consider the following image, which shows:

- Four Measurement Location nodes that are positioned directly below the Route node. These route-level Checkpoints are numbered 1 through 4.
- Two Checkpoint condition nodes that are positioned directly below the Measurement Location node (**ACHE 001~General Check**). These Checkpoint condition nodes are numbered 2.1 and 2.2.
- Four Measurement Location nodes that are positioned directly below two Checkpoint conditions.

   The Measurement Location nodes under **2.1 If General Check is Ok then:** are numbered 2.1.1 and 2.1.2. The Measurement Location nodes under **2.2 If General Check is Not Ok then:** are numbered 2.2.1 and 2.2.2.
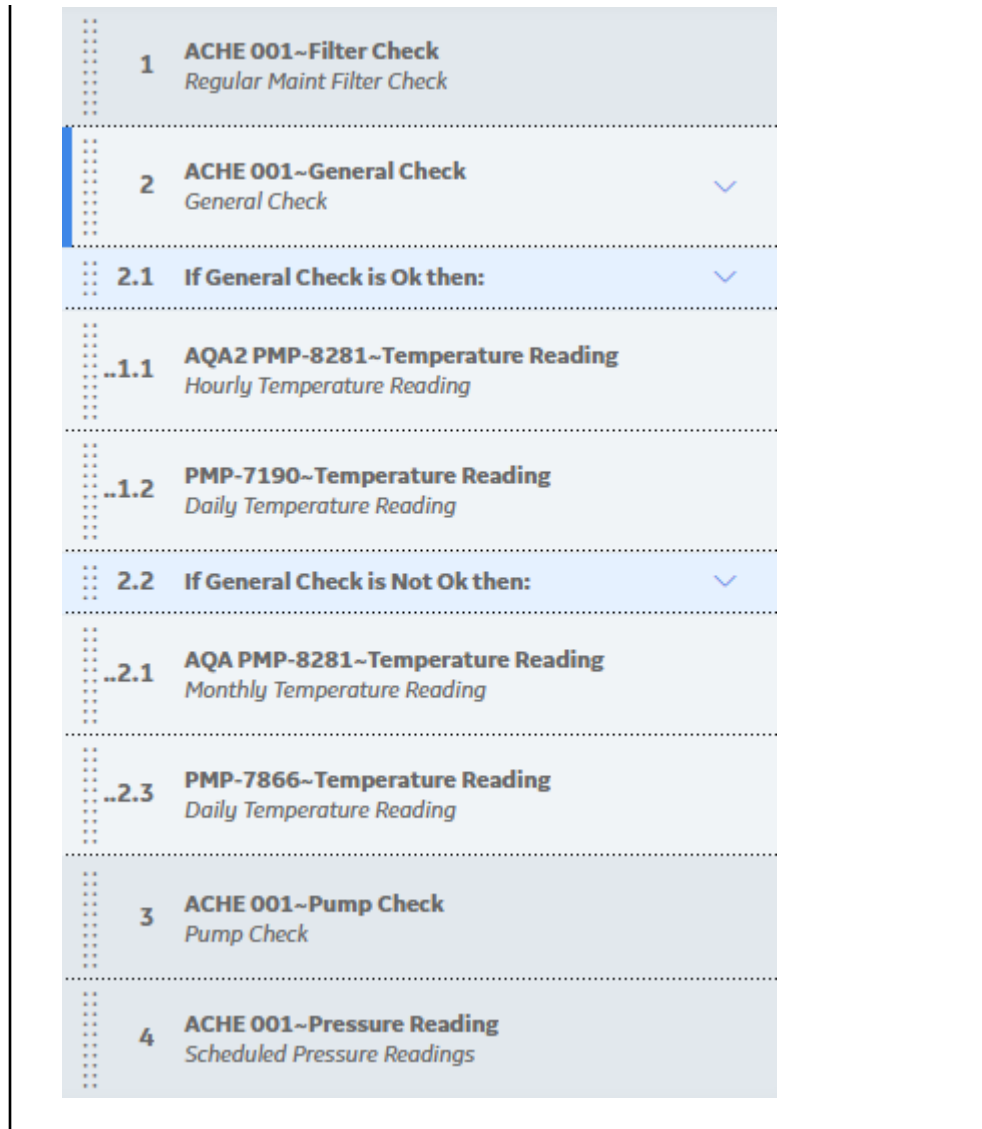
About The Node Pin Board

Using the **Node Pin Board** pane, you can use the drag-and-drop method to move one or more locations, or conditions from the Route to the **Node Pin Board** pane, and then later move them to new Checkpoints or remove them from the Route.

- Checkpoints or conditions on the **Node Pin Board** pane include any child Checkpoints or conditions that are linked to the parent node.
- You will not be able to drag and drop an item until the dark blue insertion marker appears under the node where the item will be dropped.
- A Checkpoint that contains conditions and subsequent Checkpoints can be dragged and dropped as a single entity. However, if you want to drag two top-level Checkpoints, you have to drag and drop each one separately.
- When a condition is deleted from the Route, the Checkpoints and conditions that were successors to that condition will be moved to the **Node Pin Board** pane.

- You cannot drag and drop an Equipment or Functional Location to the **Node Pin Board** pane. However, if you remove an asset group from the Route, the associated Checkpoints, including any related conditions and subsequent Checkpoints, will be moved to the Node Pin Board.

About Alerts Based on Measurement Location Records

If you want device users to receive alerts on a device when they record reading values that meet certain criteria, you can define the criteria in the **Limit Values** section of the default datasheet for the Measurement Location family. You can configure alerts for either character readings or for numeric readings, depending on the value stored in the ML Type field of the Measurement Location.

Note: If you create Readings in the Record Manager or Route Management, alerts will not be displayed for the reading value.

About Alerts for Character Readings

When a Measurement Location requires a character reading, you can configure alerts that will appear when the readings equal a specified value. For example, suppose the Measurement Location for the Filter Check Checkpoint contains the following allowable values: OK, Leak, and Vibration and Noise. In this case, you might configure alerts that would appear on the device if a user entered a reading value of Leak, Vibration or Noise. To do so, you would configure the **Limit Values** section of the Measurement Location datasheet, as shown in the following image.

Notice that the **Character** column contains the values that will cause an alert to appear: Leak, Vibration and Noise. The **Message** column contains the message that will be displayed for each alert, and the **Action** column contains the values that will be available in the **Action** list on the **Rounds Data Collection** screen.

Note: The values in the **Action Values** tab list on the device will be displayed in the order in which they appear (from top to bottom) in the Action column on the **Limit Values** tab.

Example: Pump Check Checkpoint

The following image shows what the Pump Check Checkpoint looks like on the device with the **Reading** drop-down list box.
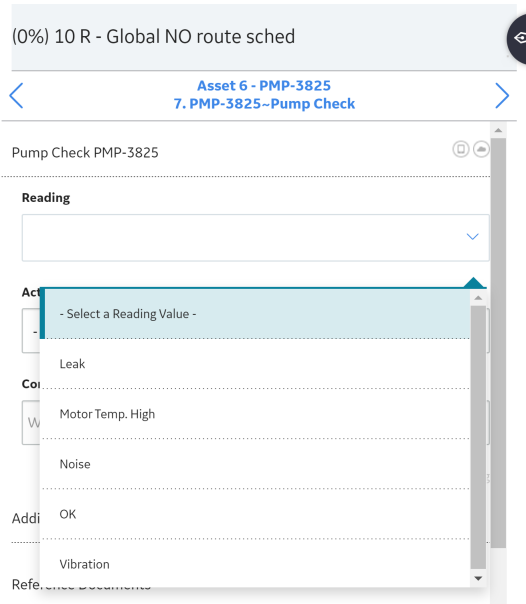
If you enter a reading value of **Leak** for this Checkpoint, the text **Create Maintenance Recommendation** should be displayed on the device, as indicated by the **Message** column in the corresponding Measurement Location. This value is shown in the image of the **Limit Values** section. The following image shows what the alert for the reading value **Leak** looks like on the device.
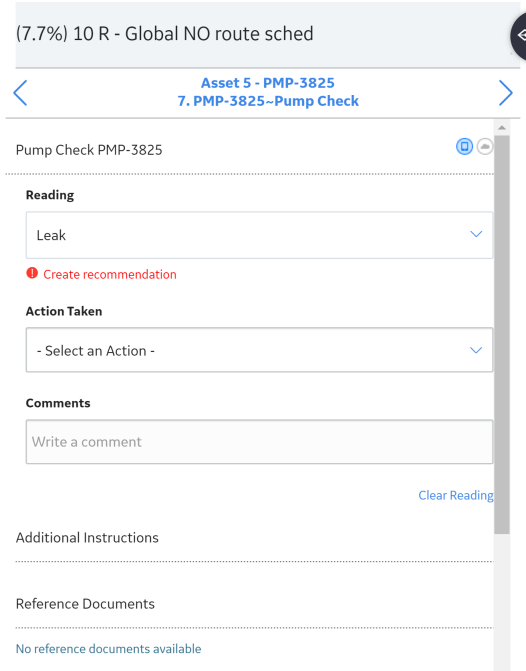
The **Action Taken** drop-down list would contain the values indicated by the **Action Values** tab list column.
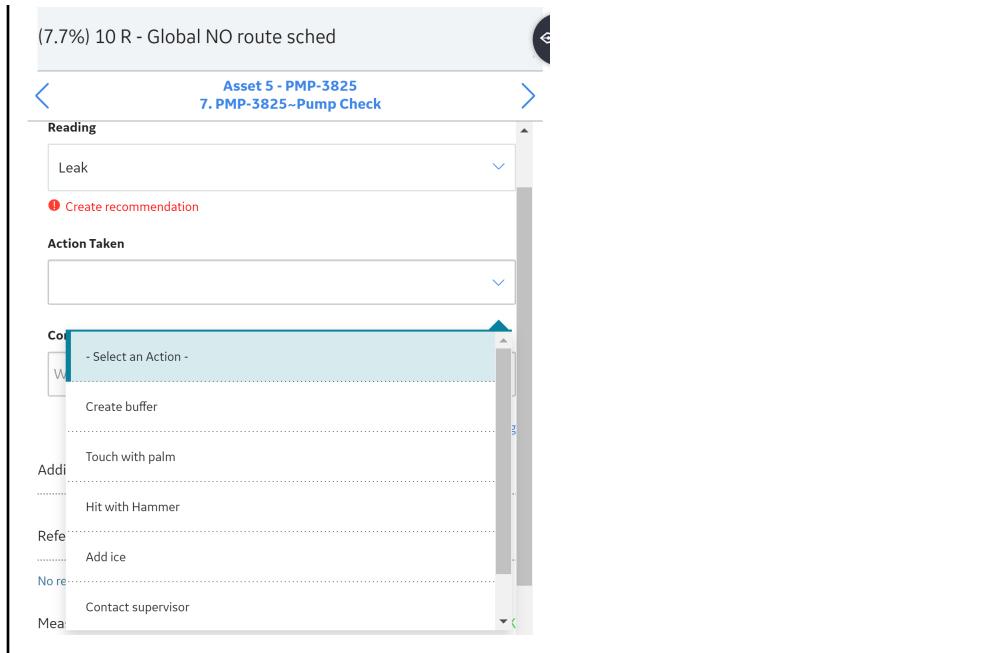
About Configuring Alerts for Numeric Readings

When a Measurement Location requires a numeric reading value, you can configure alerts that will appear when the reading value equals a specified value or falls between a certain range of values, depending on the following conditions:

- If allowable values are defined for a Measurement Location where the ML Type field contains the value Numeric, you can configure alerts that will appear when the readings are equal to those values.
- If allowable values are not defined in a Measurement Location where the ML Type field contains the value Numeric, you can configure alerts that will appear when the readings fall within a range of values.

Example: Temperature Check Checkpoint

Suppose a Checkpoint requires a temperature check and accepts numeric reading values. If you do not define allowable values in the **Identification** section of the datasheet for Measurement Location, users can enter any reading value on the device. You might want to define these allowable values so that an alert will be sent if the temperature falls below a certain temperature or rises above a certain temperature.

In the following image, you can see that values have been defined for Upper Level 3, Upper Level 2, Upper Level 1, Lower Level 1, Lower Level 2, and Lower Level 3 limits.

D0003-097 ~ Temperature ~
ML does not contain conditions

| Identification | Schedule | Readings | Reference Documents |

Order
1.2

Datasheet ID:
Measurement Location

Site:
Roanoke, VA

| Identification | Limit Values | Actions |

	Numeric	Character	Message
Upper Level 3	750		Extreme operating temp - shut down
Upper Level 2	650		Notify Maintenance
Upper Level 1	600		Elevated Temperature
Lower Level 1	0		Low Temperature
Lower Level 2	-50		Notify Maintenance
Lower Level 3	-100		Extremely low operating temp -shut down

The Upper Level 3 value of 750 indicates that if a reading value is greater than or equal to 750, an alert will be displayed with the message Extreme operating temp - shut down, as specified by the value in the **Message** cell.

Note: The values in the list **Action Values** tab on the device will be displayed in the order in which they appear (from top to bottom) in the Action column on the **Limit Values** tab.

When you are working with lower-level values, keep in mind that any reading that is less than or equal to the value will trigger the alert. Likewise, when working with upper-level values, keep in mind that any reading that is greater than or equal to the value will trigger the alert.

Example: Daily Temperature Readings

Suppose that you configure a Measurement Location with an Upper Level 2 value of 100 and an Upper Level 3 value of 200, and the message associated with the Upper Level 2 is "Pump stroke too high". If a device user enters a reading value of 185 at this Checkpoint, the following alert would appear.

Asset 7 - PMP-3830
10. PMP-3830~Pump Stroke Check

General Check PMP-3830

Reading - Strokes per Minute (SPM)

185

❗ Pump stroke too high

Action Taken

- Select an Action -

Comments

Write a comment

Clear Reading

Additional Instructions

Reference Documents

No reference documents available

Measurement Trend 12/18/2019 15:17:52 1

In the list on the **Action Values** tab , you would also see the list of actions indicated by the values in the **Action** column for the corresponding Measurement Location. Device users can select one of these values to indicate which task was performed in response to the alert.

(15.4%) 10 R - Global NO route sched

Asset 7 - PMP-3830
10. PMP-3830~Pump Stroke Check

General Check PMP-3830

Reading - Strokes per Minute (SPM)

185

⊗ Pump stroke too high

Action Taken

Co...

- Select an Action -

increase > 20

lower < 100

Addi...

Reference Documents
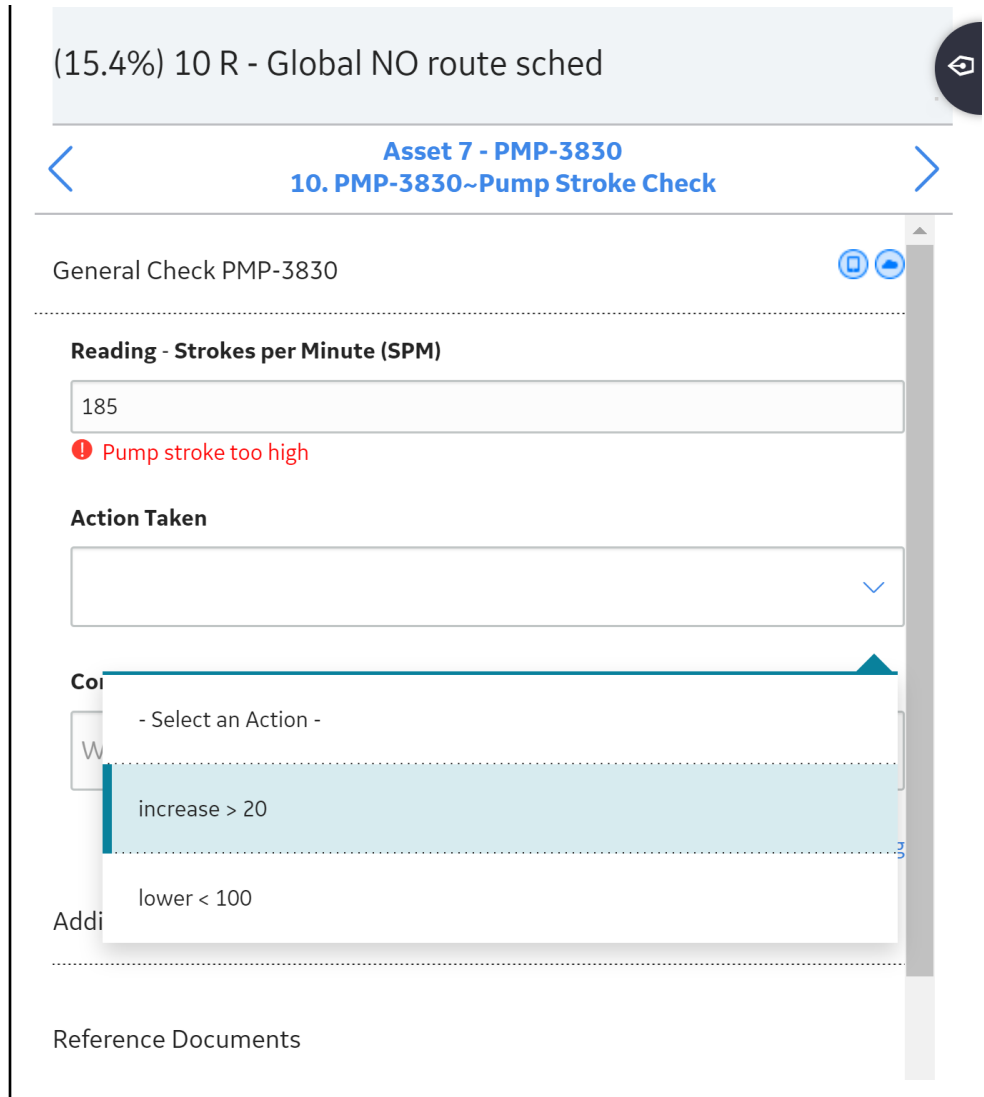
About Checkpoint Conditions

When you create a Checkpoint condition, its corresponding node will appear in the left pane below the predecessor Checkpoint node. If you want to add a Checkpoint condition node in a particular location (for example, between two Checkpoint condition nodes), you should select the Checkpoint condition node after which the new Checkpoint condition node should appear.

Depending upon the type of Checkpoint for which you are creating a condition (that is, character or numeric), the values that you define will vary.

- For Measurement Locations, the type of condition is determined by the value in the ML Type field in the predecessor Measurement Location. The value of this field can contain either Character or Numeric.
- For all types of Lubrication Requirements, the condition is based on the character reading values.

About Character Checkpoint Conditions

When you create a Checkpoint condition that is linked to a Measurement Location whose ML Type field contains the value Numeric, the following text appears on the Checkpoint condition node:

If <**ML Category**> <**Relational Operator**> <**Reading Value**> then:

...where:

- <**ML Category**> is the value stored in the Category field in the Measurement Location. This value is populated automatically after you create the Checkpoint condition and is used to identify the predecessor Measurement Location whose reading value may trigger the additional Checkpoints to appear.
- <**Relational Operator**> is the operator (that is, is or is not) that you select in the **Select Relation** drop-down list box when creating a Checkpoint condition. By default, the operator, is, appears in the **Select Relation** drop-down list box.
- <**Reading Value**> is the value that you select in the **Select Value** drop-down list box in the workspace for the Checkpoint condition.

The following image shows an example of what a character Checkpoint condition record looks when it is selected in the left pane.
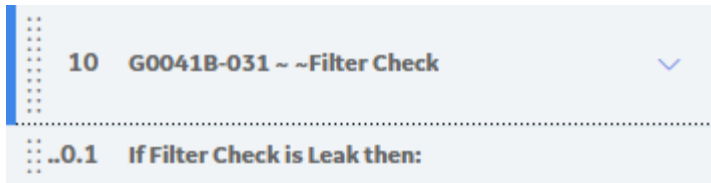
In this image, you can see that Filter Check is the ML Category and Leak is the reading value.

About Numeric Checkpoint Conditions

When you create a Checkpoint condition that is linked to a Measurement Location whose ML Type field contains the value Character, the following text appears on the Checkpoint condition node:

If <**ML Category**> <=><**Reading Value**> then:

... where:

- <**ML Category**> is the value stored in the **Category** field in the Measurement Location. This value is populated automatically after you create the Checkpoint condition and is used to identify the predecessor Measurement Location whose reading value may trigger the additional Checkpoints to appear.
- **<=>** is the quantifier (i.e., <, <=, =, >=, or >) selected in the **Select Relation** list in the workspace. This specifies the parameters of the condition when used in conjunction with the value in the <**Reading Value**> cell. The default value is = (equals).
- <**Reading Value**> is the value entered in the **Select Value** cell in the workspace.

In other words, you can specify that if the reading value is equal to the value in the **Reading Value** cell, the successor Checkpoint should appear.

The following image shows an example of what a numeric Checkpoint condition looks like when it is selected in the left pane.
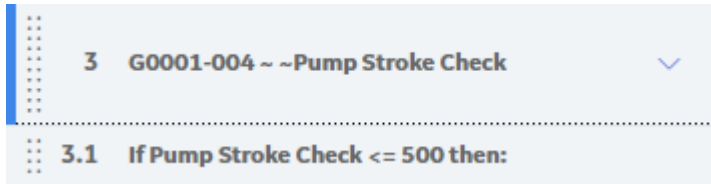
In this image, you can see that:

- Pump Stroke Check is the ML Category.
- <= is the quantifier.
- 500 is the **Reading Value**.

About Lubrication Checkpoint Conditions

When you create a Checkpoint condition that is linked to a Lubrication Requirement, the following text appears on the Checkpoint condition node:

If <**LR Type**> is <**Reading Value**> then:

...where:

- <**LR Type**> is the value stored in the LR Type field in the Lubrication Requirement. This value is populated automatically after you create the Checkpoint condition and is used to identify the type of predecessor Lubrication Requirement whose character reading value may trigger the additional Checkpoints to appear. There are three types of Lubrication Requirement:
  - Check Off
  - Change Out
  - Tracking
- <**Reading Value**> is the value that you select from the **Select Value** list in the workspace for the Checkpoint condition. There are two available character reading values for a Lubrication Requirement:
  - Done
  - Skip

The following image shows an example of what a lubrication Checkpoint condition record looks when it is selected in the left pane.
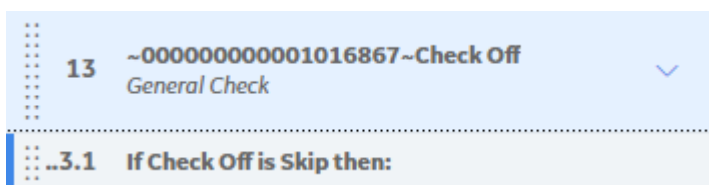
In this image, you can see that Check Off is the LR Type.

About Conditions for Routes

When a device user is executing the Checkpoints along a Route, if the reading value that is taken for a Checkpoint indicates further investigation is needed, you may want the device user to see additional Checkpoints on the device and record reading values for those additional Checkpoints. To accomplish this, you can add conditions to the Checkpoints on the Route. A condition allows you to add logic to the Route to specify that when a particular reading value is recorded for a Checkpoint, additional Checkpoints should be displayed to the device user.

Details

A condition identifies which Checkpoint should appear on the device if the user enters a specific reading value for the previous Checkpoint and defines:

- The initial Checkpoint whose reading value should trigger a subsequent Checkpoint.
- The specific reading value that should trigger another Checkpoint.
- The subsequent Checkpoint that should be triggered by that reading value.

In the APM database, a single condition is represented by:

- One Checkpoint that identifies the initial Checkpoint.
- One Checkpoint condition that identifies the specific reading value.
- One or many Checkpoints that identify the subsequent Checkpoints.

In the left pane, Checkpoint condition nodes are displayed in the context of the Checkpoint node representing the initial and subsequent Checkpoints. Specifically, the Checkpoint condition node appears below the Checkpoint representing the initial Checkpoint. Likewise, the Checkpoint node representing the subsequent Checkpoint appears below the Checkpoint condition node.
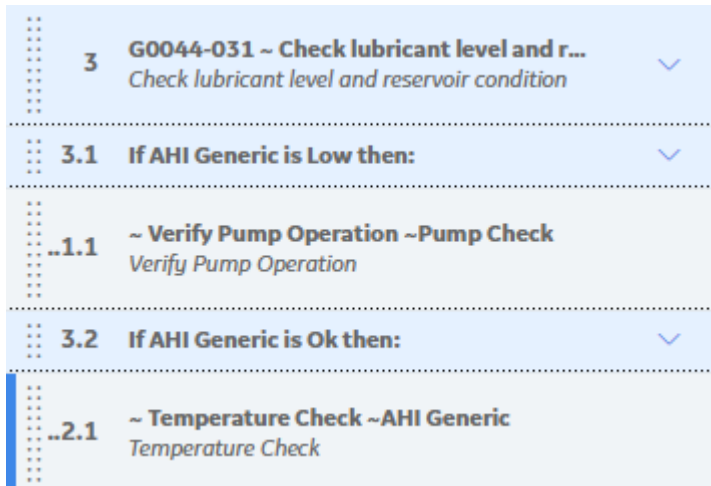
The following image shows how the Checkpoint and Checkpoint conditions will be linked to one another to define a condition.
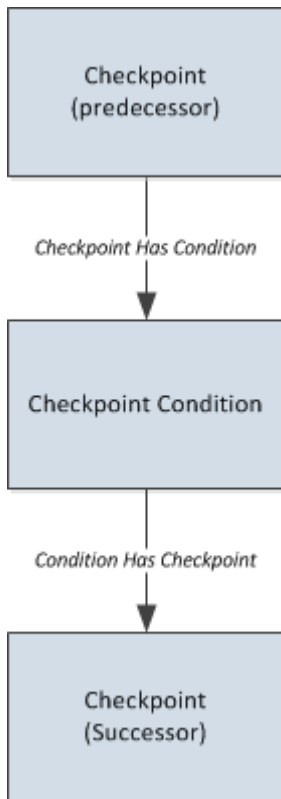
A single Checkpoint condition can be linked as a successor to only one Checkpoint. A Checkpoint, however, can be linked to multiple successor Checkpoint conditions. Likewise, a Checkpoint condition can be linked to multiple successor Checkpoints.

Access a Checkpoint

Procedure

1. Access the Route containing the Checkpoint that you want to access.
2. In the left pane, select a Checkpoint.
   The workspace for the selected Checkpoint appears, displaying the **Identification** section.

Create a Checkpoints Using a Blank Datasheet

Before You Begin

- Create a Route.

Procedure

1. Access the Route in which you want to create a Checkpoints.
2. In the left pane, select the node that should appear preceding the new Checkpoints. If no nodes are present, proceed to step 3.
3. In the upper-left corner of the pane, select $+$, and then select **New ML** or **New LR**.

A blank datasheet for the Checkpoints appears.

4. As needed, enter values in the available fields for a New ML or available fields for a New LR.
5. Optionally, in the **Schedule** section, define a schedule for the Checkpoints.

   Note: The Checkpoints schedule is required if the Route does not have a schedule.

6. On the upper-right corner of the datasheet, select 💾.

   The Checkpoints is created.

Create a Checkpoint from a Template

Before You Begin

- Create a Template.
- Create a Route.

Procedure

1. Access the Route in which you want to create a Checkpoint.
2. In the left pane, select the node that should appear preceding the first new Checkpoint. If there are no nodes present in the left pane, proceed to step 3.
3. Select ╋, and then select **Checkpoint Template**.
   The **Add New Checkpoints** window appears, displaying the **Site Selection** section.
4. Select the **Site:** control, and then select the site associated with the Equipment and Functional Location to which you want to link the new Checkpoint.

   Note: If the Route has a site assigned (other than Global), you may only select Global or the same site selected for the Route. The **Next** control is inactive until you select a valid site.
5. Select **Next**.
   The **Asset Selection** section appears.
6. Optionally, using the second drop-down list box under **Find Assets**, select a family within which to search.

   Note: The selection list contains all the families that are predecessors to the Checkpoint family through the Has Checkpoint relationship.
7. In the text box directly under **Find Assets**, enter a search term, and then select 👓.
   The search returns assets assigned to the site selected in the **Site Selection** section and whose Record ID field contains the search term.
8. In the search results, select ╋ next to each Equipment or Functional Location for which you are adding a new Checkpoint(s).

   Note:

   - The Equipment or Functional Location related to the node selected in Step 2 is selected by default.
     You can select ✕ next to the Equipment or Functional Location to remove it if necessary.
   - You can add assets from multiple families by repeating the search.
9. Select **Next**.
   The **ML /LR Template Selection** section appears.
10. Optionally, using the second drop-down list box under **Find Templates**, select a family within which to search for a template or template group.
11. In the text box directly under **Find Templates**, enter a search term, and then select 👓.

The search returns the relevant Checkpoint Templates or Template Groups.

12. In the search results, select ✛ next to each Template or Template Group that you want to use to create new Checkpoints.

    Note: You can repeat the search to add multiple Templates and Template Groups in the same transaction.

13. Select **Finish**.

    The **Apply Template Response** window appears, displaying a list of the newly created Checkpoints that were added to the Route or a list of any errors that occurred.

Add an Existing Checkpoint to a Route

Before You Begin

- Create a Route.

Procedure

1. Access the Route to which you want to add a Checkpoint.
2. In the left pane, select the node below which you want the new Checkpoint node to appear. If there are no nodes present in the left pane, proceed to step 3.

3. Select ✛ , and then select **Existing ML / LR**.
   The **Existing ML / LR** window appears.

4. If you want to find specific Checkpoints to add, select 👓 .
5. In each row containing a Checkpoint that you want to add to the Route, select the check box.
6. Select **Add**.
   The selected Checkpoints are linked to the Route, and nodes are added to the left pane.

Manually Assign a Scan ID to a Measurement Location

Procedure

1. Access the Route that contains the related Measurement Location to which you want to assign a Scan ID.

   Tip: If you know the ID of the Measurement Location whose Scan ID you want to modify, you can also access it by performing a global search.

2. On the datasheet, in the **Scan ID** box, enter the Scan ID.

3. In the upper-right corner of the datasheet, select 💾 .
   The Scan ID is assigned to the Measurement Location.

Results

- After assigning the Scan ID, when you collect data, if you scan the ML, the ML record will open automatically.

Modify a Checkpoint

Procedure

1. Access the Checkpoint that you want to modify.
2. As needed, modify the Checkpoint.
3. When you have finished making changes, select 🖫.
   The Checkpoint is saved.

Use the Node Pin Board

About This Task

Important: The drag-and-drop method to reorder nodes within a Route is not available on touch screen devices.

Procedure

1. Access the Route in which you want to access the **Node Pin Board** pane.
2. On the upper-right corner of the **Route Management** page, select 📌.
   The **Node Pin Board** pane appears.
3. To move a Checkpoint condition or a Checkpoint to the Node Pin Board, drag the node from the left pane to the **Node Pin Board** pane.

   Note: You cannot move Assets to the Node Pin Board. However, if you remove an Equipment or Functional Location from the route, all the Checkpoints that are part of that asset group will be moved to the Node Pin Board.

4. To move items from the Node Pin Board back to the left pane, select the check box next to the each item that you want to move, and then drag the items to the location where you want them to appear in the Route.
5. To return pinned items to their original locations in the Route, select the check box next to the each item that you want to unpin, and then select **Unpin**.
6. To remove pinned items from the Route, select the check box next to the each item that you want to remove, and then select **Delete**.

   Important: If you delete conditions from the Node Pin Board, they are deleted from the database. When you delete Checkpoints from the Node Pin Board they will remain in the database, and will be unlinked from the route.

Add a Condition to a Route for a Character Measurement Location

About This Task

This topic describes how to create a Checkpoint condition and add it to a Route in one of two ways:

• As a successor to a Measurement Location whose ML Type value is character
• As a predecessor to a Measurement Location

Procedure

1. Access the Route in which you want to add a Checkpoint condition.

2. In the left pane, select either:

   - The Measurement Location node reading value that should trigger conditional Measurement Locations to appear.
   - The Checkpoint condition node that is linked to the Measurement Location and below which you want a new Checkpoint condition node to appear.

3. In the left pane, select $+$, and then select **Condition**.

   A new Checkpoint condition is created, and appears below the selected Measurement Location node.

4. In the **Select Value** list, select the reading value that, when combined with the value in the **Select Relation** box, will trigger the conditional Checkpoint to appear.

5. In the upper-right corner of the datasheet, select 💾.
   The Checkpoint condition is saved. The Checkpoint condition node displays part of the final condition statement.

6. In the left pane, select $+$, and then:

   - If you want to create a new Measurement Location, select **New ML**.
   - If you want to add a existing Measurement Location , select **Existing ML / LR**.
   - If you want to add a new Measurement Location or group of Measurement Locations from template, select **Checkpoint Template**.

   The Measurement Location is added to the Route, and a Measurement Location node appears below the predecessor Checkpoint condition.

7. As needed, enter or modify the values in the available fields.

8. On the upper-right corner of the datasheet, select 💾.

   The Measurement Location is saved. The condition statement is complete.

Add a Condition to a Route for a Numeric Measurement Location

About This Task

This topic describes how to create a Checkpoint condition and add it to a Route:

- As a successor to a Measurement Location whose ML Type value is numeric.
- As a predecessor to a Measurement Location.

Procedure

1. Access the Route in which you want to add a Checkpoint condition.

2. In the left pane, select:

   - The Measurement Location whose reading value that should trigger conditional Measurement Locations to appear.
   - The Checkpoint condition node that is linked to the Measurement Location and below which you want a new Checkpoint condition node to appear.

3. In the left pane, select $+$, and then select **Condition**.
   A new Checkpoint condition is created and appears below the predecessor Measurement Location in the **Route** pane.

4. In the **Select Relation** list, select the desired comparator (that is, <, <=,=, >=, or >).

5. In the **Select Value** box, enter the numeric value representing the reading value that, when combined with the value in the **Select Relation** box, will trigger the conditional Checkpoint to appear.

6. On the upper-right corner of the datasheet, select ⊟.

   The Checkpoint condition is saved.

7. In the left pane, select ＋.

   - If you want to create a new Measurement Location, select **New ML**.
   - If you want to add a existing Measurement Location, select **Existing ML / LR**.
   - If you want to add a new Measurement Location or group of Measurement Locations from template, select **Checkpoint Template**.

   The Measurement Location is added to the Route, and a Measurement Location node appears below the predecessor Checkpoint condition.

8. As needed, enter or modify Measurement Location values in the available fields.

9. On the upper-right corner of the datasheet, select ⊟.
   The Measurement Location is saved. The condition statement is complete.

Add a Condition to a Route for a Lubrication Requirement

About This Task

This topic describes how to create a Checkpoint condition and add it to a Route:

- As a successor to a Lubrication Requirement for all types of Lubrication Requirements.
- As a predecessor to a Lubrication Requirement.

Procedure

1. Access the Route.

2. In the left pane, select:

   - The Lubrication Requirement node for which the reading value triggers the conditional Lubrication Requirements to appear.
   - The Checkpoint condition node that is linked to the Lubrication Requirement and below which you want a new Checkpoint condition node to appear.

3. In the left pane, select ＋, and then select **Condition**.

   A new Checkpoint condition is created, and appears below the selected Lubrication Requirement or Checkpoint condition node.

4. In the **Select Value** box, select the reading value that, when combined with the value in the **Select Relation** box, will trigger the conditional Checkpoint to appear.

5. On the upper-right corner of the datasheet, select ⊟.

   The Checkpoint condition is saved. The Checkpoint condition node displays part of the final condition statement.

6. In the left pane, select ＋.

   - If you want to create a new Lubrication Requirement, select **New LR**.
   - If you want to add a existing Lubrication Requirement, select **Existing ML / LR**.

- If you want to add a new Lubrication Requirement or group of Lubrication Requirements from template, select **Checkpoint Template**.

The Lubrication Requirement is added to the Route, and a Lubrication Requirement node appears below the predecessor Checkpoint condition.

