GE VERNOVA

Asset Performance Management

APM Classic

V4.6.11.0.0

Production Loss Analysis

Contents

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Chapter 1

Overview

Topics:

Overview of the Production Loss Analysis (PLA) Module

Using the APM Production Loss Analysis (PLA) module, you can compare the actual production with the planned production, and thus uncover any minor or major factors that cause production losses.

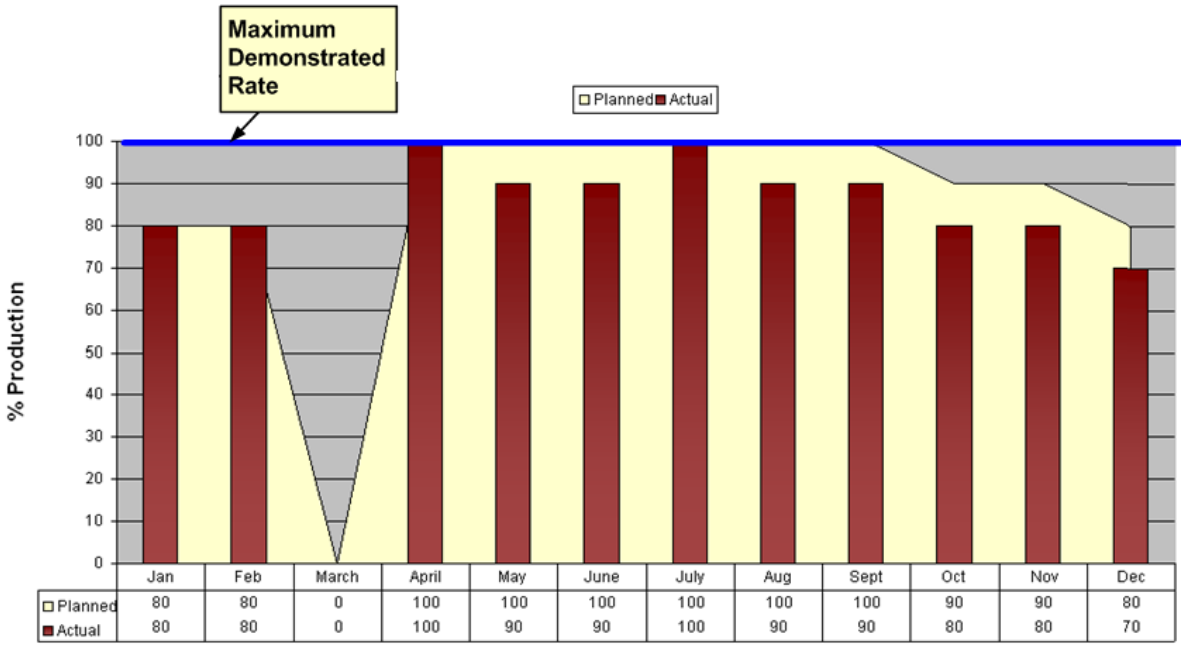
In addition, you can:

- Enter the production data.
- Identify production losses and associate them with the events that caused them.
- Determine what types or categories of events cause your company to lose production.

By entering and evaluating production data, you can easily identify ways in which you can reduce unplanned downtime and increase production in the future, thus reducing cost and increasing profit.

More Details

The following graph represents a company's optimal, planned, and actual production percentage for a year.



	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Planned	80	80	0	100	100	100	100	100	100	90	90	80
Actual	80	80	0	100	90	90	100	90	90	80	80	70

In the graph, the blue line indicates that the maximum demonstrated rate or the percentage of output the company can produce during the optimal operating conditions is 100%.

The yellow area displays the planned production percentage for each month. Because the managers know that they cannot produce 100% of this maximum output each month, the planned production rate is lower than 100% during some months. In March, the planned production rate is 0% because the company shut down its units to perform maintenance, install new equipments, and so on.

The red bars indicate the actual production rate each month. For some months