7. As needed, enter or modify the values in the available fields.

8. On the upper-right corner of the datasheet, select 💾.

The Lubrication Requirement is saved. The condition statement is complete.

Add an Image to a Checkpoint

About This Task

This topic describes how to add an image to a Checkpoint that will appear when you access the Checkpoint in Rounds Data Collection.

Note: The image must be a compressed file type (for example, .png or .jpg), and the size of the image file must not exceed 100 KB.

Procedure

1. Access the Route containing the Checkpoint to which you want to add an image.
2. In the left pane, select the Checkpoint.
   The datasheet for the Checkpoint appears.

3. In the datasheet, in the **Checkpoint Image** box, select ⚬⚬⚬.

   The **Select Reference Document** window appears, displaying reference documents that are one of the following file types:

   - .png
   - .jpg
   - application/octet-stream

4. If you have already uploaded the image that you want to display, skip to step 10. If you have not previously uploaded the image that you want to display, select **Upload Image**.
   The **Add Reference Document** window appears.

5. In the **ID** box, enter an ID for the reference document.

   Note: The ID is what appears to the device user in the **Select Reference Document** window.

   Tip: You should limit the length of the ID to optimize display on the mobile device.

6. In the **Description** box, enter a description of the reference document.

7. In the **Document Path** box, select ⚬⚬⚬.

   The **Edit Document Path** window appears.

8. Select the desired document or provide a path to it, and then select **Save**.

   The **Document Path** box is populated with the path to the selected file.

9. Select 💾.

   The new Reference Document record is linked to the selected Checkpoint record, and a preview of the image appears in the **Select Reference Document** window.

10. In the **Select Reference Document** window, select the button next to the image that you want to display, and then select **Select**.

The image file is added to the datasheet for the Checkpoint.

11. In the upper-right corner of the datasheet, select 💾.

Results
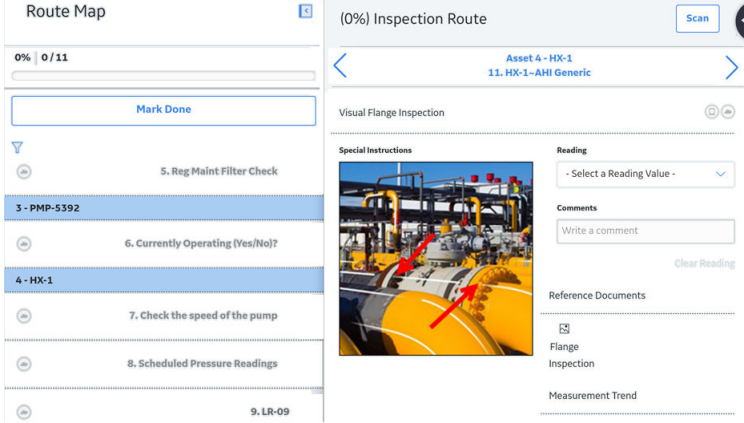
- The Checkpoint is saved.
- The specified image appears in the workspace for the Checkpoint in Rounds Data Collection.

  Tip: In Rounds Data Collection, you can select the image to display it in full screen.

A Checkpoint with an Image in Rounds Data Collection

Example:

Suppose that you have a Route containing a Checkpoint to inspect flanges on a pipe. You can add an image of the flanges to that Checkpoint in Rounds Designer so that it can be easily referenced while collecting readings in Rounds Data Collection, as shown in the following image.

Configure Alerts

Before You Begin

If you are configuring alerts for a Checkpoint with a character ML Type, ensure that allowable values are defined for that Checkpoint.

About This Task

If you want device users to receive alerts on a device when they record reading values that meet certain criteria, you can define the criteria in the **Limit Values** section of the Checkpoint datasheet. You can configure alerts for either character readings or for numeric readings, depending on the value stored in the ML Type field of the Measurement Location.

Note: If you create Readings in the Record Manager or Route Management, alerts will not be displayed for the reading value.

Procedure

1. Access the Checkpoint for which you want to configure alerts.

2. Select the **Limit Values** tab.
   The **Limit Values** section appears, displaying the upper and lower level limit values. Depending on whether the Checkpoint type is numeric or character, either the **Numeric** column or the **Character** column is enabled.
3. In the enabled column, enter or select values in any of the following boxes:

Limit Type	Description
Upper Level 3	Indicates a severe upper threshold for readings. When a user enters a reading at this level while collecting data, a red warning message is displayed.
Upper Level 2	Indicates an upper threshold for readings. When a user enters a reading at this level while collecting data, a red warning message is displayed.
Upper Level 1	Indicates an upper threshold for readings. When a user enters a reading at this level while collecting data, a caution message is displayed.
Lower Level 1	Indicates a lower threshold for readings. When a user enters a reading at this level while collecting data, a caution message is displayed.
Lower Level 2	Indicates a lower threshold for readings. When a user enters a reading at this level while collecting data, a red warning message is displayed.
Lower Level 3	Indicates a severe lower threshold for readings. When a user enters a reading at this level while collecting data, a red warning message is displayed.

Note: If the Checkpoint type is numeric and you have not defined allowable values for the Checkpoint, you can enter limit values in the box that displays the following text: `add caption`.

4. In the **Message** box, enter the message that you want to display when a user enters a limit value while collecting data.

5. When you have finished making changes, select .

Results

In Rounds Data Collection, when a user enters one of the defined limit values, an alert appears, containing the message that you entered in the **Message** box.

Chapter

7

Templates

Topics:

About Measurement Location Templates

A Measurement Location Template can be used as the basis for creating multiple Measurement Locations. Measurement Location Templates store the details of the Checkpoint template, which can be used to create Measurement Locations in a Route.

Measurement Location Template records can be successors to Checkpoint Condition records, which represent conditional logic that can be applied to the Checkpoints. After a Template Group containing conditions is applied to a Route, the Measurement Locations that are created as successors within a condition will appear to the user only if the defined condition is satisfied.

About Measurement Location Template Nodes

When you add a Measurement Location Template to an Template Group, the Measurement Location Template will be represented by a Measurement Location Template node in the left pane, and will appear in a location that is relevant to the currently selected node. In the left pane, Measurement Location Template are represented by nodes which can appear below the Template Group node or below Checkpoint Condition nodes.

For each Measurement Location Template node that appears in the left pane, the following information appears:

- A number representing the sequence in which the Measurement Location Template appears in relation to the other Measurement Location Template nodes that are associated with the same predecessor node.
- The Record ID, as defined in the ID Template for the Measurement Location Template family.
- The value stored in the ML Description field in the corresponding Measurement Location Template record. In the left pane, the description value is always displayed below the Record ID. Throughout this documentation, when we refer to a Measurement Location Template node, we refer to it by the value in the ML Description field.

When you add Measurement Location Template record to a Template Group, a new node will appear in the left pane directly below the node with which it is directly associated.

You can change the order in which the Measurement Location Template nodes are displayed in the left pane by either:

- Using the drag-and-drop method.
- Changing the order number.

About Lubrication Requirement Templates

A Lubrication Requirement Template serves as a template that you can use as the basis for creating multiple Lubrication Requirements. Lubrication Requirement Templates store the details of the Checkpoint template, which can be used to create Lubrication Requirements in a Route.

Note: Lubrication Requirement Templates cannot be added to Template Groups. The Template Group Management page only supports adding Measurement Location Templates to a Template Group.

About Alerts in a Measurement Location Template

If you want device users to receive alerts on the device when they record reading values that meet certain criteria, you must define that criteria in the Measurement Location record representing the Checkpoint at which they record readings.

If you define alert criteria in the Limit Values section of a Measurement Location Template, these values will be copied to any Measurement Location that you create using the Template.

The steps for defining alert criteria in a Measurement Location Template record are the same as the steps for defining alert criteria in a Measurement Location record. For the purposes of this documentation, the details on alerts and defining alert criteria are discussed in the context of Measurement Locations.

Access Templates

Procedure

1. Access the **RD Overview** page.
2. In the workspace, select the **Templates** tab.

   The **Templates** section appears, displaying a list of Checkpoint Templates.

   By default, all the templates are displayed in the **Templates** section. You can filter the templates by selecting ▽.

   You can select and filter the templates by selecting one or all of the following:

   - Checkpoint Type

     ◦ ML
     ◦ LR

   - Category Type

     ◦ Numeric
     ◦ Character
     ◦ Check Off
     ◦ Change Out
     ◦ Tracking

Create a ML Template / LR Template in Record Manager

Before You Begin

- Create at least one Lubrication Method, Lubrication Component, Lubrication Manufacturer, and Lubricant.

Procedure

1. Access the **Templates** section.
2. In the upper-left corner of the section, select ＋
3. Select a template type.

- If you want to create an ML Template, select **ML Template**.
- If you want to create an LR Template, select **LR Template**.

The **Record Manager** page appears, displaying a blank datasheet for a new Measurement Location Template or Lubrication Requirement Template.

4. As needed, enter values in the available fields for an ML Template or available fields for a LR Template.

5. On the upper-right corner of the datasheet, select 💾.
   The Template is created.

Next Steps

- Create a Checkpoint from a Template.

Update Checkpoints with Changes from the Source Template

About This Task

If you modify the contents of a Measurement Location Template or Lubrication Requirement Template that was used to create a Checkpoint (that is, Measurement Location or Lubrication Requirement, respectively), you may want to update the corresponding Checkpoints with the changes you made to the source template to keep them synchronized.

Procedure

1. Access the **Templates** section.
2. In the list of templates, select the row containing the template whose corresponding Checkpoints you want to update, and then select **Update Existing Checkpoints**.

   The **Update Existing Checkpoints** page for the selected template appears, displaying a list of the Checkpoint records that are based on the template. The values in the Checkpoint records that are different from the template, and thus will be updated to match the template, are highlighted.

3. In the first column, select the rows for the records that you want to update with the changes from the source template.

   Tip: You can select the check box in the column heading to select all the rows.

4. Select **Update**.
   The selected Checkpoints are updated with the changes from the source template, and the **Update Existing Checkpoint** window appears, displaying a list of the Checkpoints that were updated.

5. Select ✕ to close the window.
   The **Update Existing Checkpoints** page displays the updated values for the Checkpoints.

Delete a Checkpoint Template

Procedure

1. Access the **Templates** section.
2. Select the row for the Template that you want to delete, and then, in the upper-right corner of the section, select 🗑.

   A confirmation message appears, asking if you want to disassociate the Checkpoints and delete the Template.

3. Select **Yes**.

   The template is deleted.

   Note:

   - The Checkpoints that are created from the template are retained. Only the parent template is deleted.
   - You can also select the **Template ID** to delete the template from the record manager. The same action occurs; however, the messaging does not call out the disassociation of the related steps.

Chapter

8

Measurement Location Template Groups

Topics:

- Delete a Checkpoint Condition from an ML Template Group
- Delete an ML Template Group

About Template Groups

A Template Group serves as a container for multiple Measurement Location Templates and Checkpoint Conditions that are connected to one another in a Route. When you apply a Template Group to a Route, APM creates corresponding Measurement Locations and Checkpoint Conditions in the Route in the same structure as defined in the Template Group. In this way, you can add multiple Measurement Locations and Checkpoint Conditions to a Route simultaneously.

Note: Template Groups should contain no more than 150 Measurement Location Templates.

A Template Group contains the following records:

- One Template Group
- One or more Templates
- One or more Checkpoint Conditions
- Multiple Checkpoint Template Sequences

Unlike the structure of a Route, the records that make up a Template Group are not linked to one another in the database through a Relationship family. Instead, the structure of the records that are displayed in the UI is stored in multiple records that are created automatically in the Checkpoint Template Sequence family. Throughout the documentation, when we refer to the relationship between the records that make up a Template Group, we will not use the term linked. Instead, we use the term associated to differentiate between records that are related to one another through a physical link in the database and those that are related to one another only visually in the User Interface.

About Conditions in Template Groups

When you add a Checkpoint Condition to a Template Group, you are adding logic to the Template Group that will be applied to the Route to which you add the Template Group.

You can add the following types of conditions to a Template Group using the left pane on the page for a Template Group:

- Character
- Numeric

When you apply to a Route a Template Group that contains conditions, for each Checkpoint Condition that exists in the Template Group, one new Checkpoint Condition will be created and added to the Route. The new Checkpoint Conditions will contain the same values that are stored in the source Checkpoint Conditions.

In a Template Group, a single condition is represented by:

- One Measurement Location Template that identifies the initial Checkpoint.
- One Checkpoint Condition that identifies the specific reading value that will trigger the Checkpoint.
- One or many Measurement Location Templates that identify the subsequent Checkpoints.

A single Checkpoint Condition can be associated as a successor to only one Measurement Location Template. A Measurement Location Template, however, can be associated with multiple successor Checkpoint Conditions. Likewise, a Checkpoint Condition can be associated with multiple successor Measurement Location Templates.

Consider the following image, which shows an example of what the Template Group looks like after conditions are defined:
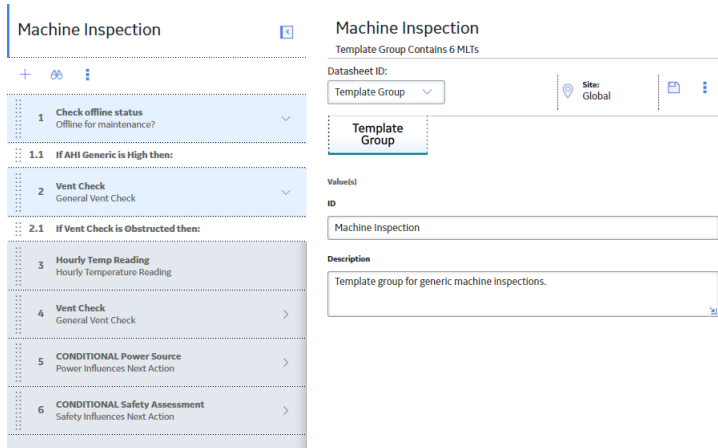
In this image, notice that the Checkpoint Condition nodes display the following text:

If <ML Template Category> is <Reading value> then:

...where <ML Template Category> is the value in the Category field in the related Measurement Location Template, and <Reading Value> is the value that you specify in the condition.

The text that appears on Checkpoint Condition nodes will vary depending on the type of Checkpoint Template with which it is associated (that is, character or numeric). This is determined by the value stored in the ML Type field in the predecessor Measurement Location Template.

About Measurement Location Templates in Template Groups

A Measurement Location Template serves as a template that you can use as the basis for creating multiple Checkpoints, which are the stops along a Route at which a device user will need to record a reading. When you add a Measurement Location Template record to a Template Group, the corresponding node appears in the left pane on the page for a Template Group in a position that is relevant to the currently selected node.

Before you add a Measurement Location Template to a Template Group, use the following guidelines to determine which node to select in the left pane on the page for a Template Group so that the new node will appear in the necessary location:

- If you want the new Measurement Location Template node to appear below a Measurement Location Template node, select the Measurement Location Template node.
- If you want the new Measurement Location Template node to appear below a Checkpoint Condition node as the first successor node, select the Checkpoint Condition node.
- If you want the new Measurement Location Template node to appear at the end of the Template Group, select the Template Group node.

In addition, you can add the same Measurement Location Template to a Template Group more than once, and each instance of that Measurement Location Template can participate in independent predecessor and successor relationships. In other words, a single Measurement Location Template can be represented by multiple nodes in a Template Group. If you modify the contents of a Measurement Location Template that is represented by multiple nodes, your changes will be reflected in all the nodes that represent that Measurement Location Template.

For example, you can add the Measurement Location Template record with the ML Description General Vent Check to a Template Group as nodes with the sequence values 2 and 4. You can also add Checkpoint Condition nodes and other Measurement Location Template nodes as predecessors and successors to each of the three nodes. Further, if you modify the Template ID value in the Measurement Location

Template record from General Vent Check to Vent Check, all the nodes that represent that record will be updated automatically with the new Template ID value. The following image shows a Template Group that contains multiple instance of the same Measurement Location Template record with the Template ID value Vent Check.
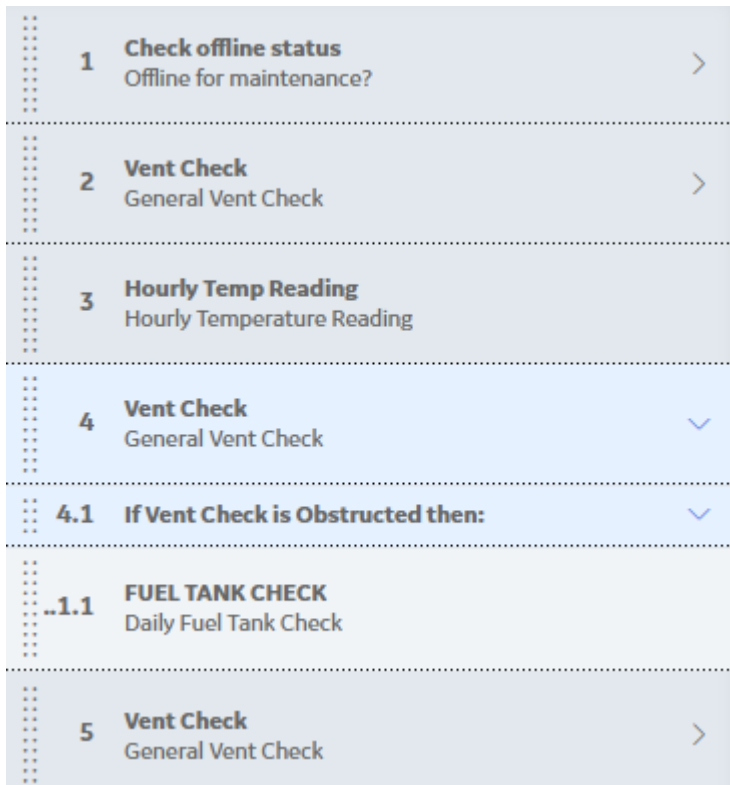
About Removing an ML Template from an ML Template Group

Removing a Measurement Location Template from a Template Group does not delete the Measurement Location Template from the database. Instead, only the references stored in the Checkpoint Template Sequences for that Measurement Location Template and its predecessor and successor records are deleted.

If a Template Group should no longer contain a Measurement Location Template or Checkpoint Condition, you can remove that node from the Template Group using the **Remove** option in the menu accessed via the ⠿ button in the left pane. When you remove a Measurement Location Template record from a Template Group, the underlying record will not be deleted from the APM database. Instead, only the reference to the Measurement Location Template in the Checkpoint Template Sequence record will be removed. When you delete a Template Group record or remove a Checkpoint Condition record, however, the record itself will be deleted from the APM database.

More specifically, when you delete a Measurement Location Template from a Template Group, the APM system will:

- Delete the association between the Measurement Location Template record and its predecessor record (that is, in the Checkpoint Template Sequence record).
- Remove the Measurement Location Template node from the left pane.
- Remove or delete the successor records that are associated with the Measurement Location Template record. Checkpoint Condition records that are successors to a Measurement Location Template record

that is removed from a Template Group will be deleted from the database. Other Measurement Location Template records that are associated with a Measurement Location Template record that is removed from a Template Group, however, will also be removed from the Template Group as described previously.

Likewise, when you delete a Checkpoint Condition record, any Measurement Location Template records that are associated with the Checkpoint Condition record as successors will be removed from the Template Group. Other Checkpoint Condition records that are associated with the Checkpoint Condition record as successors, however, will also be deleted.

If you want to delete an entire Template Group, you can delete the Template Group record, and that Template Group will no longer appear in the Rounds interface. When you do so, only the related Checkpoint Condition records will be deleted from the APM database. The Measurement Location Template records belonging to that Template Group will not be deleted.

About Checkpoint Condition Nodes in the Template Group Pane

In a Route, a Checkpoint Condition defines the circumstances in which conditional Checkpoints should appear on the device if the user enters a specific reading value for the previous Checkpoint. Likewise, in a Template Group, a Checkpoint Condition represents the Checkpoint Condition that will be created when the Template Group is applied to a Route. When you define a condition, you will need to define:

- The initial Checkpoint whose reading value should trigger a subsequent Checkpoint.
- The specific reading value that should trigger another Checkpoint.
- The subsequent Checkpoint that should be triggered by that reading value.

In a Template Group, a single condition is represented by:

- One Measurement Location Template that identifies the initial Checkpoint.
- One Checkpoint Condition that identifies the specific reading value.
- One or more Measurement Location Templates that identify the subsequent Checkpoints.

In the left pane of the page for the Template Group, Checkpoint Condition nodes are displayed within the context of the Measurement Location Template node representing the initial and subsequent Checkpoints. Specifically, the Checkpoint Condition node appears below the Measurement Location Template node representing the initial Checkpoint. Likewise, the Measurement Location Template node representing the subsequent Checkpoint appears below the Checkpoint Condition node.

Consider the following image. In this image, you can see the Checkpoint Condition node, which appears below the initial Measurement Location Template node Vent Check. Below the Checkpoint Condition node If Vent Check is Obstructed then:, you can see the subsequent Measurement Location Template nodes FUEL TANK CHECK and Check offline status.

Create an ML Template Group

About This Task

Note: Template Groups should contain no more than 150 Measurement Location Templates.

Procedure

1. Access the **RD Overview** page.
2. In the workspace, select the **ML Template Groups** tab.

   The **ML Template Groups** section appears, displaying a list of Template Groups.

3. In the upper-left corner of the section, select $+$.

   A blank **Template Group** datasheet appears.
4. In the **ID** box, enter an ID for the Template Group.
5. In the **Description** box, enter a description for the Template Group.
6. In the upper-right corner of the datasheet, select 💾.
   The Template Group is created.

Next Steps

- Create a New Measurement Location Template and Add It to an ML Template Group

Access an ML Template Group

Procedure

1. Access the **RD Overview** page.
2. On the page, select the **ML Template Groups** tab.

   The **ML Template Groups** section appears, displaying a list of Template Groups.
3. Select the Template Group that you want to access.
   The datasheet for the ML Template Group record appears.
4. As needed, modify values in the available fields, and then, in the upper-right corner of the workspace,

   select 💾.
   The changes made to the ML Template Group are saved.

Create a New Measurement Location Template and Add It to an ML Template Group

This topic describes how to create a Measurement Location Template and add it to a Template Group.

Procedure

1. Access an ML Template Group to which you want to add a Measurement Location.
2. In the left pane, select the node that will determine the position of the new Measurement Location Template node. For example, if you want a new Measurement Location Template node to appear below an existing Measurement Location Template node, select that existing Measurement Location Template node. In the following image, the last Measurement Location Template node is selected, so the new Measurement Location node will appear below it.
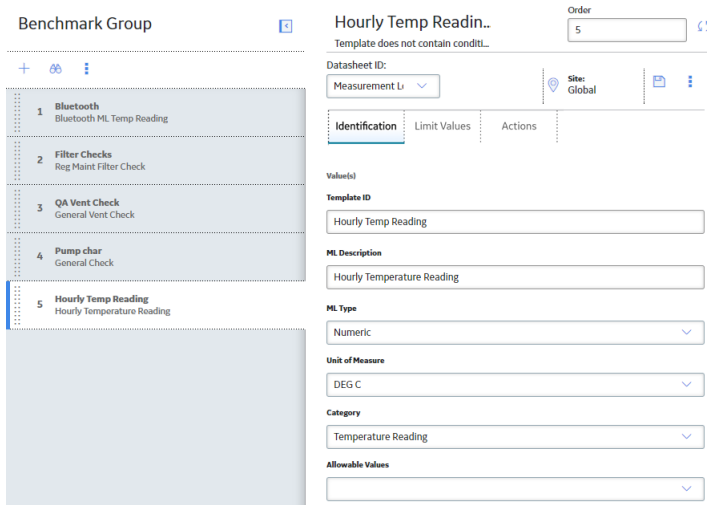
3. In the upper-left corner of the pane, select ➕, and then select **New MLT**.
   A new Measurement Location Template node appears in the left pane, and a blank datasheet appears in the workspace.

4. On the datasheet, in the **Template ID** box, enter an ID for the Measurement Location Template. This field is required, and the value must be unique.

5. In the **ML Type** list, select the value that corresponds to the type of Measurement Location that this Measurement Location Template represents. You can select **Character** or **Numeric**.

6. As needed, enter values in the remaining fields.

7. In the upper-right corner of the datasheet, select 💾.

   The ML Template Group is saved.

Add an Existing Measurement Location Template to a ML Template Group

Procedure

1. Access an ML Template Group.

2. In the left pane, select the node that will determine the position of the new Measurement Location Template node. For example, if you want a new Measurement Location Template node to appear below an existing Measurement Location Template node, select the existing Measurement Location Template node.

3. In the upper-left corner of the pane, select ➕, and then select **Existing MLT**.

   The **Existing MLT** window appears, displaying a list of Measurement Location Templates.

4. Select the check boxes that correspond to the Measurement Location Templates that you want to add, and then select **Add**.

   The selected Measurement Location Templates are added to the ML Template Group, and the corresponding nodes are listed in the left pane. By default, the last Measurement Location Template that you have added is selected.

Modify a Measurement Location Template Linked to an ML Template Group

About This Task

You can manage changes to Measurement Location Templates that currently belong to a Template Group using the left pane on the page for a Template Group, and in Record Manager.

Procedure

1. Access the ML Template Group that contains the Measurement Location Template that you want to modify.
2. In the left pane, select the Measurement Location Template that you want to modify.
   The datasheet for the selected Measurement Location Template appears.
3. As needed, modify values in the available fields.
4. On the upper-right corner of the datasheet, select 💾.

   The changes made to the Measurement Location Template are saved.

Next Steps

- If the Measurement Location Template has already been applied to one or more Measurement Locations, update the Measurement Locations with the changes you made to the source Measurement Location Template.

Add a Condition to an ML Template Group for a Character Measurement Location Template

About This Task

This topic describes how to create a Checkpoint Condition and add it to an ML Template Group:

- As a successor to a Measurement Location Template whose ML Type value is character.
- As a predecessor to a Measurement Location Template.

Procedure

1. Access an ML Template Group.
2. In the left pane, select either:
   - The Measurement Location Template node displaying the Checkpoint whose reading value should trigger additional Checkpoints to appear.
   - The Checkpoint Condition node that is linked to the desired Measurement Location Template and below which you want a new Checkpoint Condition node to appear.
3. In the upper-left corner of the pane, select ＋, and then select **Condition**.

   A new Checkpoint Condition is created and appears below the node representing the selected Measurement Location Template or the Checkpoint Condition. A blank datasheet for the condition appears.

4. On the **Select Value** list, select the reading value that should trigger an additional Checkpoint to appear.

5. In the upper-right corner of the datasheet, select 💾.

    The Checkpoint Condition is created. The Checkpoint Condition node displays part of the final condition statement.

6. In the left pane, select ＋.

    • If you want to create a new Measurement Location Template, select **New MLT**.
    • If you want to add a Measurement Location Template, select **Existing MLT**.

    The Measurement Location Template is added to the ML Template Group, and a Measurement Location Template node appears below the predecessor Checkpoint Condition. A blank datasheet for the Measurement Location Template appears in the workspace.

7. As needed, enter or modify values in the available fields.

8. In the upper-right corner of the datasheet, select 💾.

    The Measurement Location Template is saved. At this point, the condition statement is complete.

Add a Condition to an ML Template Group for a Numeric Measurement Location Template

About This Task

This topic describes how to create a Checkpoint Condition and add it to an ML Template Group:

• As a successor to an Measurement Location Template whose ML Type value is numeric.
• As a predecessor to an Measurement Location Template.

Procedure

1. Access an ML Template Group.

2. In the left pane, select either:

    • The Measurement Location Template node displaying the Checkpoint whose reading value should trigger additional Checkpoints to appear.
    • The Checkpoint Condition node that is linked to the desired Measurement Location Template and below which you want a new Checkpoint Condition node to appear.

3. On the upper-left corner of the pane, select ＋, and then select **Condition**.

    A new Checkpoint Condition is created and appears below the node representing the selected Measurement Location Template or Checkpoint Condition. A blank datasheet for the condition appears.

4. In the **Select Relation** list, select the desired comparator. For example, the following image shows the comparator <= (less than or equal to) selected in the **Select Relation** list.

5. In the **Select Value** cell, enter the numeric value representing the reading value that should trigger the additional Checkpoint to appear.

6. In the upper-right corner of the datasheet, select 💾.

    The Checkpoint Condition is created.

At this point, the Checkpoint Condition node displays part of the final condition statement. In this example, the condition statement is: If the Temperature Reading is less than or equal to 0, then display the following Checkpoint.

7. On the left pane, select ╀ .

   - If you want to create a new Measurement Location Template, select **New MLT**.
   - If you want to add a Measurement Location Template, select **Existing MLT**.

   The Measurement Location Template is added to the ML Template Group, and a Measurement Location Template node appears below the predecessor Checkpoint Condition. A blank datasheet for the Measurement Location Template appears in the workspace.

8. As needed, enter or modify values in the available fields.

9. In the upper-right corner of the datasheet, select 🖫 .

   The Measurement Location Template is saved. At this point, the condition statement is complete.

Remove a Measurement Location Template from an ML Template Group

Procedure

1. Access the ML Template Group that is linked to the Measurement Location Template that you want to remove.
2. In the left pane, select the Measurement Location Template that you want to remove from the ML Template Group.
3. In the left pane, select ⸽ , and then select **Remove**.
4. Select **Yes**.

   The selected Measurement Location Template is removed from the Template Group, along with any successor Checkpoint Condition and Measurement Location Templates. If the Measurement Location Template is associated with successor Checkpoint Conditions, those records are deleted as well.

Delete a Checkpoint Condition from an ML Template Group

Procedure

1. Access the ML Template Group that is linked to the Checkpoint Condition you want to delete.
2. In the left pane, select the Checkpoint Condition that you want to delete.
3. In the left pane, select ⸽ , and then select **Remove**.

   The selected Checkpoint Condition is deleted, along with any successor Checkpoint Conditions. In addition, if the Checkpoint Conditions were associated with any Measurement Location Templates, those records are removed from the Template Group.

   Note: The Checkpoint Conditions are deleted from the database, but any Measurement Location Templates that were under the condition will remain in the database.

Delete an ML Template Group

Procedure

1. Access an ML Template Group.
2. Select the row for the Template Group that you want to delete.
3. In the upper-right corner of the section, select 🗑.

    A confirmation message appears, asking if you really want to delete the Template Group.
4. Select **Yes**.

    The Template Group is deleted. When you delete a Template Group, only the Checkpoint Conditions will be deleted from the database. The Measurement Location Templates in that Template Group will not be deleted.

Chapter

9

Schedules

Topics:

About Schedules

In order for Checkpoints to appear on a Route, a schedule must be defined and aligned with the frequency at which you want readings to be taken for the asset. For example, you might need to check the water tank on the bottling line for leaks every six months. Likewise, if you operate a machine with safety switches, you might want to check the safety switches each time a new shift begins. To manage these scenarios, you can define schedules that specify when readings should be completed.

Route vs. Checkpoint Schedules

You can define a schedule for a Route, individual checkpoints within a Route, or a combination of these. The type of schedule that you use will depend on the specific Routes and checkpoints that you need to manage. For example:

- If all of the Checkpoints within a Route should be due at the same time, you can define a schedule for a Route.
- If the Checkpoints within a Route should be due at different times, you can define a separate schedule for each checkpoint.
- If most of the Checkpoints within a Route should be due at the same time, but some checkpoints should be due less frequently than the other checkpoints, you can define a schedule for the Route and for certain checkpoints within the Route.

Note: If a checkpoint is associated with both types of schedules, the checkpoint will be included in the Route for data collection only if both schedules indicate that it is due.

When a Route is Due

When a Route is due, the following statements are true:

- The schedule defined at the route level is due.
- If there is no schedule defined at the route level, then the schedule(s) defined at the checkpoints level should be due.

When a Route is Overdue

When a Route is overdue, the following statements:

- The schedule defined at the route level is not applicable. The Route will not be Overdue if the schedule is defined only at the route level.
- At least one of the checkpoints associated with the route must be Overdue. This means that the Non-Compliance Date on the checkpoint schedule must be in the past.

Note: The criterion used to display the Routes in **Overdue Items** workspace is not based on the schedule defined on the route, but on the schedule defined at the Checkpoint (ML) level. The Checkpoint schedule on any one of the Checkpoints associated with the route must be Overdue. Hence, a schedule is required to be defined at the checkpoint level to display the route in **Overdue Items** workspace.

> **Example: Route with Route and Checkpoint Schedules**
>
> The following example illustrates various combinations of Route and checkpoint schedules. In all scenarios, assume that:
>
> - The start time of all schedules is 1pm of the current day.
> - The current time is 12 noon.

Scenario	Description
Scenario 1	• A Route with 2 checkpoints is scheduled every 1 hour. • Checkpoint A is scheduled every 3 hours. • Checkpoint B is scheduled every 6 hours. Because schedules are defined for both the Checkpoints and the Route, the Route is available for data collection when the Route is due and the checkpoint with the earliest Next Date is due. Therefore, the **Next Date** displayed on the **RDC Overview** page is 4pm (i.e., 3 hours after 1pm). When the Route is opened at 4pm, only Checkpoint A is displayed because Checkpoint B is not yet due. If you open the Route after 7pm, both checkpoints are displayed.
Scenario 2	• A Route with 2 checkpoints is scheduled every 1 hour. • Checkpoint A is scheduled every 3 hours. • Checkpiont B has no schedule. In this scenario, the Route's schedule applies to the checkpoint without a schedule, so the Route is available for data collection per the Route's schedule. Therefore, the **Next Date** displayed on the **RDC Overview** page is 2pm (i.e., 1 hour after 1pm). When the Route is opened at 2pm, only Checkpoint B is displayed because Checkpoint A is not yet due.

Scenario	Description
Scenario 3	• A Route with 2 checkpoints is scheduled every 5 hours. • Checkpoint A is scheduled every 3 hours. • Checkpiont B has no schedule. In this final scenario, the **Next Date** displayed on the **RDC Overview** page is 6pm (i.e., 5 hours after 1pm). When the Route is opened at 6pm, both Checkpoints A and B are displayed, because both are due.

Schedules and Time Zones

The schedules that you define include a specific time zone. The Route or Checkpoint will become due at the specified time in that time zone, irrespective of the time zone of the logged in user. For example, if you set a Route to be due at 8:00 A.M. every day in Eastern Standard Time, the Route would be due at 5:00 A.M. every day in Pacific Standard Time.

Schedules and Daylight Saving Time

For schedules that are set to recur every certain number of hours or minutes after the specified Start Time, for time zones that use Daylight Saving Time (DST), you can specify whether you want the schedule to adjust for DST automatically.

This is best explained through an example. Consider the following scenarios for a Route schedule that is set for "Every 4 hours since start time":

• If you select **Adjust for Daylight Savings**, the Route will be due at the same time of day whether or not DST is in effect (e.g., it always due 8am, 12pm, 4pm, etc.). In this scenario, the actual hour increment between the Route due dates may be 3 hours or 5 hours when entering or leaving DST, respectively.
• If you do not select **Adjust for Daylight Savings**, the Route will be due every 4 hour increment, whether or not DST is in effect (e,g., a Route that is due at 8am during DST in the summer is due at 7am in winter).

About Route Schedule Definition

You can define a schedule for a Route via the Schedule field on the datasheet for the Route. The Route schedule that you define will apply to all checkpoints within the Route except those with separate schedules that are less frequent than the Route schedule, if any.

The schedule that you define on the **Schedule** datasheet determines the next date and time on which a Route becomes due. This start date indicates the earliest time at which the Route should be completed. For example, if a Route should be completed anytime within a certain week, the date determined by the schedule should be at the beginning of the week within which the Route should be completed.

Note: When you define a schedule for a Route, the minimum time between events should at least be 15 minutes.

Details

The date and time on which the Route should be completed is stored in the Next Date field of the Route and is calculated automatically according to the defined schedule. For example, if you specified that the Route should be completed every 4 hours, and should not adjust for Daylight Saving Time:

- The schedule might be defined to be due every 4 hours beginning on May 2, 2012, at 11:00 A.M.
- The Next Date value would be May 2, 2012, at 03:00 P.M.

As you can see, these times are separated by a 4 hour increment, which is in accordance with the defined schedule.

After you upload a Route from a device to APM:

- The Last Date field in the Route is updated to reflect the date and time at which the Route status was changed to Finished.
- The Next Date field in the Route is updated based on the values in the Schedule field.

Note: If a Route is completed before it is due (i.e., prior to the date and time in the Next Date field), when you upload the Route to APM, the Last Date and Next Date fields in the Route will not be updated.

Continuing with the previous example, if you marked the Route done on May 2, 2012, at 03:30 P.M. and uploaded the Route on May 2, 2012, at 03:45 P.M:

- The Last Date value in the Route would be May 2, 2012 03:30 P.M, which is the time that you marked the Route done. When the Route is marked done and uploaded from the device to APM, the Route History status will be updated to Finished.
- The Next Date value in the Route would be May 2, 2012 07:00 P.M. This value is updated according to the defined schedule (i.e., due every 4 hours beginning on May 2, 2012, at 11:00 A.M.) and not according to the Last Date value.

Note: You can also define a schedule in which the next date that a Route should be completed is a certain amount of time after the Route was last completed. With this type of schedule, the Last Date value would be used to determine the Next Date value. For example, if the defined schedule in this example was due 4 hours after last occurrence, the Next Date value would be May 2, 2012 07:30 P.M. (i.e., 4 hours after the date and time in the Last Date field).

About Checkpoint Schedule Definition

You can define a schedule for a checkpoint via the Checkpoint Task, which is linked to the Measurement Location or Lubrication Requirement representing the checkpoint. The **Checkpoint Task** datasheet appears in the **Schedule** section of the workspace for a selected Checkpoint.

Note:

- When you schedule a checkpoint task for a ML or a LR, the minimum time between events should at least be 15 minutes.
- You cannot define schedules for Checkpoints that are part of a condition.

Details

When you are working with Checkpoint Tasks and schedules associated with checkpoints, it is important that you understand how the fields in the Checkpoint Tasks work and how the APM system determines what Routes and checkpoints are due or overdue. The schedule that you define for the checkpoint determines the following dates for the reading associated with a checkpoint:

- The next date and time on which the reading becomes due (i.e., the earliest time at which the reading should be completed). This value is stored in the Next Date field in the Checkpoint Task and is calculated automatically according to the defined schedule.
- The date and time on which the reading becomes non-compliant (i.e., overdue). This value appears in the Non-compliance Date field in the Checkpoint Task and is calculated according to the defined schedule and Non-compliance Interval, if defined. The following examples assume that the Non-compliance interval is undefined.

For example, if you specified that the checkpoint should be completed every 4 hours, and should not adjust for Daylight Saving Time:

- The schedule might be defined as Due every 4 hours beginning on Nov 2, 2015, at 11 A.M.
- The Next Date value would be Nov 2, 2015, at 3 P.M.
- The Non-Compliance Date value would be Nov 2, 2015, at 07:00 P.M.
- The Non-Compliance Next Check Date value also would be Nov 2, 2015, at 07:00 P.M.

As you can see, the values are separated by 4 hour increments, which is in accordance with the defined schedule.

When a new reading is taken for a checkpoint, the following fields are updated in the Checkpoint Task:

- Last Date, which contains the last date and time on which a reading was taken for the checkpoint.
- Next Date
- Non-compliance Date
- Non-compliance Next Check Date

Continuing with the previous example, if you took the reading on Nov 2, 2015, at 03:30 P.M.:

- The Last Date value would be Nov 2, 2015, at 03:30 P.M., which is the time that you took the reading.
- The Next Date value would be updated to Nov 2, 2015, at 07:00 P.M.
- The Non-compliance Date value would be updated to Nov 2, 2015, at 11:00 P.M.
- The Non-Compliance Next Check Date value also would be Nov 2, 2015, at 11:00 P.M.

As you can see, the Next Date and Non-compliance Date values are updated according to the defined schedule and not according to the Last Date value.

Note: You can also define a schedule in which the next date that a reading should be completed is a certain amount of time after the reading was last completed. With this type of schedule, the Last Date value would be used to determine the Next Date and Non-compliance Date values. For example, if the defined schedule in this example was Due 4 hours after last occurrence, the Next Date value would be Nov 2, 2015, at 07:30 P.M. (i.e., 4 hours after the date and time in the Last Date field).

Schedule a Checkpoint Task for an ML or LR

Procedure

1. Access the **RD Overview** page.
2. Select the **Routes** tab.

   The **Routes** section appears, displaying a list of Routes.
3. Select the Route that you want to access.

   The datasheet for the selected Route appears.
4. Select the Measurement Location or Lubrication Requirement for which the Checkpoint Task needs to be scheduled.

   The datasheet for the ML/LR appears, with all of the fields populated.

5. Select the **Schedule** tab.

   The datasheet for the Checkpoint Task appears.

6. To build the schedule, as needed, enter values in the available fields.

   Note: When you schedule a Checkpoint Task for an ML or LR, the minimum time between events should at least be 15 minutes.

7. Select 💾.

   The schedule is created.

Reset Checkpoint Next Dates

This topic describes how to simultaneously modify the Next Date for all of the Checkpoints on a Route that currently have schedules defined.

Procedure

1. Access the Route containing the Checkpoints for which you want to modify the Next Date.

2. In the Route Map pane, select ⋮ , and then select **Reset Checkpoint Next Dates**.

   The **Reset Checkpoint Next Dates** window appears.

3. In the **Select a Date** box, select the date to which you want to update the Next Date values.

4. Select **OK**.

Results

- The Next Date values for all Checkpoints on the Route with existing schedules are updated.
- Non-compliance Date values are updated based on your specified compliance tracking schedule.

Reschedule All Checkpoints on a Route

Procedure

1. Access the Route for which you want to reschedule all Checkpoints.

2. In the **Route Map** pane, select ⋮ , and then select **Reset Checkpoint Schedules**.
   The **Edit Schedule** appears.

3. Select either the **One Time** or **Recurrence** check box.

4. In the **Time Zone** box, select the time zone in which you want the first scheduled execution to occur.

5. In the **Start** box, specify the date on and time at which you want the first scheduled execution to occur.

6. If you selected the **Recurrence** check box, in the **Every** section, specify the frequency at which you want the synchronization to occur.

7. Select or clear the **Adjust for Daylight Saving Time** check box.

8. If you selected the **Recurrence** check box, in the **End** section, specify when the recurring synchronization should end.

9. Select **Save**.

   The **Reset schedules** window appears.

10. Select one of the following options:

Option	Description
Only Checkpoints with existing schedules	If you select this option, only Checkpoints with existing schedules on the Route are updated.
All Checkpoints	If you select this option, all Checkpoints on the Route, including those without existing schedules, are updated.

11. Select **OK**.

Depending on your selection, only Checkpoints with existing schedules on the Route are updated, or all Checkpoints on the Route are updated.

Delete All Checkpoint Schedules on a Route

Procedure

1. Access the Route for which you want to delete all Checkpoint schedules.
2. In the **Route Map** pane, select $\vdots$, and then select **Reset Checkpoint Schedules**. The **Edit Schedule** appears.
3. In the **Edit Schedule** window, select **Delete**.

   The **Delete schedules** dialog box appears.
4. Select **OK**.

Results

- All Checkpoint schedules on the Route are deleted.
- All Next Dates and Compliance Dates for all Checkpoints on the Route are deleted.

Chapter

10

Route Recommendations

Topics:

Access the Recommended Actions Pane

Procedure

1. Access the Route containing the Checkpoint for which you want to access the recommended actions.
2. In the left pane, select the Checkpoint for which you want to access the recommended actions.

3. On the upper-right corner of the page, select [icon].
   The **Recommended Actions** pane appears.

Create a Rounds Recommendation

Procedure

1. Access the **Recommended Actions** pane, and then select $+$.
   The **New Recommendation: Draft** datasheet appears, displaying the **General Information** and **Alert** tabs.
2. If you are using State Management, proceed to the next step. If you are using Status fields to track recommendations rather than using State Management, in the **Datasheet ID** list, select **Rounds Recommendation (with Status)**.
3. As needed, modify values in the available fields.
4. Select [icon].
   The recommendation is created, and the datasheet for the recommendation appears.

Results

- The recommendation that you have created is listed in the **Recommendations** pane of the Route both in the Rounds Designer module and the Rounds Data Collection module.

View Geolocation Data for Readings and Recommendations

About This Task

Using a map query, you can view the geolocation data that is saved for readings, recommendations, and photos.

Note: For more information about working with maps, see the Maps documentation.

Procedure

1. On the left navigation menu, select **Tools**, and then select **Maps**.
   The **Maps** page appears.
2. On the **Maps** page, select **Browse**.

   The **Select a query from the catalog window** appears.
3. Navigate to the folder `\\Public\Meridium\Modules\Operator Rounds\Queries`.
   A list of queries appears.

4. Select the query **Readings Geolocation Data**, and then select **Open**.
   A map showing geolocation data appears.

   Note: You can select ▽ to filter the data that is shown by asset, Route, or date range.
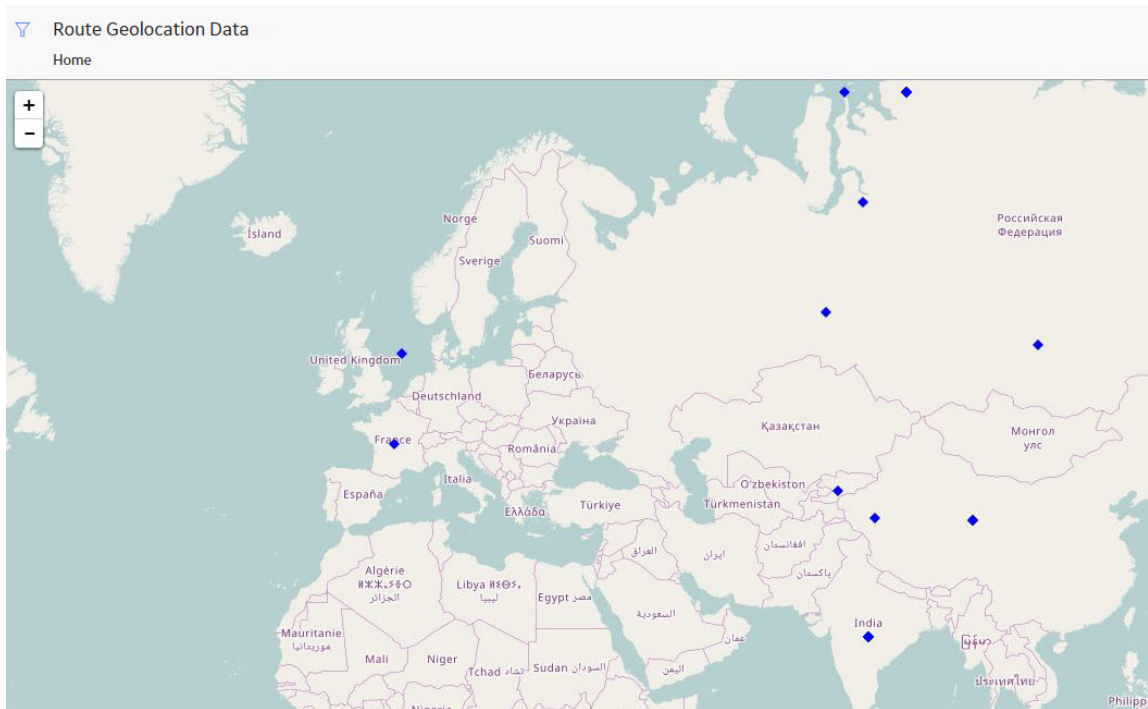
5. Adjust the following settings so that the data you want to view is displayed:

   • Select ▽ to filter the data by asset, Route, or date range.

   • Select ✚ or ━ to zoom the map in or out, respectively.

   The map appears as specified.

Chapter

11

Rounds Reports

Topics:

About Rounds Reports

In the Rounds Designer module, you can generate reports detailing either the Measurement Locations or Lubrication Requirements on a specific Route. You can also narrow the scope of these reports so that they contain information on only Checkpoints that are overdue or Measurement Locations whose last reading value triggered an alert. You can save these reports in a variety of file formats and print them so that you can record reading values at the associated Checkpoints.

Access the Reports Section

About This Task

You can use the **Reports** section to access the reports stored in the Rounds Catalog folders and view them in the Report Viewer.

Procedure

1. Access the **RD Overview** page.
2. In the **RD Overview** page, select the **Reports** tab.
   The **Reports** section appears.

   The **Reports** section displays one row for each report stored in the Rounds report folders. The section contains the 👓 button, which allows you to search for reports that are stored in the database. The section also contains the following columns:

   - **Report Caption**: Displays the report captions as hyperlinks, which you can select to access the report.
   - **Description**: Displays the report description.

Access a Report from the Reports Section

Procedure

1. Access the **Reports** section.
2. In the grid, select the hyperlinked caption of the report that you want to access.

   Note: If the report is based on a query that contains prompts, the **Enter Query Parameters** dialog box will appear. After you select the desired values, select **OK** to view the report.

   The selected report appears in a new page, in which you can perform various tasks.

Chapter

12

Reference Documents

Topics:

About Reference Documents

A reference document is a file (for example, a Word document or an image) that contains supplementary information that users need to view while they are working.

In the case of Rounds, a reference document contains supplementary information about a Checkpoint that you might want device users to be able to see while entering a reading value for that Checkpoint.

For example, if a user is supposed to take several readings on the same piece of equipment, you might want them to be able to access an image dictating the exact locations at which the readings should be taken.

You can link new or existing Reference Document records to Measurement Location records via the **Reference Documents** section of the datasheet for the Measurement Location record.

Note: You can access all associated reference documents for a Measurement Location record only when you are connected to a network.

Use Reference Documents on a Device

Before You Begin

The device on which you want to display the reference document must contain the necessary software application for displaying the reference document type. For example, if a reference document is a Microsoft Word document, the device must have a word processing program, such as Mobile Word, in order to view the reference document on the device.

In addition, if you are creating a reference document to display an image in the workspace for a Checkpoint on a Route, the image must be a compressed file type (for example, .png or .jpg), and the size of the image file must not exceed 100 KB.

Procedure

1. Create a Reference Document record for the reference document.

   Note: Ensure that the reference document is an internal reference document (that is, it is stored in the APM database).
2. Link the Reference Document record to the Measurement Location record representing the Checkpoint that is associated with the reference information.

   Note: The reference document that you see on the device is the reference document that is stored in the APM database. The original reference document, however, is stored in the location specified by the file path in the Reference Document record (that is, a network drive or local computer). If the original document is modified, you will need to manually update the corresponding Reference Document record so that device users can see those changes.

   Note: For more information, please refer the Add a Reference Document topic in the Record Manager documentation.

Link a New Reference Document Record to Measurement Location Records

Procedure

1. Access the Route that contains the Measurement Location that you want to associate with a reference document.
2. Select the corresponding Measurement Location node.
The contents of the Measurement Location record are displayed in the workspace.
3. In the workspace, select the **Reference Documents** tab.
The **Reference Documents** section appears.

4. In the upper right corner of the **Reference Documents** section, select ＋ .
The **Add Reference Document** window appears.

5. In the **ID** box, enter an ID for the reference document. The ID is what appears to the device user on the **Ref - Docs** page when more than one Reference Document record is linked to the Measurement Location record.

   Tip: You should limit the length of the ID to optimize display on the mobile device.
6. In the **Description** box, enter a description of the reference document.

7. In the **Document Path** box, select ∘∘∘ .

   The **Edit Document Path** window appears.
8. Select the desired document or provide a path to it, and then select **Save**.

   The **Document Path** box is populated with the path to the selected file.
9. Select **OK**.

   The **Document Path** box is populated with a link to the document.
10. Select **Add Reference Document**.

    The new Reference Document record is linked to the selected Measurement Location record and appears in the **Reference Docs** section. In addition, if you selected **Store Document**, a copy of the reference document is saved to the APM database.

Results

- After the Measurement Location record is downloaded to the device, the device user will be able to view the reference document.

Link an Existing Reference Document Record to a Measurement Location Record

Procedure

1. Access the Route that contains the Measurement Location that you want to associate with a reference document.
2. Select the corresponding Measurement Location node.
The content of the Measurement Location record are displayed in the workspace.
3. In the workspace, select the **Reference Documents** tab.

The **Reference Documents** section appears.

4. Select 🔗 .
   The **Search** window appears, and the Reference Document family is selected in the search box.
5. Search for the desired Reference Document record, select it, and then select **OK**.
   The selected Reference Document record is linked to the selected Measurement Location record and displayed in the **Reference Documents** section.

Chapter

13

Admin

Topics:

About Application Settings

You can modify several settings of the Rounds solution to determine how the application behaves.

This section of the documentation addresses:

- Accessing the Rounds Designer administration page.
- Scheduling compliance tasks.
- Mapping Lubrication Requirement priority values to colors.
- Synchronizing route sequences.
- Modifying default device settings.
- Specifying whether the Asset ID or Entity ID is displayed in the workspace for a Route.
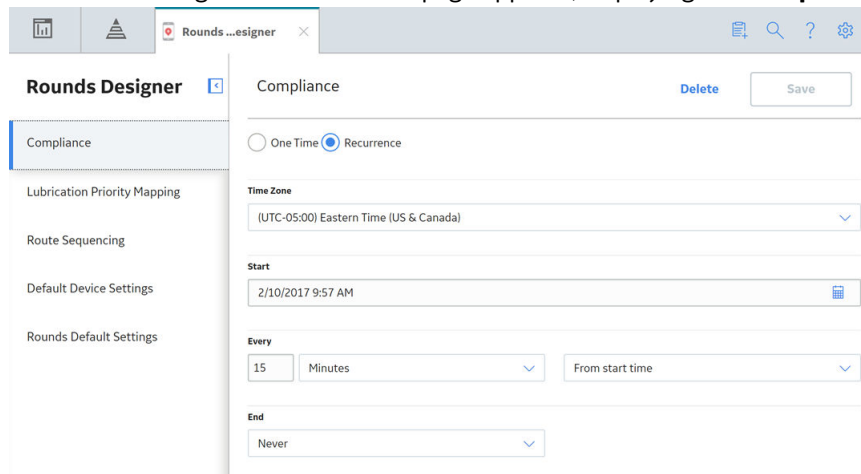
Access the Rounds Designer Administration Page

About This Task

Note: You can access the Rounds Designer administration page if you are a member of the MI Operator Rounds Administrator or the MI Lubrication Management Administrator Security Group.

Procedure

In the **Applications** menu, navigate to **ADMIN** > **Application Settings** > **Rounds Designer**.
The Rounds Designer administration page appears, displaying the **Compliance** workspace.

Specify a Schedule For Compliance Tracking

About This Task

You can specify a schedule to track readings for compliance. If you choose to use compliance tracking, you should start the scheduled compliance task as soon as the Rounds module is deployed, and set it to run continuously as long as Routes are in use.

Procedure

1. Access the Rounds Designer administration page.
2. In the **Compliance** workspace, select **Recurrence**.
3. In the **Time Zone** box, select the timezone for the schedule.
4. In the **Start** box, specify the date on and time at which you want the first scheduled compliance task to occur.
5. In the **Every** section, select the frequency at which you want the scheduled task to occur.

   Note: We recommended that you schedule the compliance task to run frequently (for example, every 15 minutes) to ensure that the status of Checkpoint tasks is kept up to date.
6. In the **End** box, select **Never**.
7. Select **Save**.

Modify the Lubrication Requirement Priority Mapping Values

You can map Lubrication Requirement priority values (stored in the system code table MI_LUBR_PRIORITY) to specific colors that are displayed when readings are collected for a Lubrication Requirement.

Procedure

1. Access the Rounds Designer administration page.
2. Select the **Lubrication Priority Mapping** tab.
   The **Lubrication Priority Mapping** workspace appears.
3. Select priority values for each color.

   Note: Any Lubrication Requirement with a priority value not matching one of the three mapped values will display a Green priority indicator in Rounds Data Collection.
4. Select **Save**.
   The priority value for each color is saved.

Results

When a Rounds Data Collection user selects a Lubrication Requirement on a Route, the priority and specified color are shown similar to the following image:
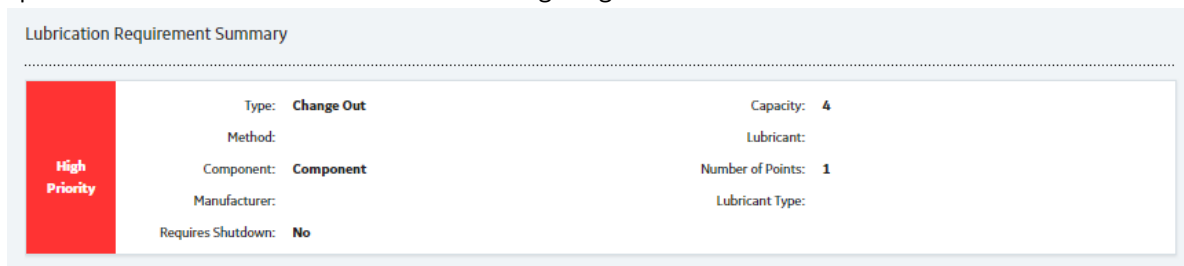
Schedule Route Sequence Synchronization

About This Task

Before generating Reports, Route Sequence Information records must be created or updated to reflect the order in which checkpoints are arranged within a route in Rounds Designer. Records are created or updated automatically when you select **Save Route Sequence** on a Route and after the **Rounds**

Designer page has been closed. However, to ensure that the Route sequence stays updated for use in Reports, we recommend that you also schedule a synchronization to occur at least once a day.

Procedure

1. Access the Rounds Designer administration page.
2. Select the **Route Sequencing** tab.
   The **Route Sequencing** workspace appears.
3. Select **Recurrence**.
4. In the **Time Zone** box, select the timezone for the schedule.
5. In the **Start** box, specify the date on and time at which you want the Route sequence synchronization to occur.
6. In the **Every** section, select the frequency at which you want the Route sequence synchronization to occur.

   Note: We recommend that you schedule the synchronization to occur once a day.

7. In the **End** box, select **Never**.
8. Select **Save**.
   The schedule is saved.

Specify Default Device Settings

About This Task

You can specify the device settings that will be used by default for new Rounds Data Collection users. Super Users can also choose to update the device settings for all Rounds Data Collection users, thereby overwriting any settings specified by individual users. Individual users, however, may modify their device settings at any time.

Procedure

1. Access the Rounds Designer administration page.
2. Select the **Default Device Settings** tab.
   The **Default Device Settings** workspace appears.
3. In the **Download Horizon** box, specify the amount of time before a Route or Checkpoint is due that it should be downloaded to a device.

   Tip: If you anticipate that devices will be disconnected from a network for extended periods of time, increase the Download Horizon. This will enable users to access the Routes that will become due during the period that the device is disconnected.

4. In the **Sync Interval** box, specify the frequency at which the information downloaded to a device should be synchronized with the APM database when the device is connected to a network. This results both in data from the device being uploaded to the database and in changes made in Rounds Designer being reflected in Rounds Data Collection.

   Tip: You may want to increase the Sync Interval to reduce network traffic when devices are connected to a network or, if the mobile devices that will be used are subject to slow connection speeds (for example, if they use cellphone connections), it may take several minutes to download all the data. In this scenario, we recommend that you increase the Sync Interval, since a Sync Interval as brief as one minute may result in devices attempting to synchronize continuously.

5. In the **Batch Upload Size (# Readings Posted at a Time)** box, specify the number of readings uploaded to the server per batch.

Tip: A lower number of readings per batch will take longer to upload but be less subject to server timeouts.

6. In the **Maximum length of time (seconds) that is allowed to retrieve GIS data** box, specify the amount of time the application can take to download GIS data for readings.

   Tip: A longer amount of time will help prevent GIS data for readings from being skipped but also potentially increase the amount of time necessary to take a reading.

7. Select **Save**.
   The default values are saved and will be used when a user logs in to Rounds Data Collection for the first time.

8. If you are a Super User and you want to update the settings for all existing users of Rounds Data Collection, select **Update All Devices**.
   The next time that each existing Rounds Data Collection user logs in to the application, their Device Settings will be updated to the specified default settings.

Specify the ID Displayed on a Route

About This Task

You can specify whether the Asset ID is displayed in the workspace for a Route in Rounds Data Collection.

Procedure

1. Access the Rounds Designer administration page.
2. Select the **Rounds Default Settings** tab.
   The **Rounds Default Settings** section appears.
3. Select one of the following options:

   • **Based on Asset ID**
   • **Based on Entity ID for Checkpoint Family**

4. Select **Apply**.
   Depending on the option you selected, either the Asset ID or the Entity ID is displayed in the workspace for a Route in Rounds Data Collection.

Chapter
14

Data Loader

Topics:

About the Rounds Data Loaders

You can use the Rounds Data Loaders to import content into the Rounds module in bulk.

The Rounds Data Loaders are used to create both records in the following families and relevant relationships between them:

- Rounds Allowable Values Data Loader
    - Allowable Value
- Rounds Templates Data Loader
    - Template Group
    - Measurement Location Template
    - Lubrication Requirement Template
    - Checkpoint Template Sequence
    - Checkpoint Condition
- Rounds Routes Data Loader
    - Route
    - Measurement Location
    - Lubrication Requirement
    - Checkpoint Task
    - Checkpoint Condition
- Rounds Readings Data Loader
    - Reading

About the Rounds Data Loaders Requirements

This documentation assumes that your organization has completed the deployment of the Rounds module. The Rounds Data Loaders should be used only after the Rounds module has been implemented.

Security Settings

The Security User performing the data load operation must be associated with either the MI Data Loader User or MI Data Loader Admin Security Role, and must also be associated with the MI Operator Rounds Administrator Security Group or a Security Role that is associated with this Security Group.

Assumptions

- All imported date values are in UTC.
- Functional Locations and/or Equipment have already been loaded into APM.
- Blank values are not copied to the entities. If there are blank values, those fields will be skipped.
- No customization (that is, rules changes) is done on the related families that override the baseline families.

About the Rounds Data Loaders Data Models

The following data models detail the elements of data and their relationships in the Routes and Readings Data Loaders and the Template Data Loader.

Rounds Routes and Reading Data Loader Data Model

The following data model illustrates the Routes and Readings Data Loaders:
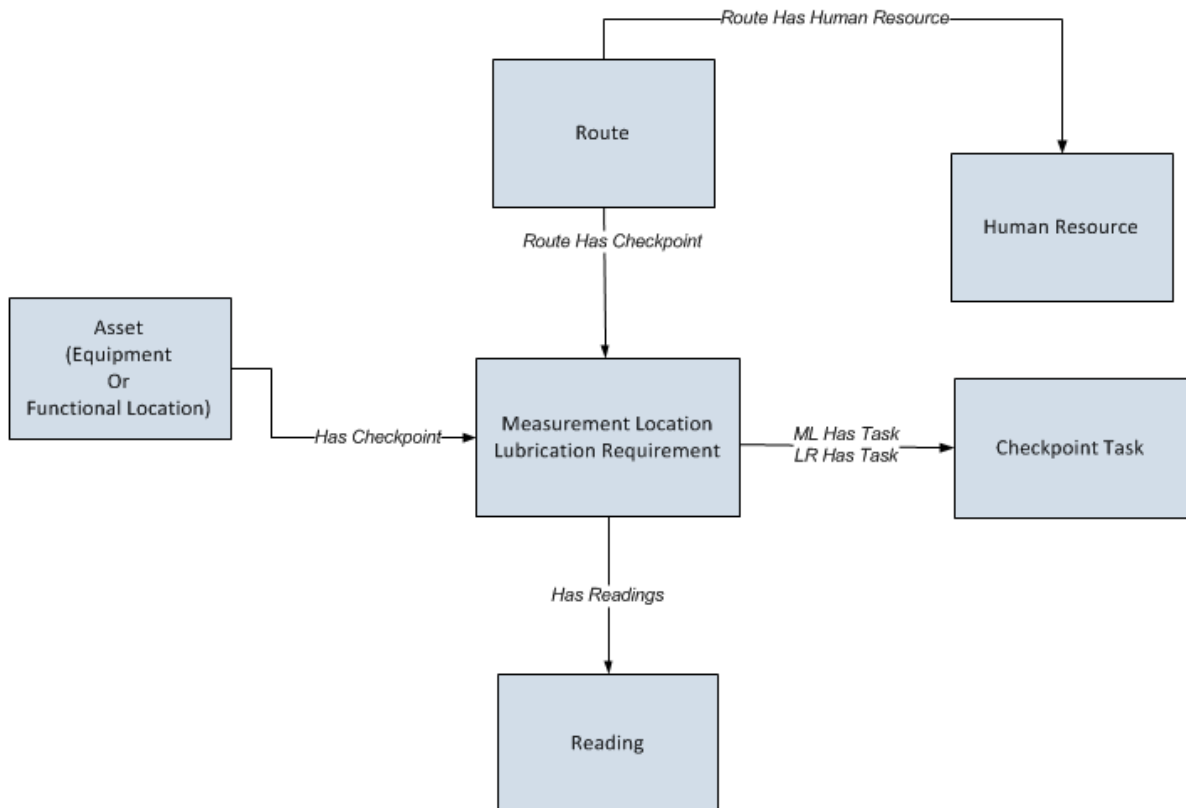
Rounds Template Data Loader Data Model

The following data model illustrates the Template Data Loader:
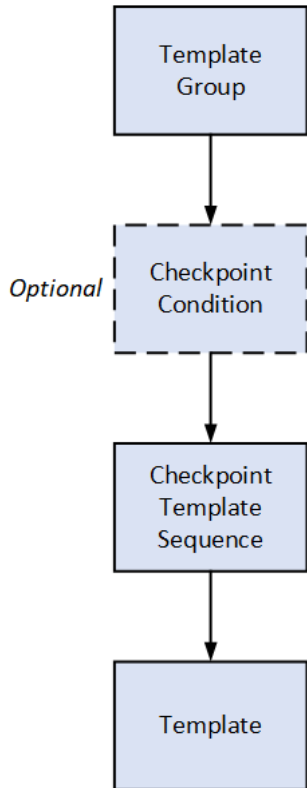
About the Rounds Data Loaders General Loading Strategy

This section describes any prerequisites to loading the data and the order in which the data will be loaded.

Note: Before reading this section, review the Data Model section.

Data Import

When importing data using the Rounds Data Loaders:

- You must use the data loader workbook while considering the rules described in Workbook Layout and Use.
- The current version of the Rounds Data Loaders can process insertion of up to approximately 500 Measurement Location and Lubrication Requirement records for a single Route record per workbook. When updating existing records, up to approximately 500 Measurement Location and Lubrication Requirement records can be processed for a single Route record per workbook.

Limitations

Due to performance limitations in Rounds Designer, it is recommended that Template Groups contain no more than 150 Measurement Location Templates in a single data load.

Schedule and Date Fields

- The Rounds Data Loaders require that Schedule values are expressed using the JSON format used in the APM database. Valid schedule expressions may be easily generated via the schedule setting feature on a schedule field in a Route or Checkpoint Task record in Record Manager, and then copying the resulting text value to the worksheet.

- The Route Data Loaders use a non-standard date format. Data should be formatted as yyyy-mm-dd hh-mm-ss (for example, 2015-05-23 17-45-34).
- All date values are assumed to be in UTC. The time zone of the user loading the data is not relevant.

Prerequisites

- If you are not using the standard asset hierarchy (Functional Location / Equipment), the Rounds module is configured with the required relationships to any other asset families, and the asset hierarchy is configured to use these families.
- The sites to which Rounds records are to be assigned have been created.
- Users to whom Routes will be assigned have both Security User and Human Resource records.
- Any customization related to the imported families (that is, added fields, custom rules, family policies, etc., which are to be relied upon during the import process) is completed and tested.
- All custom Unit of Measure values have been added to the global UOM list and UOM conversion sets.

   Note:

   Rounds does not use the Units of Measure Conversions feature. The system code table UOME is the only source for populating drop-down list values within UOM fields.

   The UOM field for a Measurement Location contains all the values from the UOME system code table, sorted by their descriptions.

   The UOM field for a Lubrication Requirement contains a subset of values from the UOME system code table based on specific reference values from the MI_LM_REFERENCES system code table.
- Licenses for Rounds (that is, the Operator Rounds or Lubrication Management license) and any level of APM Connect are active.
- If you want Health Indicators to be created automatically for Measurement Locations that are linked to assets, then the Asset Health Indicator Service must be configured and started. Note that Health Indicators can be added or removed at any time in Asset Health Manager Administration.

Load Sequence

When importing data using the Rounds Data Loaders, use the following workflow:

1. Download the template workbooks provided by APM
2. Identify data requirements.
3. Extract data from legacy applications to populate the data loader workbook.
4. Load data using the Rounds Allowable Values Data Loader.
5. Verify import logs and ensure that all required Allowable Values are loaded successfully.
6. Load data using the Rounds Templates Data Loader.
7. Verify import logs and ensure that all required ML Templates, LR Templates, and Template Groups are loaded successfully.
8. Load data using the Rounds Routes Data Loader.
9. Verify import logs and ensure that all required MLs, LRs, and Routes are loaded successfully.
10. Load data using the Rounds Readings Data Loader.
11. Verify import logs and ensure that all required Readings are loaded successfully.
12. Conduct tests in APM to ensure that the imported data loaded properly.

About the Rounds Data Loader Workbooks Layout and Use

Overview of Rounds Data Loader Workbooks

This section provides a high-level overview and explanation of how the data loader workbooks are constructed.

In order to import data using the Rounds Data Loaders, GE Vernova provides separate data loader workbooks for:

- **Rounds Allowable Values**.
- **Rounds Templates**.
- **Rounds Routes**.
- **Rounds Readings**.

The workbooks support the baseline Rounds functionality in APM. The workbooks must be used to perform the data load. You can modify the data loader workbooks to include custom fields used by your organization.

Each data loader workbook contains one worksheet for each node that will be populated in the data model.

Each worksheet in these data loader workbooks contain field values that must be mapped to the appropriate APM family/field combination. The individual sections in this document specify the source and target fields and relationships required between predecessors and successor.

The list of fields tabulated is not exhaustive. The user can add additional field columns to the worksheets and, provided that the field columns are properly mapped within the worksheets, the upload will still be successful.

Data Loader Batch Fields

The Rounds Data Loaders workbooks include columns of data that are used to identify batches of related records. These values are not imported to a field in the APM database. Generally, these will be the first few columns in each worksheet. They each use a prefix that identifies the relevant record type being imported, whereas columns that will be imported have IDs that match the field IDs in APM, which generally use the prefix MI_.

Rounds Allowable Values Data Loader Workbook

When importing data using the Rounds Allowable Values Data Loader, the data loader will create one Allowable Value record for each row of the worksheet. If the import worksheet specifies an Allowable Value that is an exact match for an existing record, the record is not imported. Since the unique identification of an Allowable Value record includes all its fields, it is not possible to update existing Allowable Value records using the data loader.

Note: Allowable Values records do not support Site Filtering.

On the worksheet, you will specify the allowable values that will be used in Measurement Location Templates and Measurement Locations.

Field Caption	Field ID	Data Type (Length)	Comments
Allowable Value Batch ID	OPR_AL_VL_ID	Character (50)	This field is required for identification during the data load process and must be unique. The value in this field is not imported to APM.
Type	MI_OPR_AL_VL_TYPE_CHR	Character (50)	This field is required. The valid values for this field are: • Character • Numeric
Category	MI_OPR_AL_VL_CATEG_CHR	Character (50)	This field is required.
Value	MI_OPR_AL_VL_VALUE_CHR	Character (50)	This field is required.

Rounds Templates Data Loader Workbook

When importing data using the Rounds Templates Data Loader, the data loader will create records as follows:

• **Template Groups**: The data loader will create one Template Group record for each row in the import worksheet. If the Template Group ID specified matches the Template Group ID of an existing Template Group, the existing record will be updated.

  The Template Groups will be loaded into APM, and will be filtered based on the designated site name in the Site Reference Name field.

  Note: If you want to set the site reference to be a Global Site Reference, enter the constant '*Global*' in the MI_SITE_NAME column on the spreadsheet.

  The following site inheritance rules are applied when Template Groups are created using the data loader:

  ◦ For the Template Groups where the site reference is set to Global, the Template Groups can contain ML Templates for any Site, and Global ML Templates.
  ◦ For the Template Groups where the site reference is assigned to Site X, the Template Groups can contain Global ML Templates and ML Templates with Site X.
  ◦ When a Global Template Group is applied to a asset assigned to Site X, only the Global ML Templates and Site X ML Templates will be applied.

• **Measurement Location Templates:** The data loader will create one Measurement Location Template record for each row in the data loader workbook. If the import worksheet specifies a Template ID value that matches the Template ID of an existing Measurement Location Template record, the existing record will be updated. If the worksheet specifies values for Category or Allowable Value that do not already exist in the database for the specified type (numeric or character) of Measurement Location, the record will not be imported.

  The Measurement Location Templates will be loaded into APM, and will be filtered based on the designated site name in the Site Reference Name field.

• **Checkpoint Template Sequence:** The data loader will create one Checkpoint Template Sequence record for each row in the worksheet. Since the unique identification of a Checkpoint Template Sequence record includes all its fields, it is not possible to update existing Checkpoint Template Sequence records using the Rounds Templates Data Loader. Updates to existing Template Groups to add or reorder the related Measurement Location Templates must be performed using the Rounds Designer user interface.

Each Checkpoint Template Sequence record will take the same Site Reference Name that is designated to the Template Group to which it is assigned.

• **Checkpoint Conditions:** The data loader will create one Checkpoint Condition record for each row in the Checkpoint Condition worksheet. This worksheet defines the conditions under which the successor Checkpoints for Checkpoint Conditions are displayed in Rounds Data Collection. This worksheet also works together with the Measurement Location worksheet to determine the Checkpoint sequence for Template Groups with Checkpoint Conditions.

The values specified in the CPC ID field in this worksheet are used by the Checkpoint Template Sequence worksheet to specify when Checkpoints have predecessor Checkpoint Conditions. Additionally, this worksheet uses the values specified in the CTS ID field in the Checkpoint Template Sequence worksheet to specify predecessor Checkpoints for Checkpoint Conditions.

Note: For more details regarding how to create a Template Group with Checkpoint Conditions using the Rounds Templates Data Loader, see the Example Rounds Templates Data Loader Workbook with Checkpoint Conditions section.

Table 1: Worksheets in Rounds Templates Data Loader Workbook

Worksheet	Description
Template Group Worksheet (MI_DTACLTMP)	This worksheet is used to specify the Template Groups.
Measurement Location Worksheet (MI_ML_TMPLT)	This worksheet is used to specify Measurement Location Templates that will be related to Template Groups. Note that no relationships are created when this worksheet is imported. The arrangement of Measurement Location Templates is defined by Checkpoint Template Sequence records which are created when the next worksheet is imported.
Checkpoint Template Sequence Worksheet (MI_HSCPTMP)	This worksheet is used to specify Checkpoint Template Sequence records that define how ML Templates are arranged into Template Groups. Note that an ML Template can appear in multiple Template Groups, and it can appear in a Template Group more than once.
Lubrication Requirement Worksheet (MI_LR_TMPLT)	This worksheet is used to define Lubrication Requirement Templates. Note that no relationships are created when this worksheet is imported.
Checkpoint Condition Worksheet (MI_CHKPCOND)	This worksheet is used to specify Checkpoint Conditions that will be related to Checkpoints in Template Groups.

Template Group Worksheet (MI_DTACLTMP)

Field Caption	Field ID	Data Type (Length)	Comments
Template Group Batch ID	ROUNDS_MLTG_ID	Character (50)	This field is required for identification during the data load process and must be unique. The value in this field is not imported to APM.
ID	MI_DTACLTMP_ID_C	Character (50)	This field is required and must be unique.

Field Caption	Field ID	Data Type (Length)	Comments
Site Reference Name	MI_SITE_NAME	Character (50)	This field is required and must match an existing Site name. **Note:** If you want to set the site reference to be a Global Site Reference, enter the constant '*Global*' in the MI_SITE_NAME column on the spreadsheet.
Description	MI_DTACLTMP_DESCR_C	Character (255)	Please provide a brief description.

Measurement Location Worksheet (MI_ML_TMPLT)

Field Caption	Field ID	Data Type (Length)	Comments
Template Group Batch ID	ROUNDS_MLTG_ID	Character (50)	This field is required for identification during the data load process. It should match the ID of the Template Group to which the ML Template will be linked. Use <Dummy ID> if you want to import standalone records not linked to a Template Group. The value in this field is not imported to APM.
Template Item ID	ROUNDS_MLT_ID	Character (50)	This field is required for identification during the data load process. The value in this field is not imported to APM.
Template ID	MI_ML_TMPLT_TEMPL_ID_C	Character (50)	This field is required and must be unique.
ML Type	MI_ML_TMPLT_MEAS_LOC_TYPE_C	Character (50)	This field is required. The valid values for this field are: • Character • Numeric
Site Reference Name	MI_SITE_NAME	Character (50)	This field is required and must match an existing Site name. **Note:** If you want to set the site reference to be a Global Site Reference, enter the constant '*Global*' in the MI_SITE_NAME column on the spreadsheet.
Description	MI_ML_TMPLT_DESC_C	Character (255)	Please provide a brief description.

Field Caption	Field ID	Data Type (Length)	Comments
Unit of Measure	MI_ML_TMPLT_UOM_C	Character (50)	Must be a valid value in the global Unit of Measure list. Disabled if the ML Type field is Character.
Status	MI_ML_TMPLT_STAT_C	Character (50)	The default value for this field is Active.
Schedule	MI_ML_TMPLT_SCHEDULE_C	Character (255)	If specified, must be valid JSON Schedule.
Checkpoint Locked	MI_CP_TMPLT_LOCKED_L	Boolean	The default value for this field is False.
Requires Equipment Shutdown	MI_CP_TMPLT_REQU_EQUI_SHUT_FLG	Logical	The default value for this field is False.
Category	MI_ML_TMPLT_CATEG_C	Character (50)	All specified values must match the Category field in pre-existing Allowable Value records where the Category and Type match the Category and ML Type defined for this ML.
Allowable Values	MI_ML_TMPLT_ALLOW_VAL_C	Multi-value, max 10 values, Character (255)	All specified Values must match the Value field in pre-existing Allowable Value records where the Category and Type match the Category and ML Type defined for this MLT. The | (pipe) character is used to separate each allowable value.
Lower Level 1 Action	MI_ML_TMPLT_LO_LVL1_ACT_C	Character (50)	None
Lower Level 1 Character Value	MI_ML_TMPLT_LO_LVL1_ALRT_C	Character (50)	Must use one of the Allowable Values specified for the MLT. This field is disabled if the ML Type field is Numeric.
Lower Level 1 Numeric Value*	MI_ML_TMPLT_LO_LVL1_ALRT_N	Numeric	None. This field is disabled if ML type field is Character.
Lower Level 1 Message	MI_ML_TMPLT_LO_LVL1_MSG_C	Character (50)	None
Lower Level 2 Action	MI_ML_TMPLT_LO_LVL2_ACT_C	Character (50)	None
Lower Level 2 Character Value	MI_ML_TMPLT_LO_LVL2_ALRT_C	Character (50)	Must use one of the Allowable Values specified for the MLT. This field is disabled if the ML Type field is Numeric.
Lower Level 2 Numeric Value*	MI_ML_TMPLT_LO_LVL2_ALRT_N	Numeric	None. This field is disabled if ML type field is Character.

Field Caption	Field ID	Data Type (Length)	Comments
Lower Level 2 Message	MI_ML_TMPLT_LO_LVL2_MSG_C	Character (50)	None
Lower Level 3 Action	MI_ML_TMPLT_LO_LVL3_ACT_C	Character (50)	None
Lower Level 3 Character Value	MI_ML_TMPLT_LO_LVL3_ALRT_C	Character (50)	Must use one of the Allowable Values specified for the MLT. This field is disabled if the ML Type field is Numeric.
Lower Level 3 Numeric Value*	MI_ML_TMPLT_LO_LVL3_ALRT_N	Numeric	None. This field is disabled if ML type field is Character.
Lower Level 3 Message	MI_ML_TMPLT_LO_LVL3_MSG_C	Character (50)	None
Upper Level 1 Action	MI_ML_TMPLT_UP_LVL1_ACT_C	Character (50)	None
Upper Level 1 Character Value	MI_ML_TMPLT_UP_LVL1_ALRT_C	Character (50)	Must use one of the Allowable Values specified for the MLT. This field is disabled if the ML Type field is Numeric.
Upper Level 1 Numeric Value*	MI_ML_TMPLT_UP_LVL1_ALRT_N	Numeric	None. This field is disabled if ML type field is Character.
Upper Level 1 Message	MI_ML_TMPLT_UP_LVL1_MSG_C	Character (50)	None
Upper Level 2 Action	MI_ML_TMPLT_UP_LVL2_ACT_C	Character (50)	None
Upper Level 2 Character Value	MI_ML_TMPLT_UP_LVL2_ALRT_C	Character (50)	Must use one of the Allowable Values specified for the MLT. This field is disabled if the ML Type field is Numeric.
Upper Level 2 Numeric Value*	MI_ML_TMPLT_UP_LVL2_ALRT_N	Numeric	None. This field is disabled if the ML Type field is Character.
Upper Level 2 Message	MI_ML_TMPLT_UP_LVL2_MSG_C	Character (50)	None
Upper Level 3 Action	MI_ML_TMPLT_UP_LVL3_ACT_C	Character (50)	None
Upper Level 3 Character Value	MI_ML_TMPLT_UP_LVL3_ALRT_C	Character (50)	Must use one of the Allowable Values specified for the MLT. This field is disabled if the ML Type field is Numeric.
Upper Level 3 Numeric Value*	MI_ML_TMPLT_UP_LVL3_ALRT_N	Numeric	None. This field is disabled if ML type field is Character.
Upper Level 3 Message	MI_ML_TMPLT_UP_LVL3_MSG_C	Character (50)	None
Product	MI_ML_TMPLT_PRODUCT_C	Character (50)	None

Field Caption	Field ID	Data Type (Length)	Comments
Minimum Valid Value	MI_ML_TMPLT_MIN_VLDVAL_N	Numeric	None. This field is disabled if ML type field is Character.
Maximum Target Value	MI_ML_TMPLT_MAX_TRGVAL_N	Numeric	None. This field is disabled if ML type field is Character.
Minimum Target Value	MI_ML_TMPLT_MIN_TRGVAL_N	Numeric	None. This field is disabled if ML type field is Character.
Maximum Valid Value	MI_ML_TMPLT_MAX_VLDVAL_N	Numeric	None. This field is disabled if ML type field is Character.
More Information	MI_ML_TMPLT_MORE_INFO_C	Character (255)	None

* For a Numeric ML Template, the limit values must be in descending order (that is, lower level 3<lower level 2<lower level 1<upper level 1<upper level 2<upper level 3).

Checkpoint Template Sequence Worksheet (MI_HSCPTMP)

Field Caption	Field ID	Data Type (Length)	Comments
Template Group Batch ID	ROUNDS_MLTG_ID	Character (50)	This field is required for identification during the data load process. It must match the ID of the Template Group to which the Checkpoint Template Sequence record will be linked. The value in this field is not imported to APM.
CTS ID	CTS_ID	Character (50)	This field is required for Conditions under this Checkpoint template. It defines the CTS ID to be specified in the MI_CHKPCOND_PRED_KEY_N column of the Checkpoint Conditions (MI_CHKPCOND) sheet in the current data loader workbook. This field is used only during the data load process and must be unique. The value in this field is not imported to APM.

Field Caption	Field ID	Data Type (Length)	Comments
Group ID/Predecessor CTC ID	MI_HSCPTMP_PRED_ENTY_KEY_N	Character (50)	This field is required. • If the Checkpoint does not have a predecessor Checkpoint Condition, you should specify the Predecessor Template Group ID as defined in the ROUNDS_MLTG_ID column of the Template Groups sheet in the current data loader workbook. The data loader will automatically populate the field on the record with the relevant Entity Key. • If the Checkpoint does have a predecessor Checkpoint Condition, specify the CTC ID for the predecessor Checkpoint Condition in this field.
Template ID	MI_HSCPTMP_SUCC_ENTY_KEY_N	Character (50)	This field is required. You should specify the Template ID as defined in the MI_ML_TMPLT_TEMPL_ID_C or MI_ML_TMPLT_TEMPL_ID_C column of the Measurement Location (MI_ML_TMPLT) or Lubrication Requirement (MI_LR_TMPLT) worksheet, respectively, in the current data loader workbook. The data loader will automatically populate the field in the record with the relevant Entity Key.

Field Caption	Field ID	Data Type (Length)	Comments
Sequence	MI_HSCPTMP_SEQ_N	Numeric	This field is required and must be unique within the collection of Checkpoint Template Sequence records associated with any Template Group.
Template Group ID	MI_HSCPTMP_REL_TMPG_KEY_N	Numeric	This field is required for identification during the data load process and must match the ID of the template group to which the Checkpoint Template Sequence is being applied. The value in this field is not imported to APM.

Checkpoint Condition Worksheet (MI_CHKPCOND)

Field Caption	Field ID	Data Type (Length)	Comments
Template Group Batch ID	ROUNDS_MLTG_ID	Character (50)	This field is required for identification during the data load process. It must match the ID of the Template Group to which the Checkpoint Template Sequence record will be linked. The value in this field is not imported to APM.
CPC ID	CPC_ID	Character (50)	This field defines the ID for the Checkpoint Condition. If you want to include conditions in your template, this field is required and must be unique.
Predecessor CTS ID	MI_CHKPCOND_PRED_KEY_N	Numeric	Use this field to determine the predecessor Checkpoint for the Checkpoint Condition. This field specifies the Checkpoint Template Sequence ID (CTS ID) defined in the Checkpoint Template Sequence worksheet for the predecessor Checkpoint.

Field Caption	Field ID	Data Type (Length)	Comments
Sequence Number	MI_CHKPCOND_SEQ_NUM_N	Numeric	This field defines the sequence for sibling Checkpoint Conditions (that is, Checkpoint Conditions with the same Predecessor CTS ID). If you are adding a Checkpoint Condition for the first time: • If no value is specified in this field, a value will be automatically assigned to the Checkpoint Condition during the data load process. • If you specify a value in this field, the sequence that you specify will be used to determine the order of sibling Checkpoint Conditions. If you are updating an existing Checkpoint Condition: • If no value is specified in this field, the existing sequence will remain intact. • If you specify a value in this field, the sequence that you specify will be used to determine the order of sibling Checkpoint Conditions.
Template Group ID	MI_HSCPTMP_REL_TMPG_KEY_N	Numeric	This field is required for identification during the data load process and must match the ID of the template group to which the Checkpoint Template Sequence is being applied. The value in this field is not imported to APM.

Field Caption	Field ID	Data Type (Length)	Comments
Field Name	MI_CHKPCOND_FLD_NAM_C	Character (50)	This field behaves differently depending on whether the Predecessor CTS ID refers to a Measurement Location or a Lubrication Requirement: • If the Predecessor CTS ID refers to a Measurement Location, this field specifies the category for the Measurement Location. • If the Predecessor CTS ID refers to a Lubrication Requirement, this field specifies the lubricant type for the Lubrication Requirement.
Field Value for Character Type	MI_CHKPCOND_FLD_VAL_CHAR_C	Character (250)	This field specifies the reading value that, for a predecessor Measurement Location with an ML Type of Character, determines whether the condition has been met to display successor Checkpoints.
Field Value for Numeric Type	MI_CHKPCOND_FLD_VAL_NUM_N	Numeric	This field specifies the reading value that, for a predecessor Measurement Location with an ML Type of Numeric, determines whether the condition has been met to display successor Checkpoints.

Field Caption	Field ID	Data Type (Length)	Comments
Possible Condition	MI_CHKPCOND_POSS_COND_C	Character (200)	This field specifies the relationship between the predecessor Checkpoint value and the value in the Checkpoint Condition Field Value field that determines whether to display successor Checkpoints in Rounds Data Collection. If the predecessor Checkpoint has a Type value of Numeric, enter one of the following values: • < • <= • = • >= • > If the predecessor Checkpoint has a Type value of Character, enter the following value in this field: is.
Type	MI_CHKPCOND_TYPEC	Character (50)	This field is required. The valid values for this field are: • Character • Numeric

Lubrication Requirement Worksheet (MI_LR_TMPLT)

Field Caption	Field ID	Data Type (Length)	Comments
Template Group Batch ID	ROUNDS_MLTG_ID	Character (50)	Lubrication Requirement records can be created without being linked to a Route by specifying <Dummy ID> as the Route ID and the Route Batch ID as 1000000000. The value in this field is not imported to APM. You can create orphan Lubrication Requirement Templates using this DL.
Template Item ID	ROUNDS_LRT_ID	Character (50)	This field is required for identification during the data load process. The value in this field is not imported to APM.

Field Caption	Field ID	Data Type (Length)	Comments
Template ID	MI_ML_TMPLT_TEMPL_ID_C	Character (50)	This field is required and must be unique.
LR Type	MI_LR_TMPLT_LR_TYPE_C	Character (50)	This field is required. The valid values for this field are: • Character • Numeric
Description	MI_ML_TMPLT_DESC_C	Character (255)	Please provide a brief description.
Unit of Measure	MI_ML_TMPLT_UOM_C	Character (50)	The field must be a valid value in the global Unit of Measure list. This field is disabled if the LR Type field is Character.
Status	MI_ML_TMPLT_STAT_C	Character (50)	The valid values for this field are Active or Inactive. This field is set to Active by default.
Schedule	MI_ML_TMPLT_SCHEDULE_C	Character (255)	If specified, must be valid JSON Schedule.
Checkpoint Locked	MI_CP_TMPLT_LOCKED_L	Logical	The default value for this field is False.
Requires Equipment Shutdown	MI_CP_TMPLT_REQU_EQUI_SHUT_FLG	Logical	The default value for this field is False.
Lubricant	MI_LR_TMPLT_LUBR_C	Character (50)	This field must be a pre-existing Lubricant value in the Lubricant family where the Method and Manufacturer are as specified for this LR Template.
Number of Points	MI_LR_TMPLT_NO_OF_POINTS_N	Numeric	None
Capacity	MI_LR_TMPLT_CAP_N	Numeric	None
Quantity	MI_LR_TMPLT_QTY_N	Numeric	None
Method	MI_LR_TMPLT_METHOD_C	Character (50)	This field must be a pre-existing Method defined in a Lubricant record.
Skip Reason	MI_LR_TMPLT_SKIP_REAS_C	Character (50)	None
Change Out Triggers Update?	MI_LR_TMPLT_CH_OUT_TRIG_UPD_L	Logical	The default value for this field is False.
Component	MI_LR_TMPLT_COMP_C	Character (50)	None
Lubricant Manufacturer	MI_LR_TMPLT_LUBR_MFR_C	Character (50)	None

Field Caption	Field ID	Data Type (Length)	Comments
Capacity Unit Of Measure	MI_LR_TMPLT_CAPTY_UOM_C	Character (50)	None
Priority	MI_LR_TMPLT_PRIOR_C	Character (50)	None

Rounds Routes Data Loader Workbook

When importing data using the Rounds Routes Data Loader, you can:

• Create Route, Measurement Locations, Lubrication Requirement and Checkpoint Task records.
• Assign or unassign a Security User to the Route.

When importing data using the Rounds Routes Data Loader, this data loader will create records as follows:

• **Routes:** The data loader will create one Route record for each row in the Route worksheet. The Next Date field on the Route record is populated automatically by existing rules based on the value in the Schedule column. The user can however overwrite the Next Date Value by providing a value in the worksheet. If the Schedule is invalid, the Route record will not be created. The Route ID column in the data loader is used for identifying the Routes. If a Route with this ID is already present in the database, it will update the Route.

The Route created will be loaded into APM, and will be filtered based on the designated site name in the Site Reference Name field.

Note: If you want to set the site reference, to be a Global Site Reference, enter the constant '*Global*' in the MI_SITE_NAME column on the spreadsheet.

Note: Adding a value in the Schedule column is not mandatory.

• **Security Users:** The data loader will create relationships assigning each Route, identified by Route ID, to each Security User listed.

When you specify a Route ID, only the corresponding users specified in this sheet will be assigned to the Route, regardless of whether other users were previously assigned to it.

For example, if three users are listed, and you want five users to be listed (that is, you want to add two users), you must include all five users in the sheet. If you include only the two new users, the original three users will be removed from the Route.

If you include a Route ID in this sheet with no Security Users listed, all existing user assignments will be removed.

Note that the relationship created is between the Route and the Human Resource record linked to the Security User; therefore, the Human Resource records must already exist before the data loader is used.

• **Measurement Locations / Lubrication Requirement records / Checkpoint Tasks:** The data loader will create one Measurement Location or a Lubrication Requirement record and one related Checkpoint Task record for each row of the Measurement Location import worksheet. Measurement Location records / Lubrication Requirement records are processed in batches using the Route ID. The MLs/ LRs are identified by the Checkpoint ID column. If a Measurement Location / Lubrication Requirement with this Checkpoint ID is already present in the database, then the ML will be updated.

The Next Date, Non-compliance Date, and the Non-compliance Next Check Date fields on the Checkpoint Task record will be populated automatically by existing rules based on the value in the Schedule column. If the Schedule is invalid, the record will not be created.

Note: Adding a value in the Schedule column is not mandatory.

Each Measurement Location or Lubrication Requirement record will take the same Site Reference Name that is designated to the predecessor Asset. If there no Site Reference Name that is assigned to the Asset, the ML or LR takes the Site Reference Name from the Route to which the ML or LR is assigned.

- **Sequence Number:** The User can provide the Sequence number for the Measurement Locations / Lubrication Requirement records under a Route in the Sequence column on the import worksheet. The data loader will consider the sequence provided and order the Measurement Locations / Lubrication Requirement records based on it. However, if there is any random / incorrect / blank / non-sequential numbers in this column, the data loader will correct them and place them sequentially while importing them. Any new insertion of Measurement Locations / Lubrication Requirement records under a Route will always be at the end of the Route with maximum sequence number under the Route. The data in the Sequence column is ignored when the Measurement Location / Lubrication Requirement record is standalone or the Measurement Location / Lubrication Requirement record is being updated.

  Note: Re-sequencing the Measurement Locations and Lubrication Requirements under a Route is possible using data loaders in V4.1.5.0. or later.

  The data loader will populate an Asset entity key into the new Measurement Location / Lubrication Requirement records, based on matching the value specified in the Related Asset Key column (that is, Functional Location ID for FLOCs or Equipment Technical Number for Equipment) in the Measurement Location import worksheet. If there is no Related Asset Key, it will use the related Asset ID field to search the Equipment and Functional Location families for a matching record and link it to the Measurement Location / Lubrication Requirement record and also populate the Related Asset Key.

  Note: The Asset ID is not required. If a matching Asset ID is not found, the ML is created without linking to any asset and a warning is added to the import log.

  - Provided that the Measurement Location / Lubrication Requirement record has received an Asset Key, the family rules will populate additional information in the Measurement Location / Lubrication Requirement records and create a relationship between the asset (predecessor) and Measurement Location / Lubrication Requirement records (successor).
  - The data loader will link each new Measurement Location / Lubrication Requirement record to an existing Route record that matches the value specified in the Route ID column. If a matching Route ID is not found, the records will not be created.
  - Standalone Measurement Locations / Lubrication Requirement records can be created without being linked to a Route by specifying <Dummy ID> as the Route ID and the Route Batch ID as 1000000000.
  - The data loader will link each Measurement Location / Lubrication Requirement record to the Action record which is specified by the Action ID column and is related to the Strategy record specified by the Strategy ID Column.

  If the Asset Health Indicator service is configured and started, Health Indicator records will be added automatically for each imported Measurement Location record that is linked to an Equipment or Functional Location.

  Note: Health Indicator records are not added for Lubrication Requirements, since there is no Health Indicator Mapping.
- **Checkpoint Conditions:** The data loader will create one Checkpoint Condition record for each row in the Checkpoint Condition worksheet. This worksheet defines the conditions under which the successor Checkpoints for Checkpoint Conditions are displayed in Rounds Data Collection. This worksheet also works together with the Measurement Location worksheet to determine the Route sequence for Routes with Checkpoint Conditions.

  The following table shows the relationships between fields in this worksheet and fields in the Measurement Location worksheet that determine which Checkpoints precede or succeed which Checkpoint Conditions.

Measurement location Worksheet Fields	Checkpoint Condition Worksheet Fields
ML Identifier (ROUNDS_ML_ID)	Parent ML Batch ID (PARENT_ROUNDS_ML_ID)
Checkpoint ID (MI_CHECK_PT_CHEC_ID_C)	Parent ML ID (MI_CHECK_PT_PR_CHEC_ID_C)
Parent Condition Batch ID (MI_CHKPCOND_BATCH_ID)	Condition Batch ID (MI_CHKPCOND_BATCH_ID_C)
Parent Condition Identifier (MI_CHKPCOND_ID_C)	Condition Identifier (MI_CHKPCOND_ID_C)

When the values in the Parent ML Batch ID and Parent ML ID fields for a Checkpoint Condition match the values in the ML Identifier and Checkpoint ID fields, respectively, for a Checkpoint, this indicates that the Checkpoint Condition is a successor of the Checkpoint.

When the values in the Condition Batch ID and Condition Identifier fields for a Checkpoint Condition match the values in the Parent Condition Batch ID and the Parent Condition Identifier fields, respectively, for a Checkpoint, this indicates that the Checkpoint Condition is a predecessor of the Checkpoint.

Note: For more details regarding how to create a Route with Checkpoint Conditions using the Rounds Routes Data Loader, see the Example Rounds Routes Data Loader Workbook with Checkpoint Conditions section.

Table 2: Worksheets in Rounds Routes Data Loader Workbook

Worksheet	Description
Route Worksheet (MI_ROUTE000)	This worksheet is used to specify Route records.
Security User Worksheet (MI_Security User)	This worksheet is used to assign a security user for the Route identified by Route Id in each row in the Security User (MI_Security User) worksheet. You can also unassign all the Security Users from a Route by leaving the User ID field blank. You may leave all rows blank to make no Route assignment changes.
Measurement Location Worksheet (MI_MEAS_LOC)	This worksheet is used to specify the measurement locations that will be linked to each Route. You can import Measurement Locations that are not linked to a Route by specifying <Dummy ID> for the Route ID. Note that Measurement Locations may be related to a Measurement Location Template. If one is specified, the values from the template will be used to populate the fields in the Measurement Location. Required values that are provided from the Measurement Location Template need not be specified again in this worksheet. If this worksheet specifies a value for any field that is populated from the Measurement Location Template, it will be over-written with the value from the Measurement Location Template.

Worksheet	Description
Checkpoint Task Worksheet (MI_CP_TASK0)	This worksheet is used to specify the schedule information to be added to the Checkpoint Task records that will be created for each Measurement Location that is imported. Note that it is not required to specify any data on this worksheet. If no data is specified, the Checkpoint Task records will be created with the schedule information from the Measurement Location Template specified in the related Measurement Location.
Checkpoint Condition Worksheet (MI_CHKPCOND)	This worksheet is used to specify Checkpoint Conditions that will be related to Checkpoints in Rounds Routes.

Route Worksheet (MI_ROUTE000)

Field Caption	Field ID	Data Type (Length)	Comments
Route Batch ID	ROUNDS_ROUTE_ID	Character (50)	This field is required for identification during the data load process and must be unique. The value in this field is not imported to APM.
Route Id	MI_ROUTE000_ROUTE_ID_C	Character (50)	This field is required and must be unique, • When you use the data loader to create Route, Measurement Locations and Checkpoint Task records. • When you use the data loader to create Route, Measurement Locations and Checkpoint Task records and assign the security users to Routes. **Note:** This field is not required and may not be populated on this worksheet when you only assign or un-assign the security users to Routes.
Site Reference Name	MI_SITE_NAME	Character (50)	This field is required and must match an existing Site name **Note:** If you want to set the site reference to be a Global Site Reference, enter the constant '*Global*' in the MI_SITE_NAME column on the spreadsheet.

Field Caption	Field ID	Data Type (Length)	Comments
Route Description	MI_ROUTE000_ROUTE_DESC_C	Character (125)	Please provide a brief description.
Status	MI_ROUTE000_STAT_C	Character (50)	The valid values for this field are Active or Inactive. The default value for this field is Inactive.
Schedule	MI_ROUTE000_SCHED_C	Character (2000)	If specified, must be valid JSON Schedule definition. **Note:** To enable users to copy the JSON schedule text, an alternative Route with schedule datasheet is provided showing the Schedule Text (copy/paste enabled) field.
Route Scan ID	MI_ROUTE000_BARCD_ID_C	Character (50)	This field is required and must be unique.
Next Date	MI_ROUTE000_NEXT_DATE_D	Date	UTC time formatted as yyyy-mm-dd hh:mm:ss.
Last Date	MI_ROUTE000_LAST_DATE_D	Date	UTC time formatted as yyyy-mm-dd hh:mm:ss.

Security User Worksheet (MI_Security User)

Field Caption	Field ID	Data Type (Length)	Comments
Route Batch ID	ROUNDS_ROUTE_ID	Character (50)	This field is required for identification during the data load process and must be unique. The value in this field is not imported to APM.
Route Id	MI_ROUTE000_ROUTE_ID_C	Character (50)	This field is required and must be unique. The field needs to be populated on this worksheet when you are assigning the security users to Routes.
User ID	SEUS_ID	Character (50)	This field is required for assigning the User to the Route during the load process and must be unique. The Security User and the corresponding Human Resource records must already be part of the baseline database. If the field is left blank, the Route will be un-assigned.

Measurement Location Worksheet (MI_MEAS_LOC)

Field Caption	Field ID	Data Type (Length)	Comments
Route Batch ID	ROUNDS_ROUTE_ID	Character (50)	This field is required for identification during the data load process. It should match the ID of the Route to which the Measurement Location record will be linked. Use <Dummy ID> if you are importing standalone Measurement Location records. It is not imported to APM.
ML Identifier	ROUNDS_ML_ID	Character (50)	This field is required for identification during the data load process and must be unique. It is not imported to APM.

Field Caption	Field ID	Data Type (Length)	Comments
Checkpoint ID	MI_CHECK_PT_CHEC_ID_C	Character (50)	This field is required and must be unique. If the value matches an existing Checkpoint ID, the ML record will be updated, otherwise a new ML record will be created.
Parent Condition Batch ID	MI_CHKPCOND_BATCH_ID	Character (50)	This field is required only if the Checkpoint has a parent Checkpoint Condition. If the Checkpoint has a predecessor Checkpoint Condition, this field is used for identification during the data load process and must match the batch ID of the predecessor Checkpoint Condition. The value in this field is not imported to APM.
Parent Condition Identifier	MI_CHKPCOND_ID_C	Character (50)	This field is required only if the Checkpoint has a parent Checkpoint Condition. If the Checkpoint has a predecessor Checkpoint Condition, this field is used for identification during the data load process and must match the ID of the predecessor Checkpoint Condition. The value in this field is not imported to APM.
ML Type	MI_MEAS_LOC_MEAS_LOC_TYPE_C	Character (50) Numeric	This field is required if Is LR? column contains False or is empty. The valid values for this field are Character or Numeric. The ML Type of the Measurement Location must match the ML Type of the template specified by the Template field, if applicable.
LR Type	MI_MEAS_LOC_MEAS_LOC_TYPE_C	Character (50)	This field is required if Is LR? column contains True. The valid values for this field are Checkoff, Changeout and Tracking. The LR Type of the Lubrication Requirement must match the LR Type of the template specified by the Template ID field, if applicable.

Field Caption	Field ID	Data Type (Length)	Comments
Is LR?	ROUNDS_CHECK_PT_IS_LR	Logical	The default value of this field is False. Enter True to specify that a Lubrication Requirement is being loaded.
Description	MI_MEAS_LOC_DESC_C	Character (255)	Please provide a brief description.
Bluetooth Measurement Type	MI_MEAS_LOC_BT_MEAS_TYPE_C	Character (255)	None
Checkpoint Locked	MI_CHECK_PT_LOCKED_L	Logical	The default value of this field is False.
Requires Equipment Shutdown	MI_CP_TMPLT_REQU_EQUI_SHUT_FLG	Logical	The default value for this field is False.
Unit of Measure	MI_MEAS_LOC_UOM_C	Character (50)	Must be a valid value in the global Unit of Measure list. This field is disabled if the ML Type field is Character.
Template	MI_MEAS_LOC_TEMPL_C	Character (50)	This field is required and must be unique. Must match an existing ML Template ID. The ML Type of the template specified by the ML Template ID must match the ML Type of Measurement Location, if applicable.
Related Asset Key	MI_CHECK_PT_REL_ASSET_KEY_N	Numeric	If provided, must be the entity key of an existing Equipment or Functional Location record. The Checkpoint will be linked to this asset.
Scan ID	MI_CHECK_PT_BARCD_ID_C	Character (50)	None
Related Asset Id	MI_MEAS_LOC_RELAT_ASSET_ID_C	Character (50)	If this value matches an existing Equipment ID (for Equipment) or Functional Location (for Functional Locations) the Checkpoint will be linked to this asset.
Asset Description	MI_MEAS_LOC_ASSET_DESCR_C	Character (50)	None
Status	MI_MEAS_LOC_STAT_C	Character (50)	The valid values for this field are Active or Inactive. The default value for this field is Active.

Field Caption	Field ID	Data Type (Length)	Comments
Sequence	MI_MEAS_LOC_SEQ_N	Numeric	This field is not required but if specified, it must be unique on the Route.
Category	MI_MEAS_LOC_CATEG_C	Character (50)	Must match the Category field on an existing Allowable Value record, where the Type field matches the ML Type value specified.
Allowable Values	MI_MEAS_LOC_ALLOW_VAL_C	Multi-value, max 10 values, Character (255)	All specified Values must match the Value field in pre-existing Allowable Value records where the Category and Type match the Category and ML Type defined for this ML. The	(pipe) character is used to separate each allowable value.
Lower Level 1 Action	MI_MEAS_LOC_LO_LVL1_ACT_C	Character (50)	None
Lower Level 1 Character Value	MI_MEAS_LOC_LO_LVL1_ALRT_C	Character (50)	Must use one of the Allowable Values specified for the ML. This field is disabled if the ML Type field is Numeric.
Lower Level 1 Message	MI_MEAS_LOC_LO_LVL1_MSG_C	Character (50)	None
Lower Level 2 Action	MI_MEAS_LOC_LO_LVL2_ACT_C	Character (50)	None
Lower Level 2 Character Value	MI_MEAS_LOC_LO_LVL2_ALRT_C	Character (50)	Must use one of the Allowable Values specified for the ML. This field is disabled if the ML Type field is Numeric.
Lower Level 2 Message	MI_MEAS_LOC_LO_LVL2_MSG_C	Character (50)	None
Upper Level 3 Numeric Value*	MI_MEAS_LOC_UP_LVL3_ALRT_N	Numeric	None. This field is disabled if ML type field is Character.
Upper Level 2 Numeric Value*	MI_MEAS_LOC_UP_LVL2_ALRT_N	Numeric	None. This field is disabled if ML type field is Character.
Upper Level 1 Numeric Value*	MI_MEAS_LOC_UP_LVL1_ALRT_N	Numeric	None. This field is disabled if ML type field is Character.
Lower Level 1 Numeric Value*	MI_MEAS_LOC_LO_LVL1_ALRT_N	Numeric	None. This field is disabled if ML type field is Character.

Field Caption	Field ID	Data Type (Length)	Comments
Lower Level 2 Numeric Value*	MI_MEAS_LOC_LO_LVL2_ALRT_N	Numeric	None. This field is disabled if ML type field is Character.
Lower Level 3 Numeric Value	MI_MEAS_LOC_LO_LVL3_ALRT_N	Numeric	None. This field is disabled if ML type field is Character.
Lower Level 3 Action	MI_MEAS_LOC_LO_LVL3_ACT_C	Character (50)	None
Lower Level 3 Character Value	MI_MEAS_LOC_LO_LVL3_ALRT_C	Character (50)	Must use one of the Allowable Values specified for the ML. This field is disabled if the ML Type field is Numeric.
Lower Level 3 Message	MI_MEAS_LOC_LO_LVL3_MSG_C	Character (50)	None
Upper Level 1 Action	MI_MEAS_LOC_UP_LVL1_ACT_C	Character (50)	None
Upper Level 1 Character Value	MI_MEAS_LOC_UP_LVL1_ALRT_C	Character (50)	Must use one of the Allowable Values specified for the ML. This field is disabled if the ML Type field is Numeric.
Upper Level 1 Message	MI_MEAS_LOC_UP_LVL1_MSG_C	Character (50)	None
Upper Level 2 Action	MI_MEAS_LOC_UP_LVL2_ACT_C	Character (50)	None
Upper Level 2 Character Value	MI_MEAS_LOC_UP_LVL2_ALRT_C	Character (50)	Must use one of the Allowable Values specified for the ML. This field is disabled if the ML Type field is Numeric.
Upper Level 2 Message	MI_MEAS_LOC_UP_LVL2_MSG_C	Character (50)	None
Upper Level 3 Action	MI_MEAS_LOC_UP_LVL3_ACT_C	Character (50)	None
Upper Level 3 Character Value	MI_MEAS_LOC_UP_LVL3_ALRT_C	Character (50)	Must use one of the Allowable Values specified for the ML. This field is disabled if the ML Type field is Numeric.
Upper Level 3 Message	MI_MEAS_LOC_UP_LVL3_MSG_C	Character (50)	None
Product	MI_MEAS_LOC_PRODUCT_C	Character (50)	None
Maximum Target Value	MI_MEAS_LOC_MAX_TRGVAL_N	Numeric	None. This field is disabled if ML type field is Character.

Field Caption	Field ID	Data Type (Length)	Comments
Minimum Valid Value	MI_MEAS_LOC_MIN_VLDVAL_N	Numeric	None. This field is disabled if ML type field is Character.
Minimum Target Value	MI_MEAS_LOC_MIN_TRGVAL_N	Numeric	None. This field is disabled if ML type field is Character.
Maximum Valid Value	MI_MEAS_LOC_MAX_VLDVAL_N	Numeric	None. This field is disabled if ML type field is Character.
More Information	MI_MEAS_LOC_MORE_INFO_C	Character (255)	None
Download Stored Document	MI_MEAS_LOC_DWLD_STRD_DOC_L	Logical	The default value for this field is False.
Action ID	MI_MEAS_ACTION_ID_EXT	Character (50)	This field matches the Action ID (MI_ACTION_ID_C field) of an Action record that is linked to the Strategy identified by the value in the MI_MEAS_STRATEGY_EXT column. If no matching Strategy / Action combination is found, the Measurement Location is not linked to an Action.
Strategy ID	MI_MEAS_STRATEGY_EXT	Character (255)	This field matches the Strategy ID (MI_STRATEGY_ID_C field) of the Strategy (MI_STRATEGY family) containing the Action to which the Measurement Location will be linked.
Lubricant	MI_LUBR_REQ_LUBR_C	Character (50)	This field must be a pre-existing Lubricant value in the Lubricant family where the Method and Manufacturer are as specified for this LR.
Number of Points	MI_LUBR_REQ_NO_OF_POINTS_N	Numeric	None
Capacity	MI_LUBR_REQ_CAP_N	Numeric	None
Quantity	MI_LUBR_REQ_QTY_N	Numeric	None
Method	MI_LUBR_REQ_METHOD_C	Character (50)	This field must be a pre-existing Method defined in a Lubricant record.
Skip Reason	MI_LUBR_REQ_SKIP_REAS_C	Character (50)	None
Change Out Triggers Update?	MI_LUBR_REQ_CH_OUT_TRIG_UPD_L	Logical	The default value of this field is False.
Component	MI_LUBR_REQ_COMP_C	Character (50)	None

Field Caption	Field ID	Data Type (Length)	Comments
Lubricant Manufacturer	MI_LUBR_REQ_LUBR_MFR_C	Character (50)	This field must be a pre-existing value in a Lubricant record where the Method field is as specified for this LR.
Priority	MI_LUBR_REQ_PRIOR_C	Character (50)	None
Capacity Unit of Measure	MI_LUBR_REQ_CAPTY_UOM_C	Character (50)	None

Checkpoint Task Worksheet (MI_CP_TASK0)

Field Caption	Field ID	Data Type (Length)	Comments
Route Batch ID	ROUNDS_ROUTE_ID	Character (50)	This field is required for identification during the data load process. It should match the ID of the Route to which the Measurement Location record will be linked. Use <Dummy ID> if you are importing standalone Measurement Location records. The value in this field is not imported to APM.
ML Identifier	ROUNDS_ML_ID	Character (50)	This field is required for identification during the data load process and must be unique. The value in this field is not imported to APM.
Next Date	MI_TASK_NEXT_DATE_DT	Date	UTC time formatted as yyyy-mm-dd hh:mm:ss.
Schedule	MI_TASK_SCHEDULE_C	Character (255)	If provided, must be valid JSON Schedule definition. **Note:** To enable users to copy the JSON schedule text, an alternative Checkpoint Task with Schedule datasheet is provided showing the Schedule Text (copy/paste enabled) field.
Non-compliance Date	MI_CP_TASK0_NON_COMP_D	Date	UTC time formatted as yyyy-mm-dd hh:mm:ss.
Non Compliance Date Interval	MI_CP_TASK0_NONCMP_DT_INTR_NBR	Numeric	If provided, must be a positive integer.
Non Compliance Next Check Date	MI_CP_TASK0_NON_CMP_NXT_CHK_D	Date	UTC time formatted as yyyy-mm-dd hh:mm:ss.

Checkpoint Condition Worksheet (MI_CHKPCOND)

Field Caption	Field ID	Data Type (Length)	Comments
Route Batch ID	ROUNDS_ROUTE_ID	Character (50)	This field is required for identification during the data load process. It should match the ID of the Route to which the Measurement Location record will be linked. Use <Dummy ID> if you are importing standalone Measurement Location records. The value in this field is not imported to APM.
Condition Batch ID	MI_CHKPCOND_BATCH_ID	Character (50)	This field specifies the batch ID for the Checkpoint Condition. This field is required for identification during the data load process and must be unique. The value in this field is not imported to APM.
Condition Identifier	MI_CHKPCOND_ID_C	Character (50)	This field is required for identification during the data load process and must be unique. The value in this field is not imported to APM.
Parent ML Batch ID	PARENT_ROUNDS_ML_ID	Character (50)	This field is required for identification during the data load process and must match the ML Identifier of the predecessor Checkpoint as defined in the Measurement Location worksheet. The value in this field is not imported to APM.
Parent ML ID	MI_CHECK_PT_PR_CHEC_ID_C	Character (50)	This field is required for identification during the data load process and must match the Checkpoint ID for the predecessor Checkpoint as defined in the Measurement Location worksheet. The value in this field is not imported to APM.

Field Caption	Field ID	Data Type (Length)	Comments
Field Name	MI_CHKPCOND_FLD_NAM_C	Character (50)	This field behaves differently depending on whether the Predecessor CTS ID refers to a Measurement Location or a Lubrication Requirement: • If the Predecessor CTS ID refers to a Measurement Location, this field specifies the category for the Measurement Location. • If the Predecessor CTS ID refers to a Lubrication Requirement, this field specifies the lubricant type for the Lubrication Requirement.
Field Value for Character Type	MI_CHKPCOND_FLD_VAL_CHAR_C	Character (250)	This field specifies the reading value that, for a predecessor Measurement Location with an ML Type of Character, determines whether the condition has been met to display successor Checkpoints.
Field Value for Numeric Type	MI_CHKPCOND_FLD_VAL_NUM_N	Numeric	This field specifies the reading value that, for a predecessor Measurement Location with an ML Type of Numeric, determines whether the condition has been met to display successor Checkpoints.

Field Caption	Field ID	Data Type (Length)	Comments
Possible Condition	MI_CHKPCOND_POSS_COND_C	Character (200)	This field specifies the relationship between the predecessor Checkpoint value and the value in the Checkpoint Condition Field Value field that determines whether to display successor Checkpoints in Rounds Data Collection. If the predecessor Checkpoint has a Type value of Numeric, enter one of the following values: • < • <= • = • >= • > If the predecessor Checkpoint has a Type value of Character, enter the following value in this field: is.

Field Caption	Field ID	Data Type (Length)	Comments
Type	MI_CHKPCOND_TYPEC	Character (50)	This field is required. The valid values for this field are: • Character • Numeric
Sequence Number	MI_CHKPCOND_SEQ_NUM_N	Numeric	This field defines the sequence for sibling Checkpoint Conditions (that is, Checkpoint Conditions with the same Predecessor CTS ID). If you are adding a Checkpoint Condition for the first time: • If no value is specified in this field, a value will be automatically assigned to the Checkpoint Condition during the data load process. • If you specify a value in this field, the sequence that you specify will be used to determine the order of sibling Checkpoint Conditions. If you are updating an existing Checkpoint Condition: • If no value is specified in this field, the existing sequence will remain intact. • If you specify a value in this field, the sequence that you specify will be used to determine the order of sibling Checkpoint Conditions.

Rounds Readings Data Loader Workbook

When importing data using the Rounds Readings Data Loader, the data loader will create one Reading record for each row of the import worksheet. The data loader will attempt to link each reading to a Checkpoint record (that is, Measurement Location record or Lubrication Requirement record) based on the related Measurement Location and Lubrication Requirement records specified in the import worksheet. To properly identify the Checkpoint to which Readings are linked, the import must specify either the Entity Key or the Checkpoint ID. If no matching Checkpoint is found, the reading is not imported. The Asset ID and Unit of Measure (if applicable) will be populated on the Reading based on the related Checkpoint, and the fields on the related Checkpoint Task will be updated according to the applicable schedule.

Each Reading record will take the same Site Reference Name that is designated to the Measurement Location or Lubrication Requirement to which it is assigned.

On the worksheet, you will specify the Readings that you want to link to Checkpoints (that is, Measurement Locations or Lubrication Requirements).

Note: If you are importing Readings directly after importing the related Checkpoints, you will need to use the Checkpoint ID.

When Readings are imported, the Status of the Reading is set, and the Checkpoint Task related to the Measurement Location or Lubrication Requirement is updated automatically. In order for the status of each Reading to be set as expected, Readings should be ordered earliest first on the worksheet.

Field Caption	Field ID	Data Type (Length)	Comments
Reading Batch ID	ROUNDS_READING_ID	Character (50)	This field is required.
Related ML Entity Key	MI_READING0_RELAT_ML_ENTIT_KEY_N	Numeric	This field must match the Entity Key of an existing Measurement Location or Lubrication Requirement. Either this field or Checkpoint ID is required.
Checkpoint ID	MI_CHECK_PT_CHEC_ID_C	Character (50)	This field must match the Checkpoint ID of an existing Measurement Location or Lubrication Requirement. Either this field or Related ML Entity Key is required.
Comment	MI_READING0_COMME_C	Character (255)	None
Action Taken	MI_READING0_ACTIO_TAKEN_C	Character (50)	Must use one of the Action Taken values specified for the related Measurement Location.
Reading Value Character	MI_READING0_RDG_VAL_CHAR_C	Character (50)	For Measurement Locations, must use one of the Allowable Values in the Category specified for the related Measurement Location. For Lubrication Requirements, must use a code in the system code table LR_CHAR_POSS_VALS (Possible values for Character type LRs). This field is disabled if the ML Type of the related Measurement Location is Numeric. It is always enabled for Lubrication Requirements.

Field Caption	Field ID	Data Type (Length)	Comments
Reading Value Numeric	MI_READING0_RDG_VAL_NUM_N	Numeric	For Measurement Locations, if a Category is specified for the related Measurement Location, must use one of the Allowable Values. This field is disabled if the ML Type of the related Measurement Location is Character or if the LR Type of the related Lubrication Requirement is Check Off.
Taken by	MI_READING0_RDG_TAKEN_BY_C	Character (50)	Must match an existing APM User ID.
Reading Taken Date	MI_READING0_RDG_TAKEN_DT_D	Date	UTC time formatted as yyyy-mm-dd hh:mm:ss. Readings for the same Measurement Location or Lubrication Requirement should be ordered earliest first.

Example Rounds Templates Data Loader Workbook with Checkpoint Conditions

This section provides samples of the worksheets in the Rounds Templates Data Loader workbook to illustrate the process of creating a Template Group containing Checkpoint Conditions using the Rounds Templates Data Loader.

Overview

When imported into APM, this example workbook creates a Template Group with six Checkpoints and two Checkpoint Conditions, as shown in the following image:
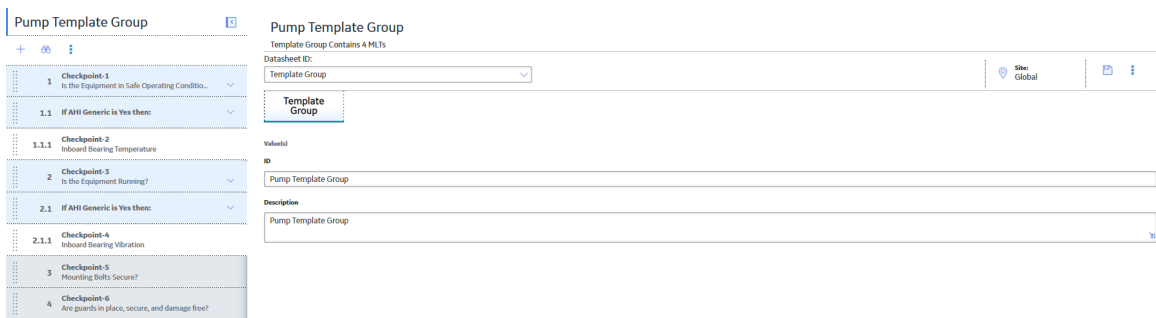
This section assumes that you are familiar with the basic process of creating Templates in a data loader and you are familiar with the fields used in these worksheets. For more information on the fields displayed in the following examples, see the Rounds Templates Data Loader Workbook section for Rounds Data Loaders.

Sample Template Group Worksheet

The Template Group worksheet defines the values for the Template Group Batch ID, the Template Group ID, the Template Group Description, and the Site Reference Name.

Template Group Batch ID	ID	Description	Site Reference Name
ROUNDS_MLTG_ID	MI_DTACLTMP_ID_C	MI_DTACLTMP_DESCR_C	MI_SITE_NAME
Pump Template B1	Pump Template Group	Pump Template Group	*Global*

The value specified in the ID field determines the name of the Template Group as it will appear in Rounds Designer after the data load process is complete. For example, note that the ID specified in the ID field above appears as the title in the image of the Template Group in Rounds Designer above.

Sample Measurement Location Template Worksheet

The Measurement Location Template worksheet defines values for each Measurement Location in the Template Group.

Template Group Batch ID	Template Item ID	Site Reference Name	Template ID	ML Type	Description
ROUNDS_MLTG_ID	ROUNDS_MLT_ID	MI_SITE_NAME	MI_ML_TMPLT_TEMPL_ID_C	MI_ML_TMPLT_MEAS_LOC_TYPE_C	MI_ML_TMPLT_DESC_C
Pump Template B1	MLT1	*Global*	Checkpoint-1	Character	Is the Equipment in Safe Operating Condition?
Pump Template B1	MLT2	*Global*	Checkpoint-2	Numeric	Inboard Bearing Temperature
Pump Template B1	MLT3	*Global*	Checkpoint-3	Character	Is the Equipment Running?
Pump Template B1	MLT4	*Global*	Checkpoint-4	Numeric	Inboard Bearing Vibration
Pump Template B1	MLT5	*Global*	Checkpoint-5	Character	Mounting Bolts Secure?
Pump Template B1	MLT6	*Global*	Checkpoint-6	Character	Are guards in place, secure, and damage free?

The values in the Template ID and Description fields appear as the names and descriptions, respectively, of the Checkpoint in the Template Group in Rounds Designer. For example, note that the values in the Template ID and Description fields in the worksheet appear in the image of the Template Group at the beginning of this section as the names and descriptions of the Checkpoints.

In addition to the fields displayed in this image, the Checkpoints with an ML Type value of Character in this example also have the following values defined in the Allowable Values field: Yes and No.

Sample Checkpoint Template Sequence Worksheet

The Checkpoint Template Sequence worksheet specifies the sequence for the Checkpoints in the Template Group. This sequence is determined by the value entered in the Group ID/Predecessor CPC ID field, as shown in the following image:

Template Group Batch ID	CTS ID	Group ID/Predecessor CPC ID	Template ID	Sequence	Template Group ID
ROUNDS_MLTG_ID	CTS_ID	MI_HSCPTMP_PRED_ENTY_KEY_N	MI_HSCPTMP_SUCC_ENTY_KEY_N	MI_HSCPTMP_SEQ_N	MI_HSCPTMP_REL_TMPG_KEY_N
Pump Template B1	CTS-1	Pump Template Group	Checkpoint-1	0	Pump Template Group
Pump Template B1	CTS-2	CPC-1	Checkpoint-2	0	Pump Template Group
Pump Template B1	CTS-3	Pump Template Group	Checkpoint-3	0	Pump Template Group
Pump Template B1	CTS-4	CPC-2	Checkpoint-4	0	Pump Template Group
Pump Template B1	CTS-5	Pump Template Group	Checkpoint-5	0	Pump Template Group
Pump Template B1	CTS-6	Pump Template Group	Checkpoint-6	0	Pump Template Group

In the Group ID/Predecessor CPC ID field, you can specify whether the Checkpoint is a successor of a condition:

- If you do not enter a value, or if you enter the Group ID field value specified in the Template Group worksheet, the Checkpoint sequence is determined by the location of each Checkpoint entry in the worksheet. For example, in the image of the Template Group at the beginning of this section, note that a 1 appears next to Checkpoint-1 and a 2 appears next to Checkpoint-3. Neither of these has a Checkpoint Condition specified in the Group ID/Predecessor CPC ID field in the Checkpoint Template Sequence worksheet.
- If you enter a CPC ID value in the Group ID/Predecessor CPC ID field, the Checkpoint is a successor of a Checkpoint Condition. For example, in the image of

the Template Group at the beginning of this section, note that a value of 1.1.1 appears next to Checkpoint-2. This indicates that Checkpoint-2 is a successor of a Checkpoint Condition that is a successor of Checkpoint-1. Note also that, in the Checkpoint Template Sequence worksheet, Checkpoint-2 has a value of CPC-1 in the Group ID/Predecessor CPC ID field. This value specifies a Checkpoint Condition ID (CPC ID) that is defined in the following worksheet.

Sample Checkpoint Condition Worksheet

The Checkpoint Condition worksheet defines the sequence for Checkpoint Conditions as well as the conditions under which the successor Checkpoints of the Checkpoint Condition are displayed in Rounds Data Collection.

Template Group Batch ID	CPC ID	Predecessor CTS ID	Sequence Number	Template Group ID	Field Name	Field Value for Character Type	Possible Condition	Type
ROUNDS_MLTG_ID	CPC_ID	MI_CHKPCOND_PRED_KEY_N	MI_CHKPCOND_SEQ_NUM_N	MI_CHKPCOND_REL_TMPG_KEY_N	MI_CHKPCOND_FLD_NAM_C	MI_CHKPCOND_FLD_VAL_CHAR_C	MI_CHKPCOND_POSS_COND_C	MI_CHKPCOND_TYPE_C
Pump Template B1	CPC-1	CTS-1		0 Pump Template Group	AHI Generic	Yes	is	Character
Pump Template B1	CPC-2	CTS-3		0 Pump Template Group	AHI Generic	Yes	is	Character

The value in the CPC ID field is used in the Checkpoint Template Sequence worksheet in the Group ID/Predecessor CPC ID field to specify a predecessor Checkpoint Condition for a Checkpoint. As mentioned in the previous section, notice that Checkpoint-2 and Checkpoint-4 in the Checkpoint Template Sequence worksheet both have CPC ID values in their Group ID/Predecessor CPC ID fields.

The value in the Predecessor CTS ID field determines which Checkpoint is the predecessor of the Checkpoint Condition. For example, notice that CPC-1 has a value of CTS-1 in the Predecessor CTS ID field, which references the CTS ID defined for Checkpoint-1 in the Checkpoint Template Sequence worksheet.

No value is required in the Sequence Number field. However, if you enter a value in this field for Checkpoint Conditions with the same predecessor Checkpoint (that is, sibling Checkpoint Conditions), the value you enter in this field will determine the sequence of the sibling Checkpoint Conditions.

The values you enter in the Possible Condition and Field Value for Character/Numeric Type fields determine the conditions under which the successor Checkpoints will appear in Rounds Data Collection. In this example, the successor Checkpoint of CPC-1 (that is, Checkpoint-2 as defined in the Checkpoint Template Sequence worksheet) will only appear when the reading value for the predecessor Checkpoint (Checkpoint-1) is Yes.

Note: When a predecessor Checkpoint has a Type value of Character, the only valid value to enter in the Possible Condition field is `is`.

Example Rounds Routes Data Loader Workbook with Checkpoint Conditions

This section provides samples of the worksheets in the Rounds Routes Data Loader workbook to illustrate the process of creating a Route containing Checkpoint Conditions using the Rounds Routes Data Loader.

Overview

When imported into APM, this example workbook creates a Route with six Checkpoints and two Checkpoint Conditions, as shown in the following image:
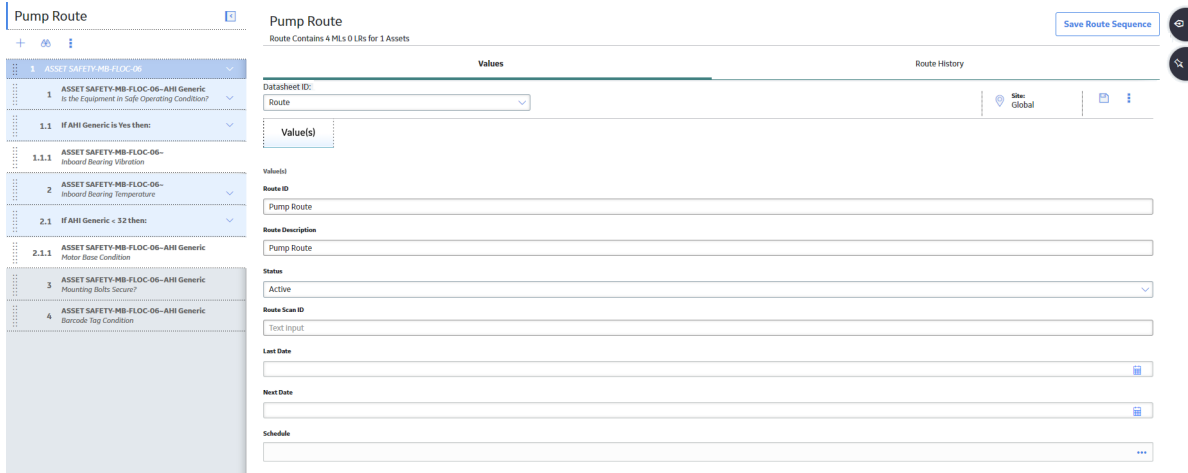
This section assumes that you are familiar with the basic process of creating Routes in a data loader and you are familiar with the fields used in these worksheets. For more information on the fields displayed in the following examples, and for more information on the worksheets contained in the Rounds Routes workbook, see the Rounds Routes Data Loader Workbook section for Rounds Data Loaders. This section also does not contain information on the Security User worksheet or the Checkpoint Task worksheet.

Sample Route Worksheet

The Route worksheet specifies IDs used during the data load process as well as Route records used in APM.

Route Batch ID	Route ID	Site Reference Name	Route Description	Status
ROUNDS_ROUTE_ID	MI_ROUTE000_ROUTE_ID_C	MI_SITE_NAME	MI_ROUTE000_ROUTE_DE	MI_ROUTE000_STAT_C
Pump Route B1	Pump Route	*Global*	Pump Route	Active

The value that you specify in the Route ID field determines the name of the Route as it appears in APM. For example, note that the ID in this sample worksheet matches the name of the Route in the image at the beginning of this section.

Sample Measurement Location Worksheet

The Measurement Location worksheet defines values for each Measurement Location on the Route.

Route Batch ID	ML Identifier	Checkpoint ID	Parent Condition Batch ID	Parent Condition Identifier	ML Type	LR Type	Is LR?	Description
ROUNDS_ROUTE_ID	ROUNDS_ML_ID	MI_CHECK_PT_CHEC_ID_C	MI_CHKPCOND_BATCH_ID	MI_CHKPCOND_ID_C	MI_MEAS_LOC_MEAS_LOC_TYPE_C	MI_LUBR_REQ_LR_TYPE_C	ROUNDS_CHECK_PT_IS_LR	MI_MEAS_LOC_DESC_C
Pump Route B1	1	Checkpoint-11			Character		FALSE	Is the Equipment in Safe Operating Condition?
Pump Route B1	2	Checkpoint-12	Condition B1	Condition-1	Numeric		FALSE	Inboard Bearing Vibration
Pump Route B1	3	Checkpoint-13			Numeric		FALSE	Inboard Bearing Temperature
Pump Route B1	4	Checkpoint-14	Condition B1	Condition-2	Character		FALSE	Motor Base Condition
Pump Route B1	5	Checkpoint-15			Character		FALSE	Mounting Bolts Secure?
Pump Route B1	6	Checkpoint-16			Character		FALSE	Barcode Tag Condition

For Routes with Checkpoint Conditions, to ensure that the Route sequence is loaded as expected, the values for the following fields in the Measurement Location worksheet and the Checkpoint Condition worksheet must match one another:

Measurement location Worksheet Fields	Checkpoint Condition Worksheet Fields
ML Identifier (ROUNDS_ML_ID)	Parent ML Batch ID (PARENT_ROUNDS_ML_ID)
Checkpoint ID (MI_CHECK_PT_CHEC_ID_C)	Parent ML ID (MI_CHECK_PT_PR_CHEC_ID_C)

Measurement location Worksheet Fields	Checkpoint Condition Worksheet Fields
Parent Condition Batch ID (MI_CHKPCOND_BATCH_ID)	Condition Batch ID (MI_CHKPCOND_BATCH_ID_C)
Parent Condition Identifier (MI_CHKPCOND_ID_C)	Condition Identifier (MI_CHKPCOND_ID_C)

For example, note that the value in the ML Identifier and Checkpoint ID fields in the sample Measurement Location worksheet image above match the values in the Parent ML Batch ID and Parent ML ID fields, respectively, in the sample Checkpoint Condition worksheet image below.

Sample Checkpoint Condition Worksheet

The Checkpoint Condition worksheet defines the conditions under which the successor Checkpoints for Checkpoint Conditions are displayed in Rounds Data Collection. This worksheet also works together with the Measurement Location worksheet to determine the Route sequence for Routes with Checkpoint Conditions.

Route Batch ID	Condition Batch	Condition Iden	Parent ML Batch ID	Parent ML ID	Field Name	Field Value for Character Type	Field Value for Numeric Type	Possible Condition	Type	Sequence
ROUNDS_ROUTE_ID	MI_CHKPCOND	MI_CHKPCOND	PARENT_ROUNDS_ML_ID	MI_CHECK_PT_PR_CHEC_ID_C	MI_CHKPCOND_FLD_NAM_C	MI_CHKPCOND_FLD_VAL_CHAR_C	MI_CHKPCOND_FLD_VAL_NUM_N	MI_CHKPCOND_POSS_COND_C	MI_CHKPCOND_TYPE_C	MI_CHKPCOND_SEQ_NUM_N
Pump Route B1	Condition B1	Condition-1		1 Checkpoint-11	AHI Generic	Yes		is	Character	
Pump Route B1	Condition B1	Condition-2		3 Checkpoint-13	AHI Generic		32	<	Numeric	

As mentioned above, the values defined in the Condition Batch ID and the Condition Identifier are used in the Measurement Location worksheet to specify successor Checkpoints for Checkpoint Conditions. Also, the values specified in the Parent ML Batch ID and the Parent ML ID fields must match the values defined in the ML Identifier and Checkpoint ID fields, respectively, for the predecessor Checkpoint of a Checkpoint Condition.

No value is required in the Sequence field. However, if a value is entered in this field for Checkpoint Conditions with the same predecessor Checkpoint (that is, sibling Checkpoint Conditions), the value you enter in this field determines the sequence of the sibling Checkpoint Conditions.

The values you enter in the Possible Condition and Field Value for Character/Numeric Type fields determine the conditions under which the successor Checkpoints will appear in Rounds Data Collection. In this sample worksheet, the successor Checkpoint of Condition-2 (that is, Checkpoint-14 as defined in the Measurement Location worksheet) will only appear when the reading value for the predecessor Checkpoint (Checkpoint-13) is less than 32.

Note: When a predecessor Checkpoint has a Type value of Character, the only valid value to enter in the Possible Condition field is `is`.

About the Rounds Data Loaders Load Verification

Before You Begin

After each worksheet is loaded:

1. Review the data loader log to identify any errors or warnings.
2. Update the data loader workbook to correct any errors, and then re-import.
3. Repeat until the import of each record is error free.

About This Task

Note: It is recommended that a query is executed in APM on the relevant family to ensure that records have been created and populated as expected. Imported records should also be spot checked in Record Manager or Rounds Designer to verify that the expected relationships have been created and site references have been set.

Procedure

1. Log in to APM as a Rounds Administrator user.
2. On the left navigation menu, select **Health**, and then select **Rounds Designer**.
   The **RD Overview** page appears.
3. Select the **Allowable Values** tab.
   The **Allowable Values** section appears, displaying a list of Allowable Values categories. The Allowable Values categories are groups of Allowable Values records that have the same value in the Category field.
4. Select an Allowable Value category.
5. Verify that the data appears as expected, and that the values can be edited or new values added to the Category.
6. Verify that you can create new character (and numeric, if applicable) ML Templates and MLs, using Categories from the imported Allowable Values data.
7. Verify that the Allowable Values appear as expected.
8. Select the **Templates** tab.
9. Verify that the loaded ML Templates appear as expected.
10. Select an ML Template to open in Record Manager.
11. Verify that the record contains the expected values and can be edited.
12. Select an ML Template row.
13. Select the **Update Existing Checkpoints** button.
14. Verify that the **Update Existing Checkpoints for <template name> Template** page contains the expected related Checkpoints.
15. Select the **ML Template Groups** tab.
16. Verify that the loaded Template Groups appear as expected.
17. Select an ML Template group.
18. Verify that Templates and Conditions can be added, and that the drag-and-drop items to reorder works as expected.
19. Select the **Routes** tab.
20. Verify that the loaded Routes appear as expected.
21. If the Users are assigned to the Routes via the data loader, select the **Routes** tab, select a Route, and verify that it has been assigned to a User.
22. Select a Route to open in Route Management and:

    a) Verify the new and existing MLs, the MLs from Templates, and if Conditions can be added.
    b) Verify that the Routes can be re-ordered.
    c) Verify that the MLs are linked to Assets.
    d) Verify that the asset information is populated.
    e) Verify that the schedules have been populated.
    f) Verify that the readings have been linked to MLs.
23. Select the **Routes** tab, select a Route, and verify that it can be assigned to a User.
24. Ensure that the Route and/or MLs it contains are due.
25. Log out of APM.
26. Log in to APM as Rounds Administrator user.

27. On the left navigation menu, select **Health**, and then select **Rounds Data Collection**.
The **RDC Overview** page appears.

    Note: For complete test coverage, this should be done on an applicable mobile device.

28. Verify that the assigned Route appears on the **RDC Overview** page.

29. Verify that the Route can be set for offline use.

30. Select the Route from the Due or Overdue list and perform an inspection.

    a) Enter readings for some of the Checkpoint, verifying that the **Reading** box contains the expected Allowable Values, if applicable.
    b) Verify that the alerts are triggered, that alert messages are displayed, and that the actions can be selected as expected.
    c) Add a Recommendation for an ML.
    d) Close the tab.
    e) Mark the Route done.

31. Log out of APM.

32. Log in to APM as Rounds Administrator user.

33. On the left navigation menu, select **Health**, and then select **Rounds Designer**.
The **RD Overview** page appears.

34. Select the **Routes** tab.

35. Select the Route for which the inspection was just completed.

36. Verify that the Route History appears correctly. Check that the correct number of readings are reported.

37. Verify that the readings that were taken appear against the relevant MLs.

38. Verify that the recommendation that was created appears against the relevant ML.

If you set up the Asset Health Indicator service to run during the data load, you should also verify that the health indicators have been created as expected:

39. Access a Measurement Location that was imported in Record Manager, and verify that a Health Indicator record is linked to the Measurement Location.

40. Alternatively, access the asset related to the Measurement Location in Asset Health Manager to view the health indicators that exist for the asset.

    a) On the left navigation menu, select **Admin**, and the select **Application Settings**.
    The **Application Settings** page appears.
    b) Select **AHM**.
    c) In the left pane, select the **Health Indicator Source Management** tab, and then use the filter and search options to find the Measurement Locations to which you want to add health indicators.
    d) Verify that a green check mark is displayed for the Measurement Locations for which related Health Indicator records do not exist.
    e) To create Health Indicator records for Measurement Locations beside which the green check mark appears, but for which there are no records:

        i. Select the check boxes next to the affected Measurement Locations, and then select **Exclude**.
        A red X appears.
        ii. Select **Include**.
        Health Indicators will now be created.

41. If health indicators have not been created as expected, you can manually create health indicators by performing the following steps:

    a) On the left navigation menu, select **Admin**, and then select **Application Settings**.
    The **Application Settings** page appears.
    b) Select **AHM**.

c) In the left pane, select the **Health Indicator Source Management** tab, and then use the filter and search options to find the Measurement Locations to which you want to add health indicators.

d) Verify that a green check mark is displayed against the Measurement Locations for which related Health Indicator records do not exist.

e) To create health indicator records for Measurement Locations beside which the green check mark appears but there is no record:

   i. Select the check boxes next to the affected Measurement Locations, and then select **Exclude**.
      A red X appears.

   ii. Select **Include**.
      Health Indicators will now be created.

Chapter

15

Deployment and Upgrade

Topics:

Deployment

Deployment

Refer to the deployment information here Deploy Rounds for the First Time.

Upgrade

Upgrade

Refer to the upgrade information here Upgrade or Update Rounds to V5.1.2.0.0.

Legacy Migration Tool

Topics:

About Legacy Migration Tool

The APM Entity and Relationship families in Rounds Pro are significantly different from Legacy Rounds. Using the Legacy Rounds Migration tool you can migrate data from Legacy Rounds to Rounds Pro.

Following are the highlights of the Migration tool:

- You can run the tool multiple times for the same route. For instance, if you find any issues with the data during the migration process, you can correct the data and re-run the migration utility for the same route. When you re-run the utility for the same route, it updates all the related migrated data in Rounds Pro and may create new records if they were not created in the previous run.
- You can use the tool to migrate all data or subset of data. For example, you can use a query to filter and migrate a single Route for testing purposes or migrate multiple Routes belonging to a specific site.
- Migration tool will not delete any data in Legacy Rounds.

Terminology

The following table provides the terminology in Legacy Rounds versus Rounds Pro:

Table 3: Legacy Rounds Vs Rounds Pro

Legacy Rounds	Rounds Pro	Notes
Allowable Values	Picklists	None
Measurement Location	Measurement Step	None
Route	Route Master/Route Instance	When a Route Master is due a separate Route Instance is created.
Measurement Location Template	Step Template	None
Condition	Conditional Step	Conditional Steps are part of the Measurement Step.
Reading	Step Reading	None
Operator Rounds Recommendation	Operator Rounds Recommendation	Same family is used in both Legacy Rounds and Rounds Pro.

Key Considerations

In the current release, following data from Legacy Rounds is migrated to Rounds Pro:

- Routes
- Measurement Locations
- Category/Allowable values
- Checkpoint Conditions
- Health Indicators: New Health Indicators are created and then associated with the Measurement Steps. The original Health Indicators associated with Measurement Locations are not updated and will continue to stay.
- Users and Teams assigned to Routes.

Limitations

In the current version, following limitations exist:

- Data: The Migration tool will migrate the data structure, but not the data generated from Legacy Rounds. The following items will not be migrated to Rounds Pro:

  ◦ Readings
  ◦ Route History records
  ◦ Operator Rounds Recommendations
  ◦ Reference Documents
  ◦ GIS Data

- Functionality: The following functionality will not be migrated to Rounds Pro:

  ◦ Step Scheduling: If your Measurement Locations have schedules defined, those schedules will not be migrated to Rounds Pro.
  ◦ Lubrication Requirements and Lubrication Templates: Lubrication Requirements are currently not available in Rounds Pro and hence lubrication requirements will not be migrated. If your route has a lubrication requirement, routes will be migrated without lubrication requirements.
  ◦ Templates Groups: Template Groups are currently not available in Rounds Pro and will not be migrated.
  ◦ Localization Data: Only English language is supported in Rounds Pro

- Other Modules: Data related to the following modules will not be migrated:

  ◦ Policies: Policies created based on the Measurement Location node will not be upgraded to Measurement Steps.
  ◦ Health Indicators: New Health Indicators will be created in Rounds Pro. The original Health Indicators associated with Measurement Locations will not be updated.
  ◦ Strategy: Measurement Locations with links to Asset Strategy will be migrated as Measurement Steps in Rounds Pro but the measurement steps will not be linked to Asset Strategy.

- Customization:

  ◦ Fields: Any custom fields, custom rules that are created on the Legacy Rounds families will not be migrated to Rounds Pro Families
  ◦ Catalog Items (Queries/Reports/Graphs): Any custom catalog items using Legacy Rounds Families will not be migrated to Rounds Pro.

- Others:

  ◦ Checkpoint Images: If there are checkpoint images associated with the Measurement location, they will not be migrated.
  ◦ Measurement Location not linked to Assets: Measurement Steps in Rounds Pro needs an Asset to be linked, which is not required in Legacy Rounds. If there are any Measurement Locations that are not linked to an Asset or unknown assets, they will not be created in Rounds Pro. However, you can create dummy Functional Locations before running the Migration tool, then these will steps be linked with the newly created Functional Locations. Functional Locations should follow the exact naming convention as below:

    ◦ Catch-All for unknown Asset: Measurement Locations that are linked to an Unknown asset will be migrated as Measurement Steps and are linked to this Functional Location.
    ◦ Catch-All for no Asset: Measurement Locations that are not linked to an asset will be migrated as Measurement Steps and are linked to this Functional Location.
  ◦ Actions: Actions in the Measurement Location are not migrated.

◦ Route Schedule: Route Schedule is not migrated.

Route Migration

When Migration Type is selected as Routes, the complete Route is migrated from Legacy Rounds to Rounds Pro and a new Route Master is created in Rounds Pro. During this process, several other records that are part of the Route will be created like the Picklists/Picklist item, Measurement Steps, and Conditional steps.

Legacy Rounds records are migrated in the following way to Rounds Pro records:

- Measurement Locations are migrated as Measurement Steps
- Routes are migrated as Route Masters
- Allowable Values are migrated as Picklists

Measurement Location to Measurement Step

During the migration process, the Legacy Rounds Migration tool performs the following tasks in the background.

- If there is no Measurement Step (Same Name and Asset relationship) in Rounds Pro, a new Measurement Step is created.
- If there is an existing Measurement Step in Rounds Pro with same Name and Asset relationship, a new Measurement Step is created and the Step Name is appended with the last four digits of the Entity Key. For example, Step Name [1234].
- Since the information related to Conditions is part of the Measurement Step in Rounds Pro, the Conditions under the parent Measurement Location are now part of the Measurement Step in Rounds Pro.
- In Rounds Pro, it is required for all the Measurement Steps in the Route Master should belong to the same site. Hence, in Legacy Rounds if a Route has Measurement Locations from different sites, these routes and the associated Measurement Locations will not be migrated.
- In Rounds Pro, it is required that all Measurement Steps should belong to an Asset. Hence in Legacy Rounds if there are any routes which have Measurement Locations not related to any Asset, then these Measurement Locations will not be migrated to Rounds Pro, unless dummy Functional Locations are created as mentioned in the previous section.

Table 4: Measurement Location to Measurement Step

Measurement Location	Measurement Step	Notes
Checkpoint ID	This field is not available in the Step Family.	None
Checkpoint Image	Additional Instructions - Image	This component is not migrated yet
Template	Template	This component is not migrated yet
Asset	Related Asset Key	None

Measurement Location	Measurement Step	Notes
Asset ID	Related Asset ID	Gets the current Asset ID based on the Asset Key (If the Asset ID is modified in the corresponding Asset family, then this field will have the modified Asset ID, which can be different from the current Asset ID shown on the Measurement Location)
Equipment Technical Number	Equipment Technical Number	This component is not migrated yet
Asset Description	Asset Description	This component is not migrated yet
ML Description	Step Name	• If there are multiple Measurement Locations with the name same description within the Asset, the Step Name is appended with four digits of the Entity Key. For example. **<Step Name> [3456]**. • If the description is longer than 50 characters, it is truncated.
ML Type	Reading Type	• The following criterion is used to assign the reading type on the Step. • **Text Entry: Numeric** – Assigned when ML Type is Numeric and Category is blank. • **Text Entry: Character** – Assigned when ML Type is Character and Category is blank. • **Picklist: Single select** – Assigned when the Category has a valid value and there are valid allowable values. If there are no valid allowable values, then corresponding **Text Entry: Numeric/Text Entry: Character** is selected based on the **ML Type**.
Unit of Measure	Unit of Measurement	None
Category	Reading Picklist	None
Allowable Values	Picklist Values	None
Maximum Valid Value	Maximum Valid Value	This component is not migrated yet.
Minimum Valid Value	Minimum Valid Value	
Maximum Target Value	Maximum Target Value	
Minimum Target Value	Minimum Target Value	
More Information	More Information	
Status	Status	This component is not migrated yet.
Scan ID	Scan ID	None

Measurement Location	Measurement Step	Notes
Scan to Unlock	Is Locked?	None
Download Stored Document	Equivalent is not available	None
Requires Equipment shutdown	Requires Equipment shutdown	This component is not migrated yet
Include as Health Indicator Source	Include as Health Indicator Source	• Limits are required for a Health Indicator to be created in Rounds Pro. • If there are either Numeric or character Limits or Messages defined, then a New Health Indicator is created. If there are no limits or messages defined, then a Health Indicator is not created.

Routes to Route Masters

During the migration process, the Legacy Rounds Migration tool performs the following tasks in the background.

•   Route is migrated as a Route Master in Rounds Pro. If the Route belongs to an asset, then the new route master created in Rounds Pro is linked to the same asset.
•   The new route master in Rounds Pro is assigned the same site that the route belonged to in legacy.
•   All allowable values and measurement locations that are part of the Legacy Rounds are migrated to Rounds Pro. The measurement locations in legacy are migrated in the same sequence as they exist in Legacy Rounds.
•   Any conditions and conditional measurement locations that exist in the route are migrated to Rounds Pro as conditions and conditional steps in the new route master.
•   All new measurement locations in Rounds Pro after migration belong to the same site as in Legacy Rounds.

Table 5: Routes to Route Masters

Route	Route Master	Notes
Route ID	Route Name	None
Route Description	Route Description	None
Status	Activate Route	This component is not migrated yet. Active Route field is set to False for all the routes migrated to Rounds Pro.
Route Scan ID	This functionality is not available yet	None
Last date	Last done Date	This component is not migrated yet
Next Date	Next due Date	This component is not migrated yet
Schedule	Schedule Summary	This component is not migrated yet

Allowable Values to Picklists

During the migration process, the Legacy Rounds Migration tool performs the following tasks in the background.

- If there is no Picklist with the same name as the Category in Rounds Pro a new Picklist is created.
- If the Picklist does not have the Picklist Item, a new Picklist item is added to the Picklist.
- If both the Picklist and Picklist Items are available, the existing ones are used.

Table 6: Allowable Values to Picklists

Allowable Values	Picklists	Comments
Category Name	Picklist Name	None
Type	Picklist Type	None
Values	Value	None

Access the Legacy Rounds Migration Page

Before You Begin

- You must be a Super User.
- You must have active Legacy Rounds and Rounds Pro licenses.
- If you are have data in Rounds Pro, you must review the existing Rounds Pro data before starting the migration process to avoid any unnecessary updates to your existing Rounds Pro data.

Procedure

1. Access the Rounds Designer administration page.
2. Select the **Legacy Rounds Migration** tab.
   The **Legacy Rounds Migration** workspace appears.

Migrate Legacy Rounds Data

Procedure

1.
2. Select **Migration Type**.
3. Under **Migration Scope**, select one of the following options:

   - Migrate from query: Using this option, you can migrate a subset or subsets of data. You can use the query located at Public/Meridium/Modules/Rounds Pro/Queries/Legacy Migration/Routes to migrate a single Route for testing purposes or multiple Routes belonging to a specific site. You can customize this query as needed.
   - Migrate All: Using this option you can migrate all of the data.
4. Select **Initiate Migration**.
   The **Review migration** window appears.
5. Select **Migrate Data** to initiate migration.
   Your migration job is started.

   Note: If more than 10 Routes are selected for migration, then separate migration jobs are created for each batch of 10 routes.

Access Migration Results

About This Task

After each migration run, one or more log entries gets created, providing detailed information about the action taken on each record. These logs enable you to take necessary actions.

Procedure

1. Access the Legacy Rounds Migration Page on page 140
2. Select the Job ID, for which you want to view the logs details.
   A Master-Details record opens in the Record Manager displaying the following fields.

Table 7: Legacy Rounds Migration Job

Field	Data Type	Description	Behavior and Usage
Job ID	Character	Each migration is a unique job, and each job has an ID.	This is automatically created when you start a migration task. **Note:** If more than 10 Routes are selected for migration, then separate migration jobs are created for each batch of 10 routes.
Job Status	Character	The status of the migration job.	The following status are available: • Completed – Migration job completed successfully. • CompletedWithError - Migrated job is completed with errors. • In Progress – Migration job is still running.
Migration Component Type	Character	Defines the component types that will be migrated, such as Routes, Measurement Location.	Only Routes is supported.
Processed Item Count	Numeric	Number of items processed in the current migration.	None
Total Item Count	Numeric	Total items selected for the migration.	None

Field	Data Type	Description	Behavior and Usage
Migration Log	Text	High level Summary log.	Summary log entry for each Route, with status set as either of the following: • Success • Completed with Warning • Failed with Error
Migration Starts On	Date	Migration start date and time.	None
Migration Ends On	Date	Migration end date and time.	None

3. Select **Legacy Rounds Migrated Item** family in the Record Manager.
   The following available fields appear:

Table 8: Legacy Rounds Migrated Item

Field	Data Type	Description	Behavior and Usage
Migrated Item Family ID	Character	Family ID of the migrated item	As of now only Routes are being migrated.
Migrated Item Entity Key	Numeric	Entity Key of the migrated item	As of now only Routes are being migrated.
Status	Character	It could be either Insert or Update	None
Source Item Family Key	Character	Family Key of the migrated item	None
Source Item Entity Key	Character	Entity Key of the migrated item	None

4. Select **Legacy Rounds Migration Log** family in the Record Manager.
   The following available fields appear:

Table 9: Legacy Rounds Migration Log

Field	Data Type	Description	Behavior and Usage
Job Id	Character	Id	Unique Job ID
Source Item Family Key	Numeric	Family key	Family key of the item processed
Source Item Entity Key	Character	Entity key	Entity key of the item processed
Source ID	Character	Source ID	None
Error Message	Character	Error or warning message	None
Status	Character	Success, Warning, Error	None
Log	Text	Detailed Migration Log	None

Chapter

17

Reference

Topics:

General Reference

Measurement Location Data Model

Rounds Designer leverages the fundamental APM entity and relationship family infrastructure for storing data in the APM database. The data that is stored in the APM database can be transferred to a mobile device, where you can record readings and create recommendations. Those readings and recommendations can then be transferred to the APM database, where they will be converted into records.

When you are working with records in Rounds Designer, it is helpful to visualize the data model illustration.

In the following illustration:

- The shaded boxes represent entity families.
- The arrows represent relationship families. You can determine the direction of each relationship from the direction of the arrow head.
- Black arrows and boxes represent entity families, relationship families, and associated relationship definitions that are configured in the baseline database and do not require customizing for baseline functionality to work.
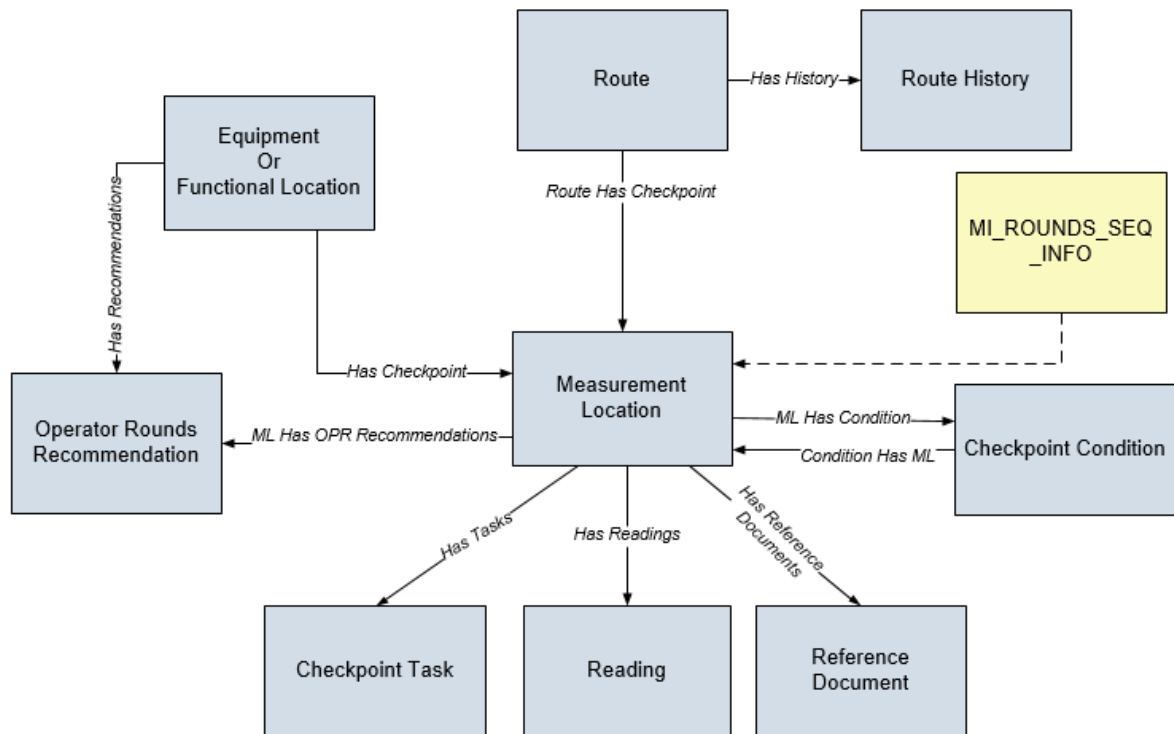
Rounds URLs

There are two URL routes associated with Rounds: **rounds** and **rounds-inspection**. The following tables describe the various paths that build on those routes, and the elements that you can specify for each.

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Rounds Designer

Element	Description	Notes
rounds/dashboard/admin	Displays the **RD Overview** page	N/A
rounds/route-management/route-datasheet/<RouteKey>	Displays a Route record on the **Route Management** page	The rounds/route-management/route-datasheet URL lets you construct a hyperlink that will open a Route record on the **Route Management** page. The URL accepts one parameter, RouteKey, which accepts the numeric entity key of the desired Route record. The RouteKey parameter is required. Example: rounds/route-management/route-datasheet/64251704746
rounds/route-management/checkpoint/<CheckpointKey>	Displays a specific checkpoint within a Route on the **Route Management** page. If the checkpoint is not in a Route, the **Record Manager** page for the checkpoint record will be displayed instead.	This URL accepts one parameter, CheckpointKey, which accepts the numeric entity key of the desired Measurement Location or Lubrication Requirement record. The CheckpointKey parameter is required. Example: rounds/route-management/checkpoint/64051704468
health/indicator/source/<SourceKey>/<family key>/trend	Displays the **Health Indicator Source** page showing the Readings trend for a Measurement Location	Refer to the Asset Health Manager documentation for more information.
rounds/mlgt-management/mlgt-datasheet/<TemplateGroupKey>	Displays the **Template Group Management** page	The mlgt-management/mlgt-datasheet URL lets you construct a hyperlink that will open a Template Group record on the **Template Group Management** page. The URL accepts one parameter, TemplateGroupKey, which accepts the numeric entity key of the desired Template Group record. The TemplateGroupKey parameter is required. Example: rounds/mlgt-management/mlgt-datasheet/64252059352
rounds/update-existing-mls/<MLTKey>	Displays the **Update Existing MLs** page for a Measurement Location Template	The rounds/update-existing-mls URL lets you construct a hyperlink that will open the **Update Existing MLs** page. The page displays all the Measurement Locations that were created from the Measurement Location Template with the entity key <MLTKey>. This page allows the user to choose which Measurement Locations will be updated to match the current values in the Measurement Location Template.

Rounds Data Collection

| Element	Description	Notes
rounds/dashboard/user	Displays the **RDC Overview** page	N/A
rounds-inspection/<RouteKey>	Displays the **RDC Overview** page for the Route with the entity key <RouteKey>	The rounds-inspection URL lets you construct a hyperlink that will open a Route record on the **RDC Overview** page. The URL accepts one parameter, RouteKey, which accepts the numeric entity key of the desired Route record. The RouteKey parameter is required (example: rounds-inspection/ 64251704746).

Lubrication Requirement Data Model

Rounds leverages the fundamental APM entity and relationship family infrastructure for storing data in the APM database. The data that is stored in the APM database can be transferred to a mobile device, where you can record readings and create recommendations. Those readings and recommendations can then be transferred to the APM database, where they will be converted into records.

When you are working with records in Rounds, it is helpful to visualize the data model illustration.

In the following illustration:

- The gray boxes represent entity families.
- The arrows represent relationship families. You can determine the direction of each relationship from the direction of the arrow head.
- Black arrows and boxes represent entity families, relationship families, and associated relationship definitions that are configured in the baseline database and do not require customizing for baseline functionality to work.
- The dashed line represents a foreign key.
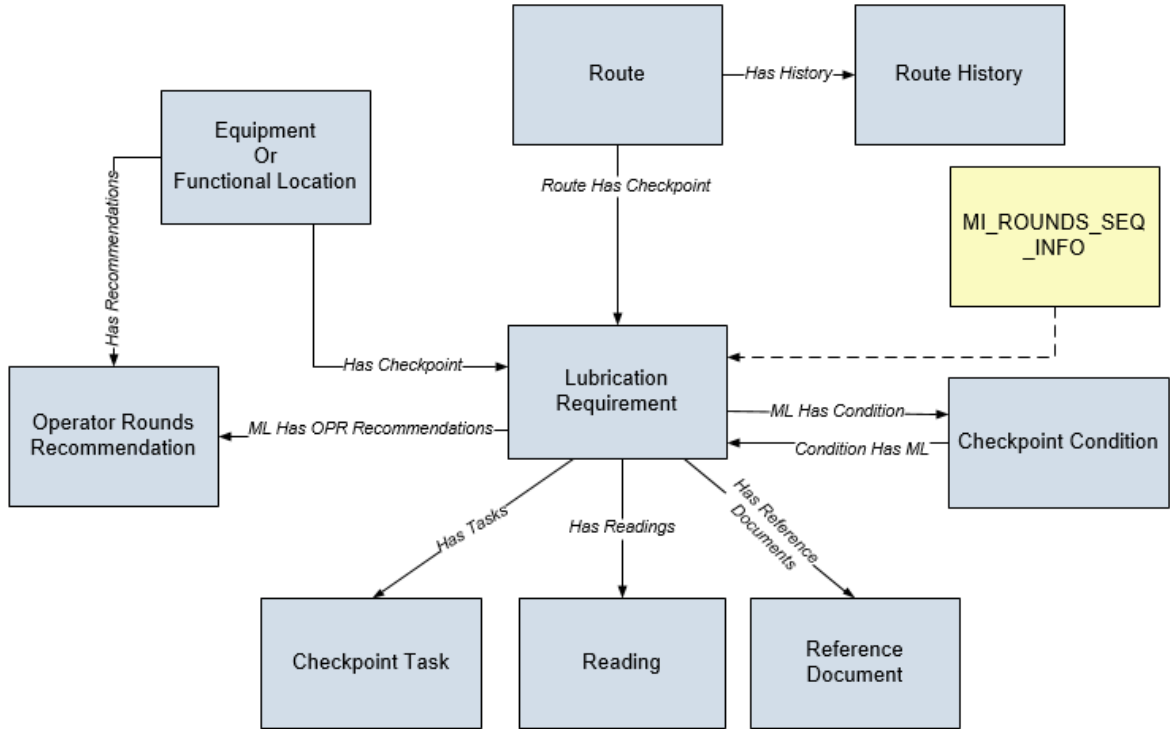
In addition to the data model above, the Lubricant, Lubrication Manufacturer, Lubrication Component, and Lubrication Method records are used to generate the lists in the Lubrication Requirement and Lubrication Requirement Template datasheets. In the following illustration:

- The shaded boxes represent entity families.
- The dashed lines represent the foreign keys used by the Lubrication Requirement.
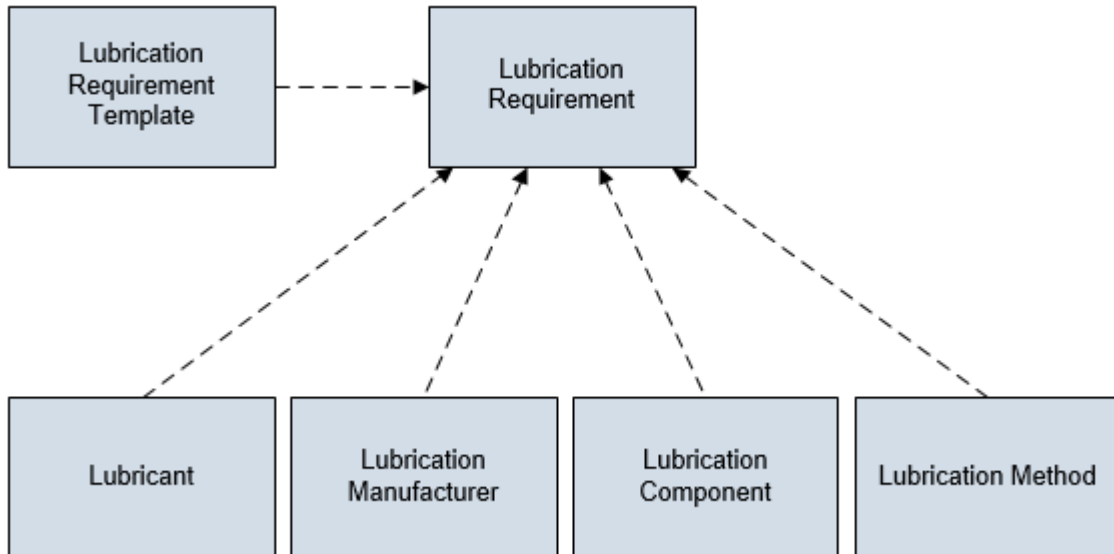
Rounds System Code Tables

The following System Code Tables are used by Rounds:

Table ID	Table Description	Function
LR_CHAR_POSS_VALS	Possible values for Character type LRs	Used to populate values displayed in Completion Status field when collecting readings for a Lubrication Requirement
MI_FDC_STATUS_TYPE	Status type for Checkpoint families	NA
MI_LM_LUBR_REQ_TYPE	Types of Lubrication Requirement	Used to populate the **LR Type** list on the Lubrication Requirement and Lubrication Requirement Template records
MI_LM_REFERENCES	Units of measure for Capacity	Used to populate the **Unit of Measure** and **Capacity Unit of Measure** lists in Lubrication Requirement and Lubrication Requirement Template records
MI_LUBR_PRIORITY	Lubrication Priority	Used to populate the **Priority** list in Lubrication Requirement and Lubrication Requirement Template records.
MI_LUBR_TYPE	Lubricant Types	Used to populate the **Lubricant Type** list in Lubricant records
MI_LUBRICANT_REFERENCES	Units of measure for Flash Point	Used to populate the Flash Point UOM list in Lubricant records. This system code table contains a subset of the values in the UOME system code table.
MI_OPR_MEAS_LOC_TYPE	List of Measurement Location types	Used to populate the **Measurement Location Type** list in Measurement Location records and the **Type** list on the **Operator Rounds Allowable Values** page
MI_RECOMMENDATION_TYPE	CORE, Recommendation Type	Used to populate the **Recommendation Type** list in Recommendation records. Note that the Recommendation Type field is not included on the baseline OPR Recommendation datasheet.
MI_TASK_TYPE_REFERENCE	CORE, Reference values to limit task type lists when creating tasks	Used to populate the Task Type field in Checkpoint Task records
Reading Status	Reading Status	Used to populate the Status field in Reading records

Table ID	Table Description	Function
Route Status	Route Status	Used to populate the Status field in Route History records
UOME	Global units of measure list used throughout APM	In Rounds Designer, used to populate the **Unit of Measure** list in Measurement Location records **Note:** Rounds does not use the Units of Measure Conversions feature. The system code table UOME is the only source for populating drop-down list values within UOM fields. The UOM field for a Measurement Location contains all the values from the UOME system code table, sorted by their descriptions. The UOM field for a Lubrication Requirement contains a subset of values from the UOME system code table based on specific reference values from the MI_LM_REFERENCES system code table.

About Routes

A Route is a series of Checkpoints that a single user should execute in a specific order. You can use Rounds Designer features to manage the Routes that will be transferred to a mobile device, where the person responsible for that Route will record a reading value and other relevant information (that is, Action Taken, Comments, Recommendations) for each Checkpoint that is defined for the Route.

Details

A Route consists of the following records and links:

- One Route
- Multiple Checkpoints that are linked to the Route
- Checkpoint Tasks that are linked to the Checkpoints
- Equipment or Functional Locations to which each Checkpoint is linked
- Checkpoint Conditions that are linked to the Checkpoints as successors
- Multiple Checkpoints that are linked to the Checkpoint Conditions as successors
- Reference Document records that are linked to Checkpoint records as successors

When Routes are completed, Route History, readings, and recommendations are added to the APM database and will be displayed on the page for that Route.

With the exception of Checkpoint Tasks and Route History, all records that make up a Route will appear in the left pane on the page for that Route, where the Route is shown as the root record. You can use the left pane to create and manage your Routes.

Checkpoint Tasks and Route History appear on the Routes datasheet.

Each Checkpoint that is linked directly to the Route will be linked to one Checkpoint Task that stores the schedule on which that Checkpoint should be addressed. You can work with Checkpoint Tasks by selecting the **Schedule** tab on the datasheet when a Checkpoint linked directly to the Route is selected.

Note: If the Route has a schedule, the Checkpoint Task schedule is optional.

You can view the Route History records that are linked to a Route by selecting the **Route History** tab on the datasheet, when a Route is selected. You can also view readings, reference documents, and recommendations in Route Manager.

About the Route Pane

The following image shows the left pane as it appears when you access the page for a Route:
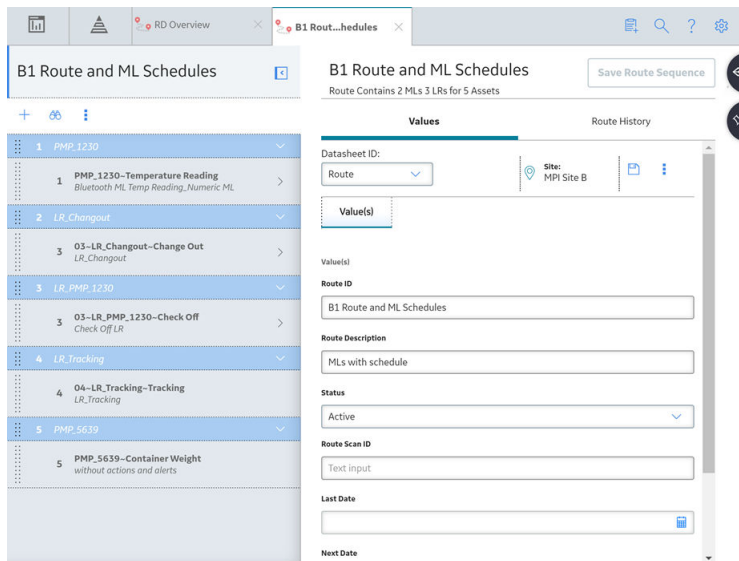
Details

The pane contains the following items:

- The Route pane will contain only one Route node, which will always appear at the top of the pane. The value that appears for the Route node is the value stored in the Route ID field in the corresponding Route record. When the Route node is selected in the pane, the content of the corresponding Route record appears in the workspace.

Using the datasheet, you can modify the content of the Route record as desired, and then save the record using the 💾 button in the upper-right corner of the datasheet. If you navigate away from the Route node without saving the changes to the Route record, a message will appear, asking if you want to save the changes.

- ➕: Allows you to add a new or a existing Checkpoint, or to add Checkpoints created from Templates and Template Groups.

- 🔍: Allows you to search the Asset Group, Checkpoint, and Checkpoint Condition nodes that appear in the pane.

- ⋮ : Allows you to view a menu that includes the following options:
  - Expand All
  - Collapse All

◦ Reset Checkpoint Next Dates
◦ Reset Checkpoint Schedules

Additionally, if a Checkpoint or condition is selected, the menu includes an option to remove or delete it.

• Multiple subnodes representing Checkpoint Conditions and successor Checkpoints can be displayed by selecting 〉 in the parent node.

About the ML Template Groups Section

The **ML Template Groups** section can be accessed on the **RD Overview** page.

In the **ML Template Groups** section, you can view a list of all Template Groups that exist in the database. You can use this section to access, create new, and delete Template Groups.

The **ML Template Groups** section contains the following items:

• ✛ : Allows you to create a new ML Template Group.

• 👓 : Allows you to search the ML Template Groups that exist in the database.

• 🗑 : Allows you to delete a specific ML Template Group.

About the Contents of the Template Group Pane

When a Template Group is accessed, the left pane displays nodes that represent the following records that make up an ML Template Group:

• Template Group
• Checkpoint Conditions
• Measurement Location Templates

The following image shows a Template Group, Machine Inspection, with the following contents:

• Two Measurement Location Templates:
  ◦ Check offline status
  ◦ Vent Check
• One Checkpoint Condition:
  ◦ If Vent Check is Obstructed then:
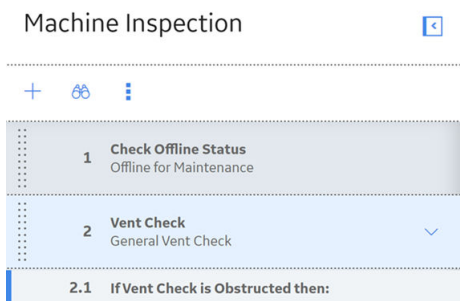
The order in which the Checkpoint Templates appear in this pane should match the order in which you want the Measurement Location nodes to appear in the left pane of the Route's page after you apply the Template Group to the Route. You can change the sequence of a Measurement Location Template using the drag-and-drop method in the left pane of the Template Group's page.

If a Measurement Location Template or a Checkpoint Condition is associated with one or more successor records, an arrow will appear to the right of that Measurement Location Template or Checkpoint Condition node. The direction of the arrow indicates whether the successor nodes are displayed or hidden.

- 〉 : Indicates that the successor nodes are hidden. You can select this arrow to display the successor nodes.

- ▶ : Indicates that the successor nodes are currently displayed. You can select this arrow to hide the successor nodes.

The left pane on the page for a Template Group contains only one Template Group node, which will always appear at the top of the pane. The value that appears in the Template Group node is the value stored in the ID field in the corresponding Template Group record.

About Site Filtering in Rounds

Site filtering in Rounds is achieved by specifying a value in the Site Reference Key for a record. Users must have privileges for the relevant site to access records for the specified site. Users can be assigned to one or many sites. They will be able to view global data, and the data for each of the sites to which they are assigned.

Tip: For more information, refer to the Site Filtering section of the documentation.

Site filtering behavior is applied to all areas where data is handled in Rounds including data loaders, asset hierarchy, global search, and queries throughout Rounds Designer and Rounds Data Collection modules.

Important: To modify a Route containing data for multiple sites, the Rounds Designer user must have access to all the included sites, since changing the order of Checkpoints may update the sequence value stored on any other Checkpoint on the Route.

In Rounds, site filtering affects the following records:

- Allowable Values records are not enabled for site filtering. Any user who has the required security and license permissions can access, and modify the allowable values records. However, allowable values records interact with other records that are enabled for site filtering. To facilitate use of different sets of allowable values on different sites, the Rounds Administrator must create separate ML Templates that use the correct values for each site.
- If a Measurement Location or Lubrication Requirement record is linked to an asset, the record will inherit the site from the Equipment and Functional Location to which it is linked. If a Measurement Location or Lubrication Requirement is not linked to an asset, the record will inherit the site from its parent record (that is, Route or condition). This takes priority over inheritance of the user's default site, except in the case where the parent record is a Global record.
- Readings for a Measurement Location or Lubrication Requirement will inherit the site from the Measurement Location or Lubrication Requirement.
- Template Group records are enabled for site filtering. When a Template Group record has a site specified, you can only add ML Templates that belong to the same site, or are global records. For a global Template Group record, you can add ML Templates from any of the sites.

  Note: When a global Template Group is applied to an asset, any ML Templates within the Template Group that are assigned to a specific site that is different to the site of the Equipment or Functional Location will not be applied.
- Route records are enabled for site filtering.
  - When a Route has a site specified, you can only add Measurement Location or Lubrication Requirement records for that site.

◦ If no site is specified for a Route, you can add Measurement Location or Lubrication Requirement records for any site to the Route.

Important: Although you can assign a Route to any user, the Route will only be accessible in Rounds Data Collection to users who have access to the site for the Route.

- Lubricant, Lubrication Component, Lubrication Method, and Lubricant Manufacturer records are enabled for site filtering.

  ◦ If a Lubricant is assigned to a specific site, the records to which it can be linked are limited as follows:

    ◦ Lubricant Manufacturer records that are assigned to the same site or have no site (that is, global records).
    ◦ Lubrication Method records that are assigned to the same site.
    ◦ Lubricant Requirement or Lubricant Requirement Template records that are assigned to the same site.

  ◦ If a Lubrication Component is assigned to a specific site, it can only be used in Lubricant Requirement or Lubricant Requirement Template records that are assigned to the same site.

  ◦ If you want to use site filtering to limit the available Lubricant records to only locally approved lubricants, note that you may need to create duplicate records for the same lubricant if you want it to be available for more than one site (this is because a given record can belong to only one site).

  ◦ We recommend, in general, that you create Lubricant Manufacturer, Lubrication Method, and Lubrication Component records with no site (that is, as global records) rather than duplicating them across sites.

ML Site Reference Key not inherited from Global Route Record

Consider a scenario where a user assigned to Site X creates a Global record, Route X.

The user then adds a new ML to Route X, but does not link the ML to an asset. The new ML inherits the site reference from the user, which is Site X.

Route Records

Consider an example where a Route X is not assigned to any site. Route X is a global record, and contains the following records:

- ML1, which is assigned to Site X
- ML2, which is assigned to Site Y
- ML3, which is assigned to Site Z
- ML4, which has no site assigned (global record)

Scenario 1: User assigned to only one site.

When a user who is assigned to only Site X views Route X in Rounds Designer or Rounds Data Collection, he or she will see the following records:

- ML1
- ML4

The records for Site Y or Site Z will not appear for a user assigned to Site X. The user sees data for the assigned Site X and global data.

When a user who is assigned to only Site Y views Route X in Rounds Designer or Rounds Data Collection, he or she will see the following records:

- ML2
- ML4

The records for Site X or Site Z will not appear for a user assigned to Site Y. The user sees data for the assigned Site Y and global data.

When a user who is assigned to only Site Z views Route X in Rounds Designer or Rounds Data Collection, he or she will see the following records:

- ML3
- ML4

The records for Site X or Site Y will not appear for a user assigned to Site Z. The user sees data for the assigned Site Z and global data.

Scenario 2: User assigned to two sites.

When a user who is assigned to Site X and Site Y views Route X in Rounds Designer or Rounds Data Collection, he or she will see the following records:

- ML1
- ML2
- ML4

The record for Site Z will not appear for a user assigned to Site X and Site Y. The user sees data for both the assigned sites and global data.

When a user who is assigned to Site X and Site Z views Route X in Rounds Designer or Rounds Data Collection, he or she will see the following records:

- ML1
- ML3
- ML4

The record for Site Y will not appear for a user assigned to Site X and Site Z. The user sees data for both the assigned sites and global data.

When a user who is assigned to Site Y and Site Z views Route X in Rounds Designer or Rounds Data Collection, he or she will see the following records:

- ML2
- ML3
- ML4

The record for Site X will not appear for a user assigned to Site Y and Site Z. The user sees data for both the assigned sites and global data.

Scenario 3: Super User

If a Super User views Route X, he or she will see the following records:

- ML1
- ML2
- ML3
- ML4

Family Field Descriptions

Family Field Descriptions

This topic provides a listing of all the families in the Rounds Designer module, with links to the family fields information.

Checkpoint Condition Records

Checkpoint Condition records store details about the conditions of Checkpoints on a Route. This topic provides an alphabetical list and description of the fields that exist for the Checkpoint Condition family. The information in the table reflects the baseline state and behavior of these fields. This list is not comprehensive.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site and will only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. For more information, refer to the Sites section of the documentation.

Note: We do not recommend modifying Checkpoint Condition records outside of the Rounds Designer module. This may cause unexpected results with an existing Route that is currently using that condition.

Field	Data Type	Description	Behavior and Usage
Condition ID	Character	A unique value that identifies the condition of the Checkpoint	This field is populated automatically by the Rounds module. Alternatively, you can enter a value in this field, but the value must be unique.
Field Name	Character	The name of the Checkpoint condition	This field is populated automatically by the template or by the data loader used to create the condition, or by the Rounds Designer module.
Field Value for Character Type	Character	The field that stores the value of the Checkpoint condition if the value is a character value	The use of this field as opposed to the Field Value for Numeric Type field is determined by the predecessor Checkpoint record of the Condition record.

You can enter the value of this field in the **Select Value** box when adding a condition to a Checkpoint. |

Field	Data Type	Description	Behavior and Usage
Field Value for Numeric Type	Numeric	The field that stores the value of the Checkpoint condition if the value is a numeric value	The use of this field as opposed to the Field Value for Character Type field is determined by the predecessor Checkpoint record of the Condition record. You can enter the value of this field in the **Select Value** box when adding a condition to a Checkpoint.
Possible Condition	Character	The relational value of a Checkpoint	You can select the value of this field in the **Select Relation** box when adding a condition to a Checkpoint.
Predecessor Key	Numeric	The entity key of a predecessor Checkpoint	This field is populated automatically by the predecessor Checkpoint.
Related Template Group Key	Numeric	The entity key of the Template Group applied to the Route containing the Checkpoint condition	This field is populated automatically by the Template Group key that generated the condition.
Route Key	Numeric	The entity key of the Route containing the Checkpoint condition	This field is populated automatically by the Route of which the condition is a part.
Type	Character	The type of Checkpoint condition	This field is populated by the predecessor Checkpoint record of the Condition record.

Checkpoint Task Records

Checkpoint Task records store details on the schedule on which a Checkpoint should be executed. This topic provides an alphabetical list and description of the fields that exist for the Checkpoint Task family. The information in the table reflects the baseline state and behavior of these fields. This list is not comprehensive.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site and will only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. For more information, refer to the Sites section of the documentation.

Field	Data Type	Description	Behavior and Usage
Last Date	Date	The date on and time at which the last reading was recorded for this Checkpoint	This field is populated automatically after a Reading is created and linked to the Measurement Location to which the Checkpoint Task is linked, with the value in the Reading Taken Date field of the Reading.
Next Date	Date	The date on and time at which the next reading for this Checkpoint becomes due	This field is populated automatically based on the values in the Schedule field and the Last Date field. If the Last Date field is empty, the value in the Next Date field is calculated as the next date and time that meets the defined schedule after the current date and time.
Non-compliance Date	Date	The date and time after which the reading will be considered non-compliant	This field is populated automatically based on the values in the Schedule and the Next Date fields. By Default, Non-Compliance Date value is populated as: Next Date Value + Non Compliance Date Interval (in days). If Non Compliance Date Interval is absent, then Next Compliance Date value is populated as: Next Date + Schedule Interval.
Non-Complinace Date Interval	Numeric	The Non Compliance Date Interval (in days) added to Next Date to get the Non-Compliance Date	This field is not populated automatically. If Non Compliance Date Interval is absent, then Next Compliance Date value is populated as: Next Date + Schedule Interval.
Non-Compliance Next Check Date	Date	The date after which the Checkpoint is checked again for Compliance	By Default, Non-Compliance Next Check Date value is = Non-Compliance Date

Field	Data Type	Description	Behavior and Usage
Schedule	Character	The schedule by which you want to take readings for this Checkpoint.	This field contains an ellipsis button that you can select to access the **Edit Schedule** window, where you can define the schedule for the associated Checkpoint.
Task ID	Character	The ID of the Checkpoint Task	This field is populated automatically with a value in the format CP-<n>, where <n> is a number representing the number of Checkpoint Tasks that have been initiated (even if they were not actually saved). You can change the value, if needed.

Checkpoint Template Records

Checkpoint Template records store details about Checkpoint templates that can be used to create Checkpoints on a Route. This topic provides an alphabetical list and description of the fields that exist for the Checkpoint Template family. The information in the table reflects the baseline state and behavior of these fields. This list is not comprehensive.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site and will only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. For more information, refer to the Sites section of the documentation.

Field	Data Type	Description	Behavior and Usage
Automatically create health indicator	Boolean	Indicates whether a health indicator will be created automatically	In the datasheet, this field appears as a check box labeled **Automatically create health indicator**. When selected, a health indicator will be created automatically when the Checkpoint is created.
Checkpoint Locked	Boolean	Indicates whether or not a Checkpoint will be locked until the device user scans the associated barcode	In the datasheet, this field appears as the **Scan to Unlock?** check box. When this field is set to: • True, the device user must scan the barcode associated with a Checkpoint that was created from the Checkpoint template before recording readings. • False, the device user does not have to scan the barcode associated with a Checkpoint that was created from the Checkpoint template before recording readings. **Note:** • This feature is not available on tablet devices. • The Scan to Unlock functionality is currently activated in the following versions: ◦ 4.5.0.0.0 ◦ 4.3.0.7.x with patch 10 activated in the release
Content GUID Char	Character	Character value of system field Content GUID	You can use this field to create a query that links a Checkpoint to its related Checkpoint template.
Description	Character	A description of the template	In this box, you can enter a description of the action users will be completing when they enter readings for this Checkpoint.
Include as Health Indicator Source	Boolean	Indicates whether a potential health indicator source is used to create health indicators.	In the datasheet, this field appears as a check box labeled **Include as Health Indicator Source**. When this check box is selected, health indicators are created for the selected source. When the check box is cleared, health indicators are not created for the selected source.

Field	Data Type	Description	Behavior and Usage
Non Compliance Date Interval	Numeric	The number of days without a reading before the Checkpoint is considered non-compliant	You can enter a positive integer in this field. If the Non Compliance Date Interval field is blank, the Next Compliance Date value is populated with the combined values of the Next Date field in the Checkpoint Task family and the Schedule Interval, which is part of the Schedule field in the Checkpoint Task family.
Requires Equipment Shutdown	Boolean	Indicates whether or not the equipment requires shutdown	In the datasheet, this field appears as a check box, which is cleared by default.
Schedule	Character	The schedule by which you want to take readings for the Checkpoint template	You can select ⚙ to view the **Schedule** window, where you can define the schedule for the Checkpoint template.
Status	Character	The status of the Checkpoint	In the datasheet, this field appears as a list that is populated by the MI_FDC_STATUS_TYPE System Code Table. It is labeled **Status** and contains the following values: • Active • Inactive You can select a value from the list. The value in this field is set to Active by default. Inactive Checkpoints will not appear in the **Data Collection** page.

Field	Data Type	Description	Behavior and Usage
Template ID	Character	The ID for the template	A value is required and must be unique. If you enter a value that is not unique to the Checkpoint template, a message appears indicating that the ID already exists.
Unit of Measure	Character	The unit of measure that users can specify when entering a numeric reading value for the Checkpoint	This field appears as a list that is populated by the UOME System Code Table. This field is disabled if the value in the ML Type field in the Measurement Location family is set to Character, or if the value in the LR Type field in the Lubrication Requirement family is set to Check Off. **Note:** Rounds does not use the Units of Measure Conversions feature. The system code table UOME is the only source for populating drop-down list values within UOM fields. The UOM field for a Measurement Location contains all the values from the UOME system code table, sorted by their descriptions. The UOM field for a Lubrication Requirement contains a subset of values from the UOME system code table based on specific reference values from the MI_LM_REFERENCES system code table.

Lubricant Records

This topic provides an alphabetical list and description of the fields that exist for the Lubricant family. The information in the table reflects the baseline state and behavior of these fields. This list is not comprehensive.

Lubricant records serve as a means for organizing all the lubricants that are used by your company. When you create a Lubricant record, the values that you enter in these fields will be used to populate the corresponding lists on the Lubrication Requirement datasheet, where you can select the necessary values from a list.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site and will only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. For more information, refer to the Sites section of the documentation.

Field	Data Type	Description	Behavior and Usage
Description	Character	Description of the lubricant	You can enter a value in this field.
Flash Point	Numeric	Flash point of the lubricant	You can enter a value in this field.
Flash Point UOM	Character	The unit of measurement of the Flash point of the lubricant	On the datasheet, this field appears as a list that is populated by the MI_LUBRICANT_REFERENCES system code table. **Note:** Rounds does not use the Units of Measure Conversions feature. The system code table UOME is the only source for populating drop-down list values within UOM fields. The UOM field for a Lubrication Requirement contains a subset of values from the UOME system code table based on specific reference values from the MI_LM_REFERENCES system code table.
ISO Grade	Character	Viscosity grading of the lubricant	You can enter a value in this field.
Lubricant	Character	The name of the lubricant	You can enter a value in this field.
Lubricant Type	Character	The type of lubricant	On the datasheet, this field appears as a list that is populated by the MI_LUBR_TYPE system code table.

Field	Data Type	Description	Behavior and Usage
Manufacturer	Numeric	The manufacturer of the lubricant	On the datasheet, this field appears as a list that is populated with the values stored in the Manufacturer Name field in existing Lubricant Manufacturer records. This field displays the Manufacturer Name, but stores the Entity Key of the corresponding Lubricant Manufacturer record. If you are creating multiple Lubricant records, you may select the same or different manufacturers for each.
Manufacturer's Part Number	Character	Manufacturer part number of the lubricant	You can enter a value in this field.
Material Number	Character	Material number of the Lubricant (for example, the material number used in your EAM system)	You can enter a value in this field.
Notes	Character	Any notes necessary for the lubricant	You can enter a value in this field.
Storage Location	Character	Location where the lubricant is stored	You can enter a value in this field.
Trade Name	Character	Brand name of the lubricant	You can enter a value in this field.
Viscosity Rating	Character	Viscosity index of the lubricant	You can enter a value in this field.

Lubricant Manufacturer Records

Lubricant Manufacturer records store details about the manufacturer of a lubricant. This topic provides an alphabetical list and description of the fields that exist for the Lubricant Manufacturer family. The information in the table reflects the baseline state and behavior of these fields.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site and will only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. For more information, refer to the Sites section of the documentation.

Field	Data Type	Description	Behavior and Usage
Manufacturer ID	Character	The ID that you want to use to identify a lubricant manufacturer	This field is required and must be unique.
Manufacturer Name	Character	The name of a lubricant manufacturer	This field is required and must be unique. This field is used to populate the list in the Manufacturer field of Lubricant records.
Manufacturer Description	Character	A description of the lubricant manufacturer	This field is optional.

Lubrication Component Records

Lubrication Component records store information about lubrication components and provide values for drop-down lists used in the Lubrication Requirement and Lubrication Requirement Template families. This topic provides an alphabetical list and description of the fields that exist for the Lubrication Component family and appear on the Lubrication Component datasheet. The information in the table reflects the baseline state and behavior of these fields.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site and will only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. For more information, refer to the Sites section of the documentation.

Field	Data Type	Description	Behavior and Usage
Component Sub Type	Character	The sub type of a lubrication component type	The values in this field populate the **Component Sub-Type** lists on Lubrication Requirement and Lubrication Requirement Template datasheets.
Component Type	Character	The type of lubrication component	Organizes records in the Lubrication Component family into distinct groups. The values in this field populate the **Component** lists on Lubrication Requirement and Lubrication Requirement Template datasheets.

Field	Data Type	Description	Behavior and Usage
Description	Character	The description of the lubrication component type or sub type	If there is a value in the corresponding Component Sub Type field, then the value in this field is a description of the Component Sub Type. However, if the corresponding Component Sub Type field is empty, then the value in this field is a description of the Component Type.
ID	Character	A unique value that identifies the lubrication component	This field is required and must be unique.

Lubrication Management Recommendation Record

This topic provides an alphabetical list and description of the fields that exist for the Lubrication Management Recommendations. The information in the table reflects the baseline state and behavior of these fields. This list is not comprehensive.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site and will only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. For more information, refer to the Sites section of the documentation.

Field	Data Type	Description	Behavior and Usage
Asset ID	Numeric	The ID of the Asset for which the recommendation is being made	This is Unique for a particular equipment.
Assigned To Name	Text	Name of the person responsible for ensuring the recommendation is implemented	Enter the name of the person to whom would be responsible for ensuring the recommendation is implemented.
Author Name	Text	Name of the person proposing the recommendation	You can enter the name of the user to which the recommendation is associated.
Create Work Request?	Check box	Enables a work request	All the other Work request details are enabled after the check box is selected.
Final Approver Name	Text	Name of the individual ultimately responsible for approving the recommendation and the associated expenditure	You can pick a user from the list as an approver.

Field	Data Type	Description	Behavior and Usage
Recommendation Basis	Text	The background as to why the recommendation is being made	You can type in the description in the text box.
Recommendation Description	Text	Details of the recommendation	You can type in the description in the text box.
Recommendation Headline	Text	A brief summary of the recommendation subject	Disabled after the author has set the author lock.
Recommendation ID	Text	The unique ID for the Recommendation	This is unique.
Recommendation Priority	Picklist	The priority of recommendation for implementation	Enter the value from the list that best represents the priority of recommendation for implementation. • High • Medium • Low
Required Equipment Status	Character	The operating state the Equipment or Functional Location needs to be in, in order to implement the recommendation	None
Reviewer Name	Text	Name of the individual responsible for reviewing and endorsing the recommendation	You can pick a user as a reviewer from the list.
Target Completion Date	Date	Date by which the recommendation is intended to be implemented	User to select a date from the calendar.
Technical Number	Numeric	Number associated with the equipment and recommendation request	This number is unique.
Work Request Equipment	Character	The work request associated with Equipment	This is populated automatically.
Work Request Functional Location	Character	The work request associated with the Functional Location record	This is populated automatically.
Work Request Reference	Numeric	The ID of the work request that may be associated with the recommendation	This is populated automatically.

Lubrication Requirement Records

Lubrication Requirement records store details about Checkpoints on a Route. This topic provides an alphabetical list and description of the fields that exist for the Lubrication Requirements family. The information in the table reflects the baseline state and behavior of these fields. This list is not comprehensive.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site and will only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. For more information, refer to the Sites section of the documentation.

Field	Data Type	Description	Behavior and Usage
Asset Description	Character	A description of the equipment or location represented by the Equipment or Functional Location to which you want to link the Lubrication Requirement	On the datasheet, this field appears as a text box labeled **Asset Description**. When the Lubrication Requirement is linked to: • An Equipment, this field is populated automatically with the value in the Equipment Short Description field in the linked Equipment. • A Functional Location, this field is populated automatically with the value in the Functional Location Description field in the linked Functional Location. If you do not want APM to populate the field automatically, you can enter a description for the equipment or location directly into the **Asset Description** cell.
Asset ID	Character	The ID of the Equipment or Functional Location to which you want to link the Lubrication Requirement	On the datasheet, this field appears as a text box labeled **Asset ID**. When the Lubrication Requirement is linked to: • An Equipment, this field is populated automatically with the value in the Equipment ID field in the linked Equipment. • A Functional Location, this field is populated automatically with the value in the Functional Location field in the linked Functional Location.
Capacity	Number	A number representing the amount of lubricant that the component will hold	You can enter a value in this field.

Field	Data Type	Description	Behavior and Usage
Capacity Unit of Measure	Character	A value representing the UOM associated with the value in the Capacity field	On the datasheet, this field appears as list that is populated by the MI_LM_REFERENCES system code table.
Checkpoint ID	Character	The ID of the Checkpoint for the Lubrication Requirement	You can enter a value in this field.
Component Sub Type	Character	The subtype of a lubrication component type	On the datasheet, this field appears as a list labeled **Component Subtype** and is populated with the values stored in the Component Sub Type field in the existing Lubrication Component records. This list is filtered by the value that you select in the **Component** list.
Component Type	Character	The type of lubrication component	On the datasheet, this field appears as a list labeled **Component** and is populated with the values stored in the Component Type field in the existing Lubrication Component records.
Description	Character	A description of the Checkpoint	On the datasheet, this field appears as a text box labeled **LR Description**. In this box, you can enter a description of the action users will be completing when they enter readings for this Checkpoint. This is a required field.
LR Type	Character	The type of data that users can enter when creating a Reading linked to the Lubrication Requirement	On the datasheet, this field appears as a list that is populated by the MI_LM_LUBR_REQ_TYPE system code table.

Field	Data Type	Description	Behavior and Usage
Lubricant	Character	The lubricant that is required for this Checkpoint	On the datasheet, this field appears as a list labeled **Lubricant** and is populated with the values stored in the Lubricant field in the existing Lubricant records. This list is filtered by the values that you select in the **Lubricant Manufacturer** and **Lubricant Type** lists.
Lubricant Manufacturer	Character	The company that manufactures the lubricant that users should use when completing this Checkpoint	On the datasheet, this field appears as a list labeled **Lubricant Manufacturer** and is populated with the values stored in the Lubricant Manufacturer field in the existing Lubricant records. This list is filtered by the values that you select in the **Lubricant** list. If you have not yet selected a lubricant, the list is filtered based on the possible lubricants that you could select.
Lubricant Type	Character	The type of Lubricant	On the datasheet, this field appears as a list that is populated by the MI_LUBR_TYPE system code table.
Method Sub Type	Character	The subtype of a lubrication method type	On the datasheet, this field appears as a list labeled **Method Sub Type** and is populated with the values stored in the Sub Type field in the existing Lubrication Method records. This list is filtered by the values that you select in the **Lubricant** and **Method Type** lists.

Field	Data Type	Description	Behavior and Usage
Method Type	Character	The method by which the lubricant must be applied	On the datasheet, this field appears as a list labeled **Method Type** and is populated with the values stored in the Type field in the existing Lubrication Method records. This list is filtered by the value that you select in the **Lubricant** list.
Number of Points	Character	The number of points on the component that requires lubrication	You can enter the number of points that require lubrication. For example, if the component is an axle, you might enter 2 in this field.
Priority	Character	A value representing the priority associated with the lubrication requirement	On the datasheet, this field appears as a list that is populated by the MI_LUBR_PRIORITY system code table.
Related Ref Doc Image Key	Numeric	The entity key of a reference document	On the datasheet, this field appears as a text box labeled **Checkpoint Image** in which you can enter or select a reference document image that will be downloaded to a device and displayed when you access a checkpoint in Rounds Data Collection.
Requires Equipment Shutdown	Boolean	Indicates whether the equipment requires shutdown	On the datasheet, this field appears as a check box, which is cleared by default.
Status	Character	The status of the Lubrication Requirement	On the datasheet, this field appears as a list labeled **Status** and contains the following values: • Active • Inactive This field contains the value Active by default. Inactive Lubrication Requirement records will not appear in **Data Collection** pages.

Field	Data Type	Description	Behavior and Usage
Template	Character	The Lubrication Requirement Template that you want to use to populate fields in the Lubrication Requirement	On the datasheet, this field appears as a list displaying the Template IDs of the Lubrication Requirement Template records in your database. When you select a value, other fields in the record will be populated automatically based on the values in that template.

After you save a Lubrication Requirement, the Content GUID of the selected Lubrication Requirement Template record is stored in the Template field, and the field is disabled. |
| Unit of Measure | Character | The unit of measure that you can specify when entering a numeric reading value for a Checkpoint | On the datasheet, this field appears as a list that is populated by the MI_LM_REFERENCES system code table. This field is disabled if the value in the LR Type field is Check Off.

Note:

Rounds does not use the Units of Measure Conversions feature. The system code table UOME is the only source for populating drop-down list values within UOM fields.

The UOM field for a Lubrication Requirement contains a subset of values from the UOME system code table based on specific reference values from the MI_LM_REFERENCES system code table. |

Lubrication Requirement Template Records

Lubrication Requirement Template records can be used to create Lubrication Requirement records and contain all the fields included in Lubrication Requirement records, with the exception of the Template field in the Lubrication Requirement record. In addition, Lubrication Requirement Template records include the additional field Template ID, which stores the ID for the template. This value appears in the Template field in the Lubrication Requirement record.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site and will only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. For more information, refer to the Sites section of the documentation.

Measurement Location Records

Measurement Location records store details about Checkpoints on a Route. This topic provides an alphabetical list and description of the fields that exist for the Measurement Location family. The information in the table reflects the baseline state and behavior of these fields. This list is not comprehensive.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site and will only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. For more information, refer to the Sites section of the documentation.

Field	Data Type	Description	Behavior and Usage
Allowable Values	Character	The values the user can select when entering a reading for this Checkpoint	On the datasheet, this field appears as a list labeled **Allowable Values** and contains all the values in the Value field in the Operator Rounds Allowable Values family whose type values match the value stored in the **ML Type** and **Category** lists in the Measurement Location. To select or clear the field, select the value in the list. The indication that a value is selected is the vertical blue line to the left of the value.

For example, suppose you select **Character** in the **ML Type** list and **Pump Check** in the **Category** list in a Measurement Location. If four allowable values contain the value **Character** in their Type field and **Pump Check** in their Category field, the **Allowable Values** list on the Measurement Location datasheet will contain the values in the Value field of those four allowable values.

The values in this list are also used to populate the **Numeric** and **Character** lists on the **Limit Values** section of the ML Task View datasheet. These values are used to set up alerts that will be displayed to device users if they enter a certain reading value.

In the **Action** section of the ML datasheet, the user can add Action Taken values to a list for any Measurement Location separately for the Limit Values.

If you clear a check box from the **Allowable Values** list and the corresponding allowable value is used in the **Limit Values** section, that allowable value will automatically be removed from the **Limit Values** section. |

Field	Data Type	Description	Behavior and Usage
Allowable Values Temp	Character	Temporary field used by family policies to store values as they are being updated	By default, this field does not appear on the datasheet, and users cannot enter values into this field. The field is latent unless the Before Update and After Update Family Policies in the Operator Rounds Allowable Values family are activated. If these family policies are activated, this field temporarily stores Allowable Value changes during an update.
Asset	Character	The Equipment or Functional Location which the user can add for the ML	On the datasheet, you can link an Equipment or a Functional Location to the Measurement Location. Depending on the selection, the Asset field is populated automatically. Also, the Asset Description, Asset ID fields are also populated.
Asset Description	Character	A description of the equipment or location represented by the Equipment or Functional Location to which you want to link the Measurement Location	When the Measurement Location is linked to: • An Equipment, this field is populated automatically with the value in the Equipment Short Description field in the linked Equipment. • A Functional Location, this field is populated automatically with the value in the Functional Location Description field in the linked Functional Location. If you do not want APM to populate the field automatically, you can enter a description for the equipment or location directly into the **Asset Description** cell.
Asset ID	Character	An ID of the equipment or location represented by the Equipment or Functional Location to which you want to link the Measurement Location	This field is populated automatically.

Field	Data Type	Description	Behavior and Usage
Automatically create health indicator	Boolean	Indicates whether a health indicator will be created automatically	In the datasheet, this field appears as a check box labeled **Automatically create health indicator**. When selected, a health indicator will be created automatically when the Checkpoint is created.
Category	Character	The category to which the Checkpoint belongs	On the datasheet, this field appears as a list labeled **Category** and contains the values that are defined in the Category field in the Operator Rounds Allowable Values family whose type matches the value that is stored in the ML Type field in the Measurement Location. You can select a value from the list. For example, if you select **Character** in the **ML Type** list in a Measurement Location and four allowable values contain the value Character in their Type fields, the **Category** list on the Measurement Location datasheet will contain the values in the Category field of those four allowable values.
Category Temp	Character	Temporary field used by family policies to store values as they are being updated	By default, this field does not appear on the datasheet, and users cannot enter values into this field. The field is latent unless the Before Update and After Update Family Policies in the Operator Rounds Allowable Values family are activated. If these family policies are activated, this field temporarily stores Category changes during an update.
Checkpoint ID	Character	The ID of the Checkpoint for the Measurement Location	You can enter a value in this field.

Field	Data Type	Description	Behavior and Usage
Checkpoint Locked	Boolean	Indicates whether a Checkpoint should be locked on the Windows Mobile Device until the device user scans the associated barcode	On the datasheet, this field appears as a check box labeled **Scan to Unlock?**. When this field is set to: • True, the device user must scan the barcode associated with a Measurement Location before recording readings. • False, the device user does not have to scan the barcode associated with a Measurement Location before recording readings. This field is disabled when the Scan ID field is disabled. **Note:** This feature is not supported on tablet devices.
Description	Character	A description of the Checkpoint	On the datasheet, this field appears as a text box labeled **ML Description**. In this box, you can enter a description of the action users will be completing when they enter readings for this Checkpoint (e.g., Pump Check, Vibration Check, or Temperature Check). This is a required field.

Field	Data Type	Description	Behavior and Usage
Download Stored Document	Boolean	Indicates whether the Reference Documents associated with a route will be downloaded to a Windows CE mobile device	On the datasheet, this field appears as a check box. By default, this field is set to: • False, when the combined file size of the associated reference document files is greater than 2 MB. When this field is set to False, the associated files will not be downloaded to the device. • True, when the combined file size of the associated reference document files is less than or equal to 2 MB. When this field is set to True, the associated files will be downloaded to the device. **Note:** Document download is not supported on tablet devices. However, tablet devices can open document types, regardless of file size, when connected to the APM Server.
Equipment Technical Number	Character	The Equipment Technical Number of the Equipment	On the datasheet, this field appears as a text box labeled **Equipment Technical Number**. If the Measurement Location is linked to an Equipment, this field is populated automatically with the value stored in the Equipment Technical Number field in the Equipment.
Include as Health Indicator Source	Boolean	Indicates whether a potential health indicator source is used to create health indicators.	In the datasheet, this field appears as a check box labeled **Include as Health Indicator Source**. When this check box is selected, health indicators are created for the selected source. When the check box is cleared, health indicators are not created for the selected source.

Field	Data Type	Description	Behavior and Usage
Maximum Target Value	Numeric	A number representing the highest target reading value that is acceptable for the Checkpoint	On the datasheet, this field appears as a text box labeled **Maximum Target Value**, in which you can enter a number. Together, the value stored in this field and the value stored in the Minimum Target Value field define a target range that appears on the More Information screen on a Windows Mobile device. **Note:** This feature is not supported on tablet devices. This field is disabled when the value in the ML Type field contains **Character**. A rule exists on this field that will compare the value you enter in the Maximum Target Value field with the value you enter in the Minimum Target Value field. If you enter a value in the Maximum Target Value field that is less than the value in the Minimum Target Value field, a message will appear, indicating that the value must be greater than the value in the Minimum Target Value.

Field	Data Type	Description	Behavior and Usage
Maximum Valid Value	Numeric	A number representing the highest reading value that is acceptable for the Checkpoint	On the datasheet, this field appears as a text box labeled Maximum Valid Value, in which you can enter a number. This value is used by the mobile device to check the reading value that is entered by the device user and display a message if the value they enter is higher than this value. Together, this value and the value in the Minimum Valid Value field define the valid value parameters for a reading. **Note:** This feature is not supported on tablet devices. This field is disabled when the ML Type field contains Character. A rule exists on this field that will compare the value you enter in the Maximum Valid Value field with the value you enter in the Minimum Valid Value field. If you enter a value in the Maximum Valid Value field that is less than the value in the Minimum Valid Value field, a message will appear, indicating that the value must be greater than the value in the Minimum Valid Value.

Field	Data Type	Description	Behavior and Usage
Minimum Target Value	Numeric	A number representing the lowest target reading value that is acceptable for the Checkpoint	On the datasheet, this field appears as a text box labeled **Minimum Target Value**, in which you can enter a number. Together, the value stored in this field and the value stored in the Maximum Target Value field define a target range that appears on the **More Information** screen on the mobile device. **Note:** This feature is not supported on tablet devices. This field is disabled when the value in the ML Type field contains Character. A rule exists on this field that will compare the value you enter in the Maximum Target Value field with the value you enter in the Minimum Target Value field. If you enter a value in the Minimum Target Value field that is greater than the value in the Maximum Target Value field, a message will appear, indicating that the value must be less than the value in the Maximum Target Value.

Field	Data Type	Description	Behavior and Usage
Minimum Valid Value	Numeric	A number representing the lowest reading value that is acceptable for the Checkpoint	On the datasheet, this field appears as a text box labeled **Minimum Valid Value**, in which you can enter a number. This value is used by the mobile device to check the reading value that is entered by the device user and display a message if the value they enter is lower than this value. Together, this value and the value in the Maximum Valid Value field define the valid reading value parameters for a Checkpoint. **Note:** This feature is not supported on tablet devices. This field is disabled when the ML Type field contains Character. A rule exists on this field that will compare the value you enter in the Maximum Valid Value field with the value you enter in the Minimum Valid Value field. If you enter a value in the Minimum Valid Value field that is greater than the value in the Maximum Valid Value field, a message will appear, indicating that the value must be less than the value in the Maximum Valid Value.
ML Type	Character	The type of data that users can enter when creating a Reading linked to the Measurement Location	On the datasheet, this field appears as a list labeled **ML Type** and contains the following values: • Character. If you select Character, users can record any reading value for this Checkpoint. • Numeric. If you select Numeric, they must record a numeric reading value for this Checkpoint.

Field	Data Type	Description	Behavior and Usage
More Information	Character	Additional instructions about the Checkpoint that you want to be displayed on the **Data Collection** page	This field appears on the **Data Collection** page and is labeled **Additional Instructions** on that page.
Product	Character	The product produced by the piece of equipment that is associated with this Checkpoint	On the datasheet, this field appears as a cell. You can enter a value directly in the **Product** cell. You can use this field to differentiate which Checkpoint is relevant depending on the current product for equipment that is used to produce multiple products. The field would be used as a filter in a customized download query to include only the relevant Checkpoints depending on the current product. This feature is only supported for Windows CE mobile devices that use a customizable download query. **Note:** This feature is not supported on tablet devices.
Related Asset Id	Character	The ID of the Equipment or Functional Location to which you want to link the Measurement Location	On the datasheet, this field appears as a text box labeled **Asset ID**. When the Measurement Location is linked to: • An Equipment, this field is populated automatically with the value in the Equipment ID field in the linked Equipment. • A Functional Location, this field is populated automatically with the value in the Functional Location field in the linked Functional Location.

Field	Data Type	Description	Behavior and Usage
Related Ref Doc Image Key	Numeric	The entity key of a reference document	On the datasheet, this field appears as a text box labeled **Checkpoint Image** in which you can enter or select a reference document image that will be downloaded to a device and displayed when you access a checkpoint in Rounds Data Collection.
Requires Equipment Shutdown	Logical	Indicates whether the equipment requires shutdown	On the datasheet, this field appears as a check box, which is cleared by default.
Scan ID	Character	The ID of the barcode that identifies the Checkpoint	This field is enabled only when you are working with a Measurement Location that is linked directly to a Route, (i.e., it is disabled when you are working with a Measurement Location that is linked to a predecessor Checkpoint Condition). If you have assigned a Scan ID to the Equipment or Functional Location linked to the Measurement Location, the Scan ID field on the Measurement Location datasheet will be populated with the same Scan ID that appears in the Equipment or Functional Location.
Status	Character	The status of the Measurement Location	On the datasheet, this field appears as a list labeled **Status** and contains the following values: • Active • Inactive You can select a value from the list. This field contains the value Active by default. Inactive Measurement Locations will not appear on **Data Collection** pages.

Field	Data Type	Description	Behavior and Usage
Template	Character	The Measurement Location Template that you want to use to populate fields in the Measurement Location	On the datasheet, this field appears as a list displaying the Template IDs of the Measurement Location Template records in your database. When you select a value, other fields in the record will be populated automatically based on the values in that template. After you save a Measurement Location, the Content GUID of the selected Measurement Location Template record is stored in the Template field, and the field is disabled.
Unit of Measure	Character	The unit of measure that users can specify when entering a numeric reading value for the Checkpoint	On the datasheet, this field appears as a list labeled **Unit of Measure**. You can select a value from the list. This field is disabled if the ML Type field contains the value Character. **Note:** Rounds does not use the Units of Measure Conversions feature. The system code table UOME is the only source for populating drop-down list values within UOM fields. The UOM field for a Measurement Location contains all the values from the UOME system code table, sorted by their descriptions.

Measurement Location Template Records

Measurement Location Template records store details about measurement location templates that can be used to create Checkpoints on a Route. This topic provides an alphabetical list and description of the fields that exist for the Measurement Location Template family. The information in the table reflects the baseline state and behavior of these fields. This list is not comprehensive.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site and will only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. For more information, refer to the Sites section of the documentation.

Note: For more information on Measurement Location Template family fields, refer to the reference information for the matching fields in the Measurement Location family.

Field	Data Type	Description	Behavior and Usage
Allowable Values	Character	The values the user can select when entering a reading for the Checkpoint created from the template	On the datasheet, this field appears as a list labeled **Allowable Values** and contains all the values in the Value field in the Operator Rounds Allowable Values family whose type and category values match the values stored in the **ML Type** and **Category** lists in the Measurement Location Template. You can select values in this list to indicate that the corresponding allowable value should appear on the device for a Checkpoint created from the template. For example, suppose you select **Character** in the **ML Type** list and **Pump Check** in the Category list in a Measurement Location Template. If four allowable values contain the value Character in their Type fields and Pump Check in their Category fields, the **Allowable Values** list on the Measurement Location Template datasheet will contain the values in the Value fields of those four allowable values. The values in this list are also used to populate the **Numeric** and **Character** lists on the **Limit Values** section of the ML Task View datasheet. These values are used to set up alerts that will be displayed to device users if they enter a certain reading value. On the **Action** section of the ML datasheet, the user can add Action Taken values to a list for any Measurement Location Template separately for the Limit Values.

Field	Data Type	Description	Behavior and Usage
Allowable Values Temp	Character	Temporary field used by family policies to store values as they are being updated	By default, this field does not appear on the datasheet, and users cannot enter values into this field. The field is latent unless the Before Update and After Update Family Policies in the Operator Rounds Allowable Values family are activated. If these family policies are activated, this field temporarily stores Allowable Value changes during an update.
Category	Character	The category to which the Checkpoint belongs	On the datasheet, this field appears as a list labeled **Category** and contains the values that are defined in the Category field in the Operator Rounds Allowable Values family whose type matches the value that is stored in the ML Type field in the Measurement Location. You can select a value from the list. For example, if you select **Character** in the **ML Type** list in a Measurement Location and four allowable values contain the value Character in their Type fields, the **Category** list on the Measurement Location datasheet will contain the values in the Category field of those four allowable values.
Category Temp	Character	Temporary field used by family policies to store values as they are being updated	By default, this field does not appear on the datasheet, and users cannot enter values into this field. The field is latent unless the Before Update and After Update Family Policies in the Operator Rounds Allowable Values family are activated. If these family policies are activated, this field temporarily stores Category changes during an update.

Field	Data Type	Description	Behavior and Usage

Checkpoint Locked	Boolean	Indicates whether a Checkpoint will be locked on a Windows Mobile Device until the device user scans the associated barcode	On the datasheet, this field appears as a check box labeled **Scan to Unlock?**.
			
			On the datasheet, this field appears as a check box labeled **Scan to Unlock?**. This field is populated automatically in new Measurement Locations that are created from the Measurement Location Template. If you modify this value, it is not updated automatically in Measurement Locations that were created from the Measurement Location Template. When this field is set to:
			
			• True, the device user must scan the barcode associated with a Measurement Location that was created from the Measurement Location Template before recording readings.
			• False, the device user does not have to scan the barcode associated with a Measurement Location that was created from the Measurement Location Template before recording readings.
			
			Note:
			
			• This feature is not available on tablet devices.
			• The Scan to Unlock functionality is currently activated in the following versions:
			  ◦ 4.5.0.0.0
			  ◦ 4.3.0.7.x with patch 10 activated in the release

Field	Data Type	Description	Behavior and Usage
Content Guid Char	Character	Character value of system field Content GUID	You can use this field to create a query that links a Checkpoint to its related Checkpoint template. This field is inherited from the Checkpoint Template family.
Description	Character	A description of the template	On the datasheet, this field appears as a text box labeled **ML Description**. In this box, you can enter a description of the action users will be completing when they enter readings for this Checkpoint (e.g., Pump Check, Vibration Check, or Temperature Check). This is a required field.
Include as Health Indicator Source	Boolean	Indicates whether a potential health indicator source is used to create health indicators.	In the datasheet, this field appears as a check box labeled **Include as Health Indicator Source**. When this check box is selected, health indicators are created for the selected source. When the check box is cleared, health indicators are not created for the selected source.

Field	Data Type	Description	Behavior and Usage
Maximum Target Value	Numeric	A number representing the highest target reading value that is acceptable for the Checkpoint	On the datasheet, this field appears as a text box labeled **Maximum Target Value**, in which you can enter a number. Together, the value stored in this field and the value stored in the Minimum Target Value field define a target range that appears on the More Information screen on a Windows Mobile device. **Note:** This feature is not supported on tablet devices. This field is disabled when the value in the ML Type field contains **Character**. A rule exists on this field that will compare the value you enter in the Maximum Target Value field with the value you enter in the Minimum Target Value field. If you enter a value in the Maximum Target Value field that is less than the value in the Minimum Target Value field, a message will appear, indicating that the value must be greater than the value in the Minimum Target Value.

Field	Data Type	Description	Behavior and Usage
Maximum Valid Value	Numeric	A number representing the highest reading value that is acceptable for the Checkpoint	On the datasheet, this field appears as a text box labeled **Maximum Valid Value**, in which you can enter a number. This value is used by the mobile device to check the reading value that is entered by the device user and display a message if the value they enter is higher than this value. Together, this value and the value in the Minimum Valid Value field define the valid value parameters for a reading. **Note:** This feature is not supported on tablet devices. This field is disabled when the ML Type field contains Character. A rule exists on this field that will compare the value you enter in the Maximum Valid Value field with the value you enter in the Minimum Valid Value field. If you enter a value in the Maximum Valid Value field that is less than the value in the Minimum Valid Value field, a message will appear, indicating that the value must be greater than the value in the Minimum Valid Value.

Field	Data Type	Description	Behavior and Usage
Minimum Target Value	Numeric	A number representing the lowest target reading value that is acceptable for the Checkpoint	On the datasheet, this field appears as a text box labeled **Minimum Target Value**, in which you can enter a number. Together, the value stored in this field and the value stored in the Maximum Target Value field define a target range that appears on the **More Information** screen on the mobile device. **Note:** This feature is not supported on tablet devices. This field is disabled when the value in the ML Type field contains Character. A rule exists on this field that will compare the value you enter in the Maximum Target Value field with the value you enter in the Minimum Target Value field. If you enter a value in the Minimum Target Value field that is greater than the value in the Maximum Target Value field, a message will appear, indicating that the value must be less than the value in the Maximum Target Value.

Field	Data Type	Description	Behavior and Usage
Minimum Valid Value	Numeric	A number representing the lowest reading value that is acceptable for the Checkpoint	On the datasheet, this field appears as a text box labeled **Minimum Valid Value**, in which you can enter a number. This value is used by the mobile device to check the reading value that is entered by the device user and display a message if the value they enter is lower than this value. Together, this value and the value in the Maximum Valid Value field define the valid reading value parameters for a Checkpoint. **Note:** This feature is not supported on tablet devices. This field is disabled when the ML Type field contains Character. A rule exists on this field that will compare the value you enter in the Maximum Valid Value field with the value you enter in the Minimum Valid Value field. If you enter a value in the Minimum Valid Value field that is greater than the value in the Maximum Valid Value field, a message will appear, indicating that the value must be less than the value in the Maximum Valid Value.
ML Type	Character	The type of data that users can enter when creating a Reading linked to the Measurement Location	On the datasheet, this field appears as a list labeled **ML Type** and contains the following values: • Character. If you select Character, users can record any reading value for this Checkpoint. • Numeric. If you select Numeric, they must record a numeric reading value for this Checkpoint.

Field	Data Type	Description	Behavior and Usage
More Information	Character	Additional instructions about the Checkpoint that you want to be displayed on the **Data Collection** page	This field appears on the **Data Collection** page and is labeled **Additional Instructions** on that page.
Non-Compliance Date Interval	Numeric	It is the Non Compliance Date Interval (in days) added to Next Date to get the Non-Compliance Date	This field is not populated automatically. If Non Compliance Date Interval is absent, then Next Compliance Date value is populated as: Next Date + Schedule Interval.
Product	Character	The product produced by the piece of equipment that is associated with this Checkpoint	On the datasheet, this field appears as a cell. You can enter a value directly in the **Product** cell. You can use this field to differentiate which Checkpoint is relevant depending on the current product for equipment that is used to produce multiple products. The field would be used as a filter in a customized download query to include only the relevant Checkpoints depending on the current product. This feature is only supported for Windows CE mobile devices that use a customizable download query. **Note:** This feature is not supported on tablet devices.
Requires Equipment Shutdown	Boolean	Indicates whether the equipment requires shutdown	On the datasheet, this field appears as a check box, which is cleared by default.
Schedule	Character	The schedule by which you want to take readings for the Measurement Location Template	This field contains a ellipsis button that you can select to view the **Schedule** window, where you can define the schedule for the Measurement Location Template.

Field	Data Type	Description	Behavior and Usage
Status	Character	The status of the Measurement Location	On the datasheet, this field appears as a list labeled **Status** and contains the following values: • Active • Inactive You can select a value from the list. This field contains the value Active by default. Inactive Measurement Locations will not appear on **Data Collection** pages.
Template ID	Character	The ID for the template	On the datasheet, this field appears as a text box labeled **Template ID**. You can enter an ID for the template. This value must be unique. A rule exists on this field that will check whether the value that you enter in Template ID field is already used in a different Measurement Location Template. If the value is already used in a Measurement Location Template, a message will appear indicating that the ID already exists.
Unit of Measure	Character	The unit of measure that users can specify when entering a numeric reading value for the Checkpoint	On the datasheet, this field appears as a list labeled **Unit of Measure**. You can select a value from the list. This field is disabled if the ML Type field contains the value Character. **Note:** Rounds does not use the Units of Measure Conversions feature. The system code table UOME is the only source for populating drop-down list values within UOM fields. The UOM field for a Measurement Location contains all the values from the UOME system code table, sorted by their descriptions.

Operator Rounds Recommendation Records

Operator Rounds Recommendation records are created by mobile device users to communicate maintenance or follow-up inspection requirements based on the observed conditions of Checkpoints on a Route. Recommendations can be created linked to a specific Checkpoint and the related asset, or as standalone recommendations that are linked to the Equipment or Functional Location only.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site and will only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. For more information, refer to the Sites section of the documentation.

Note: When configuring offline forms, be careful to include only fields where field level rules are not used. In particular, fields that are required and disabled should be avoided. In many cases, field level rules may be replaced by field behaviors, which are supported in offline forms.

This topic provides an alphabetical list and description of the fields that exist for the Operator Rounds Recommendation family. The information in the table reflects the baseline state and behavior of these fields. This list is not comprehensive; instead, it is limited to field behavior that differs from General Recommendation fields.

Field	Data Type	Description
Assigned To	Text	The user to which the recommendation is assigned. This field appears in the **Recommendations** section of the **RDC Overview** page.
Created from Measurement Location	Character	The Measurement Location for which the recommendation was created
Created from Measurement Location Asset	Numeric	The asset that is associated with the Measurement Location for which the recommendation was created
Created On	Date	The date and time on which the recommendation was created. This field appears in the **Recommendations** section of the **RDC Overview** page.
Description	Text	The text that appeared in the **Description** cell when the Recommendation was saved on the mobile device
Headline	Text	The text that appeared in the **Headline** cell when the Recommendation was saved on the mobile device
Measurement Location Entity Key	Numeric	The Entity Key of the Measurement Location for which the recommendation was created
Recommendation ID	Numeric	A value that identifies the recommendation record

Field	Data Type	Description
Source ML Description	Text	For recommendations, other than standalone recommendations created on a mobile device, this field is populated automatically with the value that is stored in the ML or LR Description field in the Measurement Location or Lubrication Requirement record for which the recommendation was created.
Type	Text	The type of recommendation (for example, Operator Rounds Recommendation). This field appears in the **Recommendations** section of the **RDC Overview** page. This field is populated automatically.

Operator Rounds Recommendation In Error Records

Operator Rounds Recommendation in Error records are created when a recommendation saved on a device fails to upload to APM for any reason. Operator Rounds Recommendation in Error records contain values from the data that was entered on the device.

The information in the topic reflects the baseline state and behavior of these fields. This list is not comprehensive; instead, it is limited to field behavior that differs from Operator Rounds Recommendation fields.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site and will only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. For more information, refer to the Sites section of the documentation.

Field	Data Type	Description
Recommendation Error Details	Text	On the Operator Rounds Recommendation in Error datasheet, this read-only field contains the details of the error that occurred when creating the recommendation fails.

Reading Records

Reading records store details about readings taken at Checkpoints on a Route. This topic provides an alphabetical list and description of the fields that exist for the Reading family. The information in the table reflects the baseline state and behavior of these fields. This list is not comprehensive.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site and will only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. For more information, refer to the Sites section of the documentation.

Field	Data Type	Description	Behavior and Usage
Action Taken	Character	The action taken based on a reading	You can enter a value in this field.
Asset ID	Character	The ID of the asset associated with the Checkpoint	When the reading is linked to: • Equipment, this field is populated automatically with the value in the Equipment ID field in the linked Equipment. • A Functional Location, this field is populated automatically with the value in the Functional Location field in the linked Functional Location.
Comment	Character	A comment about the reading	This field is populated with the text that a user entered in the **Comments** text box, which appears when taking a reading.
Reading Taken Date	Date	The date the reading was taken	This field is populated automatically with the date on which you took the reading.
Reading Value Character	Character	The character value of the reading	You can enter a value in this field.
Reading Value Numeric	Numeric	The numeric value of the reading	You can enter a value in this field.
Related ML Entity Key	Numeric	The entity key of the associated Checkpoint	This field is populated automatically by the associated Checkpoint.
Related Route History Entity Key	Numeric	The entity key of the associated route history	This field is populated automatically by the current open route history record.
Status	Character	The status of the reading	This field is populated automatically with Complete, Ignored, or Non Compliant, based on the schedule of the Checkpoint.

Field	Data Type	Description	Behavior and Usage
Taken by	Character	The user who recorded the reading	This field is populated with the user that took the reading.
Unit of Measure	Character	The unit of measure that users can specify when entering a numeric value for the reading	This field appears as a list populated by the UOME System Code Table. This field is disabled if the value in the ML Type field is set to Character, or if the value in the LR Type field is set to Check Off. **Note:** Rounds does not use the Units of Measure Conversions feature. The system code table UOME is the only source for populating drop-down list values within UOM fields. The UOM field for a Measurement Location contains all the values from the UOME system code table, sorted by their descriptions. The UOM field for a Lubrication Requirement contains a subset of values from the UOME system code table based on specific reference values from the MI_LM_REFERENCES system code table.

Rounds Sequence Information Records

Rounds Sequence Information records store information about the order in which Checkpoints appear in a route.

Note: The values in Rounds Sequence Information records cannot be modified in Record Manager. These records are created or updated automatically to reflect the order in which Checkpoints are arranged within a route in Rounds Designer. Records are created or updated when you select **Save Route Sequence**, after the Rounds Designer page has been closed, or on a defined schedule.

This topic provides an alphabetical list and description of the fields that exist for the Rounds Sequence Information family. The information in the table reflects the baseline state and behavior of these fields.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site and will only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. For more information, refer to the Sites section of the documentation.

Field	Data Type	Description	Behavior and Usage
Checkpoint or Condition Key	Numeric	The Entity Key of the Checkpoint or condition for which this record was created	This field is populated automatically.
Rounds Rank	Numeric	The location of the Checkpoint or condition within the Route hierarchy	This field is populated automatically and should not be modified.
Route Key	Numeric	The Entity Key of the Route containing the Checkpoint	This field is populated automatically.
Sequence	Numeric	The position the Checkpoint appears in a Route	This field is populated automatically.

Route Records

This topic provides an alphabetical list and description of the fields that exist for the Route family. The information in the table reflects the baseline state and behavior of these fields. This list is not comprehensive.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site and will only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. For more information, refer to the Sites section of the documentation.

Field	Data Type	Description	Behavior and Usage
Last Date	Date	The date on and time at which the Route status was changed to Finished	If the Route has a Schedule, this field is populated automatically after the Route is marked done and uploaded to APM.
Next Date	Date	The date on and time at which the readings for the Route become due	If the Route has a Schedule, this field is populated automatically based on the values in the Schedule field and the Last Date field. If the Last Date field is empty, the value in the Next Date field is calculated using the schedule and the current date and time.
Route Description	Character	A description of the Route, which appears in the **Description** column in the Routes grid	On the datasheet, this field appears as a text box labeled **Route Description**, in which you can enter a description of the Route.
Route ID	Character	A name for the Route	The value in this field is used to identify the Route in the left pane, **Route** section, and on the mobile device.

Field	Data Type	Description	Behavior and Usage
Route Scan ID	Numeric	The scan ID that you want to assign to the Route	On the datasheet, this field appears as a text box labeled **Route Scan ID**, in which you can type the scan ID.
Sequence	Text	The sequence of Checkpoints and their successors on a Route	This field is populated automatically and does not appear on the Route datasheet. It is disabled by default and should not be enabled or modified.
Schedule	Character	The schedule by which you want to take readings for the Route	This field contains a ellipsis button that you can select to view the **Schedule** window, where you can define the schedule for the associated Route.
Status	Character	The status of the Route	On the datasheet, this field appears as a list labeled **Status** and contains the following values: • Active • Inactive This field contains the value Inactive by default. Routes will only be available in the Route Data Collection module if the Status is Active.

Route History Records

Route History records store information on all the Measurement Location readings taken, and also about the completion of a Route. This topic provides an alphabetical list and description of the fields that exist for the Route History family. The information in the table reflects the baseline state and behavior of these fields. This list is not comprehensive.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site and will only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. For more information, refer to the Sites section of the documentation.

Note: Multiple In Progress Route History records may exist if multiple users have commenced taking readings on the same Route.

Field	Data Type	Description	Behavior and Usage
Close Date	Date	The date and time on which the Route status was changed to Finished	This field is populated automatically after the Route is marked done.
Closed By	Text	User ID of person marking the Route done is saved to the field	This field is populated with the User id of the person marking the Route done. The field is formatted to show the user name.
Comments	Text	Comments about the Route	This field is populated with the text that a user entered in the Comments text box, which appears when marking the Route as done.
Readings Expected	Number	The number of Checkpoints in the associated Route	This field is populated automatically when the user has commenced taking readings on the Route. The value will continue to be updated automatically as readings are collected, until the Route is marked done. If the Route contains conditional Checkpoints, this field accounts only for the Checkpoints whose conditions were met.
Readings Taken	Number	The number of Checkpoints in the associated Route for which readings were taken	This field is populated automatically when the user has commenced taking readings on the Route. The value will continue to be updated automatically as readings are collected, until the Route is marked done.

Field	Data Type	Description	Behavior and Usage
Recommendations Raised	Number	The number of recommendations created for route	This field is populated automatically and displays the number of recommendations created for route. The value will continue to be updated automatically as recommendations are created, until the Route is marked done.
Status	Character	The status of the Route	This field is populated with In Progress if a user has commenced taking readings, but has not yet marked the Route as done. After the Route has been marked done the field will be populated with Finished.

Catalog Items

Catalog Items

The information in this section of the documentation is intended to serve as a quick reference to details that are provided elsewhere in the specific Rounds instructions.

The subfolders contain items that are intended to be used by APM users, either before or after data has been transferred from a device to APM.

Note: Even though other catalog items may exist in these folders or other folders related to Rounds, only the catalog items that are used in the current version of APM are documented.

Dashboards Folder

The following table lists the dashboards that are stored in the Catalog location `\\Public\Meridium \Modules\Operator Rounds\Dashboards`. The table lists the dashboards by name. The dashboard name and caption are the same.

Dashboard Name	Behavior and Usage
OPR Dashboard	Displays information related to Rounds through various widgets
Rounds Data Collection	Displays content used on the baseline **RDC Overview** page
Rounds Designer	Displays content used on the baseline **RD Overview** page
Graphs Subfolder	

Dashboard Name	Behavior and Usage
Compliance	Displays the checkpoint compliance (excluding conditional checks)
Route Completion	Displays Readings Taken vs. Expected on Completed Routes. The x-axis displays the date on which the route was marked done. The y-axis displays the percentage of route completion.

Graphs Folder

The following table lists the graphs that are stored in the Catalog location `\\Public\Meridium \Modules\Operator Rounds\Graphs`. The table lists the graphs by name. The graph name and caption are the same.

Item Name	Item Type	Behavior and Usage
Checkpoint Schedule Compliance	Query	Returns the compliance data (that is, percent of compliant/non-compliant/skipped readings) for the last 31 days for a given piece of equipment, excluding conditional checks
Checkpoint Schedule Compliance (excluding conditional checks)	Graph	Displays the results of the Checkpoint Schedule Compliance query in a stacked column chart
Measurement Location Schedule Compliance	Query	Returns the compliance data (that is, percent of compliant/non-compliant/skipped readings) for the last 31 days for a given piece of equipment, excluding conditional checks
Measurement Location Schedule Compliance (excluding conditional checks)	Graph	Displays the results of the Measurement Location Schedule Compliance query in a stacked column chart
Trend of Readings Plot	Graph	Displays a plot of reading values

Operator Rounds Queries Folder

The following table lists the queries that are stored in the Catalog location `\\Public\Meridium \Modules\Operator Rounds\Queries`. The queries are listed by name in the table. The query name and caption are the same unless otherwise noted.

Query	Behavior and Usage
Aging Query - Oracle	Returns Measurement Locations that are overdue
Aging Query - SQL Server	Returns Measurement Locations that are overdue
All Lubricants	Returns the list of Lubricant records that is displayed in the **Lubricants** list on the **RD Overview** page
Allowable Values	This query is used to view and allow updates for Operator Rounds Allowable Values

Query	Behavior and Usage
AllTemplates	Returns all Measurement Location Template records. This query is used to populate the picklist for Template field on datasheets for the Measurement Location family.
Asset Context Filter	This query is used to select a particular asset context from Asset Hierarchy
Last 30 Days Dates	This subquery is used to return the dates of the last 30 days
LRs From LRT	Returns the Lubrication Requirement records that were created from a given Lubrication Requirement Template record
LRT For LRs	Returns the Lubrication Requirement Template details to update existing Lubrication Requirements
Measurement Location Template	Returns details for a single Measurement Location Template record
MLs From MLT	Returns the ML records that were created from a given Measurement Location Template record and provides content for the **Update Existing MLs** page
MLT For MLs	Returns the ML template details to update existing Measurement Locations and provides content for the **Update Existing MLs** page
Most Recent Reading	Returns a list the most recent readings. This query is used by the Measurement Locations in the Alert query
Non-Compliant CPs	Returns non-compliant readings. If you need to modify this query, you may append additional columns, but the existing columns must remain in their original order to ensure that Compliance Tracking functions as expected.
Non-Compliant CPs With Duplicate Readings	Returns the Entity Keys of checkpoints with duplicate non-compliant readings. This query supports the Non-Compliant CPs query. If you need to modify this query, you may append additional columns, but the existing columns must remain in their original order to ensure that Compliance Tracking functions as expected.
Operator Rounds Recommendations - Conditional Alert	Returns all of the Operator Rounds Recommendation records that have been created since the previous day
OPR Recommendation Geolocation	Returns readings for a Route on a map. This query is also a sub-query used by the Route Geolocation Data query.
Readings Geolocation data	Returns readings for a Route on a map. This query is also a sub-query used by the Route Geolocation Data query.
Route Geolocation Data	Returns the Route geolocation data that is saved for readings, recommendations, and photos. This query can be used to view Route geolocation data on a map.

Query	Behavior and Usage
Route Management	Returns existing Routes
Route Management Configuration	This query is used to configure the Route Management screen
Template Management	Returns existing templates
Template Uniqueness	This query is used by the APM system to determine if the value you entered in the Template ID field in the Measurement Location Template record is already used by a different Measurement Location Template record.
Update Allowable Values	Returns BDF with selected values. This query is used by the Allowable Values query.
Update Measurement Locations from MLT	Returns the Measurement Location records that were created from a given Measurement Location Template record
Dashboard Queries Subfolder	
Active Recommendations	Returns all the active Recommendations (with state created) related to the Measurement Locations filtered by the related Route and Asset
Completed Reading Count	Returns the count of the completed readings filtered by the Route, asset (Equipment/Functional Location), Start Date, and End Date
Completed Reading Count AC	Returns the count of the completed readings filtered by the Asset Context
Compliance	Returns the count of the completed and non-compliant readings filtered by the Route, Asset (Equipment/functional Location), Start Date, and End Date. This query uses two existing queries to find the counts and joins them.
Compliance AC	Returns the count of the completed and non-compliant readings filtered by the Asset
Compliance Percentage	Returns the percentage of completed readings from the completed and non-compliant readings
Compliance Percentage AC	Returns the percentage of completed readings from the Reading taken and non-compliant reading
MLAHI	Returns the health indicator alert level for all of the Measurement Locations under the selected route. This query also filters results based on the asset chosen and displays the health indicator alert for the selected assets. When both the filters are selected, the health indicator alert is shown for the health indicators which are linked to Measurement Locations under the selected route and linked to the selected asset.
Non-compliance Reading Count	Returns the count of the non-compliant readings filtered by the Route, Asset (Equipment/functional Location), Start Date, and End Date
Non-compliance Reading Count AC	Returns the count of the non-compliant readings filtered by the Asset Context

Query	Behavior and Usage
OPR Parameters Query	Returns the same values that the user enters. This query is used in the parameter widget on the OPR dashboard.
Overdue Measurement Locations	Returns all Measurement Locations that are overdue (Next Date has passed) and filters them by related Route and Asset
Route Completion	Returns the number of Routes completed each day, based on Route History, and the number of Routes expected to be completed
Route Completion Percentage	Returns the percentage of Routes completed each day based on the number of Routes expected to be completed
Graph Queries Subfolder	
Trend of Readings	Displays a trend of reading values compared against the limit levels
ML Administration Queries	
Readings	Displays details about all of the readings linked to a specified Measurement Location
Readings-Oracle	Displays details about all of the readings linked to a specified Measurement Location when using an Oracle database
Recommendations	Displays details about all of the Operator Rounds recommendations linked to a specified Measurement Location
Stored Ref Docs	Displays details about all of the reference documents linked to a specified Measurement Location
Report Queries Subfolder	
Measurement Location Data Capture	Displays a prompt asking you to select a Route record, and then returns all Measurement Location records that are linked to the selected Route record, sorted by the sequence number from the Measurement Location records
Measurement Location In Alert	Displays Measurement Location records whose last reading value entered on the device triggered an alert. Each row represents a Measurement Location record. In each row, you can select the hyperlink to view the Route record to which the Measurement Location record is linked, the Measurement Location record, and the Trend of Readings Plot graph. **Note:** This query works on a SQL Server database only. To see the query results on an Oracle schema, use the query Measurement Locations in Alert - Oracle.
Measurement Location in Alert - Oracle	Displays the same results as the query Measurement Locations in Alert. This query, however, works on an Oracle schema only.
Overdue Measurement Locations	Displays Overdue Measurement Locations
Overdue Measurement Locations - Oracle	Displays Overdue Measurement Locations. This query, however, works on an Oracle schema only.

Operator Rounds Reports Folder

The following tables lists the reports that are stored in the Catalog location `\\Public\Meridium\Modules\Operator Rounds\Reports`. The reports are listed by name in the table. The report name and caption are the same unless otherwise noted.

Report	Behavior and Usage
Lubrication Requirement Data Capture	Displays a prompt asking for a Route record, and then displays a formatted version of the results from the Lubrication Requirement Data Capture query for the selected Route record. You can print this report and record reading values at the associated checkpoint. A link to this report appears on the **Lubrication Management Reports** page.
Measurement Location Data Capture	Displays a prompt asking you to select a Route record, and then displays a formatted version of the results from the Measurement Location Data Capture query for the selected Route record
Measurement Location In Alert	Displays a formatted version of the results from the Measurement Location In Alert query. **Note:** This report works on a SQL Server database only. To see the report on an Oracle schema, use the query Measurement Locations in Alert - Oracle.
Measurement Location in Alert - Oracle	Displays the same results as the report Measurement Locations in Alert. This report, however, works on an Oracle schema only.
Overdue Lubrication Requirements	Displays a prompt asking for a Route record, and then displays a formatted version of the results from the Overdue Lubrication Requirements query for the selected Route record. A link to this report appears on the **Lubrication Management Reports** page.
Overdue Lubrication Requirements-Oracle	Displays the same results as the Overdue Measurement Locations report. This report, however, works on an Oracle schema only.

Lubrication Requirement Queries Folder

The following table lists the queries that are stored in the Catalog location `\\Public\Meridium\Modules\Lubrication Management\Queries`. The queries are listed by name in the table. The query name and caption are the same unless otherwise noted.

Query	Behavior and Usage
Report Queries Subfolder	
Lubrication Management Data Capture	This query is used to run a report of Lubrication Requirements for the selected Route.

Query	Behavior and Usage
Overdue Lubrication Requirements	This query is used to run a report of Overdue Lubrication Requirements.
Overdue Lubrication Requirements-Oracle	This query is used to run a report Overdue Lubrication Requirements-Oracle.

Lubrication Requirements Reports Folder

The following tables lists the reports that are stored in the Catalog location `\\Public\Meridium \Modules\Lubrication Management\Reports`. The reports are listed by name in the table. The report name and caption are the same unless otherwise noted.

Report	Behavior and Usage
Lubrication Management Data Capture	Displays a detailed report of Lubrication Requirements for the selected Route
Overdue Lubrication Requirements	Displays a detailed report of Overdue Lubrication Requirements
Overdue Lubrication Requirements-Oracle	Displays a detailed report of Overdue Lubrication Requirements - Oracle

Uploaded Items

Interpret Uploaded Data

This section of the documentation provides information on interpreting data in the following records that are created or updated when you upload data to APM:

- Checkpoint Task
- Operator Rounds Recommendation
- Operator Rounds Recommendation in Error
- Reading
- Reading in Error

Interpret Checkpoint Task Records

When you upload data into APM, certain fields in Checkpoint Task records are updated automatically. The following table lists these fields and their values before and after uploading data into APM.

Field	Value before upload	Value after upload
Last Date	The date and time a reading was last taken	The date and time the reading was saved to the device
Next Date	The next date a reading should be taken based upon the values in the Last Date field and the Schedule field	The next date and time a reading should be taken based upon the values that exist in the Last Date field and the Schedule field

Interpret Operator Rounds Recommendation Records

When you upload data into APM, certain fields in Operator Rounds Recommendation records are populated automatically. The following table lists these fields, the values that are populated in them, and some fields that you must populate manually.

Field	Value
Asset ID	The value that appeared in the **Asset ID** cell on the **Recommendations** screen on the device
Asset Description	The value that is stored in the Asset Description field in the Equipment or Functional Location record to which the Operator Rounds Recommendation record is linked
Assigned To Name	This field is not populated automatically. You should select in the list that appears for this field the name of the person to whom the Operator Rounds Recommendation record should be assigned.
Author Name	The name of the Security User who was logged on to Operator Rounds when the recommendation was created
Final Approver Name	This field is not populated automatically. You should select in the list that appears for this field the name of the person who should approve the Operator Rounds Recommendation record.
Recommendation Description	The text that appeared in the **Description** cell on the **Recommendations** screen on the device
Recommendation Headline	The text that appeared in the **Headline** cell on the **Recommendations** screen on the device
Recommendation ID	The system-generated ID for the Operator Rounds Recommendation record
Recommendation Priority	The value that was selected in the **Priority** cell on the **Recommendations** screen on the device
Required Equipment Status	This field is not populated automatically. You should manually enter in this field the state in which the piece of equipment should exist before the recommended action can be executed.
Reviewer Name	This field is not populated automatically. You should select in the list that appears for this field the name of the person who should review the Operator Rounds Recommendation record.
Source ML Description	For Operator Rounds Recommendation records created via the **Data Collection** page on the device, the value that is stored in the ML Description field in the Measurement Location record associated with the checkpoint for which you created an Operator Rounds Recommendation record
Status	The value Created (Created)

Interpret Operator Rounds Recommendation in Error Records

An Operator Rounds Recommendation in Error record is created any time that you try to upload data from a device to create an Operator Rounds Recommendation record, but the upload process fails for some reason. Operator Rounds Recommendation in Error records contain values from the data that was entered on the device.

Interpret Reading Records

When you upload data to APM, one Reading record is created for every reading value that was saved to the mobile device. The following table list the values that are populated in fields in Reading records after you upload data to APM.

Field	Value
Action Taken	The value that was selected in the **Action Taken** cell on the **Readings - Detail** screen for the Measurement Location to which this Reading record is linked
Asset ID	The value in the Asset ID field of the Measurement Location record to which the Reading record is linked
Comment	The text that was entered in the **Description** cell on the **Readings - Detail** screen for the Measurement Location to which this Reading record is linked
Reading Taken By	The name of the Security User who was logged on to Operator Rounds when the reading value was entered
Reading Taken Date	The date the reading value was saved on the device
Reading Value Character	The reading value if it is a character reading. **Note:** This field is enabled only for character readings.
Reading Value Numeric	The reading value if it is a numeric reading. **Note:** This field is enabled only for numeric readings.

Field	Value
Status	One of the following combinations of the ID and Description of the System Codes stored in the Reading Status System Code Table: • C (Completed) • I (Ignored) • NC (Non-compliant) This value Indicates the compliance status for the reading.
Unit of Measure	The unit of measure associated with the reading. **Note:** This field is enabled only for numeric readings. Rounds does not use the Units of Measure Conversions feature. The system code table UOME is the only source for populating drop-down list values within UOM fields. The UOM field for a Measurement Location contains all the values from the UOME system code table, sorted by their descriptions. The UOM field for a Lubrication Requirement contains a subset of values from the UOME system code table based on specific reference values from the MI_LM_REFERENCES system code table.

Interpret Reading in Error Records

A Reading in Error record is created any time that you try to upload data from a device to create a Reading record, but the upload process fails for some reason. Reading in Error records contain values from the data that was entered on the mobile device.

Chapter

18

Troubleshooting

Topics:

Troubleshooting Scenarios

Troubleshooting Scenarios

The following topic can help you troubleshoot issues that you may have with the Rounds Designer module:

- Route Takes a Long Time to Load.

Route Takes a Long Time to Load

Description

Route takes a long time to load in Rounds Designer.

Cause

This may occur if the Route size is very large.

Solution

- Route sizes should not exceed 250 checkpoints (including conditional checkpoints). This ensures optimum performance of the Route in Rounds Data Collection (RDC). It will also reduce the overhead on the server by avoiding upload of large numbers of readings on a single Route.
- The maximum number of checkpoints for a single condition should not exceed 15.

Frequently Asked Questions

Frequently Asked Questions

This topic covers the frequently asked questions (FAQs) for Rounds Designer.

1. Where can I obtain the mobile app?
   Download the APM mobile application from your company's app store, which is linked to either Google Play or the iOS App Store. This will ensure the app uses your company's VPN. It will also help in maintaining connectivity if the app is expected to be used in the Open Internet.
2. Which version of the app needs to be used?
   Always make sure that the APM mobile app version matches the version of the APM web application; this applies for both hosted and on-prem releases.
3. What are the recommended device settings?
   - **Sync Interval**: We recommend setting the device Sync Interval to at least 20 minutes. If Routes do not change frequently, consider a minimum of one hour or longer.
   - **Download Horizon**: The Download Horizon should be consistent with how long you plan to be offline. If you are performing shift-based Routes, consider 8 or 12 hours. If you plan to be offline for several days, consider the 7-day option.

     Note: The smaller the horizon, the faster is the download performance.
   - **Batch Upload Size**: If the network is expected to be very disruptive, readings will not sync or will take a lot of time to sync . To alleviate this, set the batch size to 10 readings.

- **Maximum length of time (seconds) that is allowed to retrieve GIS data**: This setting is available on the APM web application (**Admin** > **Application Settings** > **Rounds Designer** > **Default Device Settings**). We recommend retaining it at the default setting (2 seconds). This can be increased, but do not set this beyond 10 seconds.

4. Can I use a browser on a smart phone or tablet to collect readings instead of the app?

   No. We do not recommend using the browser on smart devices to collect readings. This may result in data loss.

5. Is there a limit on the number of Routes that can be marked for offline access?

   While it is possible to assign many Routes to users, we recommend that you only mark the Routes you will be performing in a shift for offline access. For example, if you have 50 Routes assigned and you only plan to run three during your shift, mark only those three Routes for offline access. If you were to select all 50 for offline use, the system will download the data for all 50 Routes and keep it in sync. This can lead to excessive sync times, making you wait for Route data that you may not need immediately. We suggest having no more than five Routes marked for offline access at a given time. This number is flexible and depends on the number of checkpoints on a given Route. Try to limit the total number of offline checkpoints to 750 or less.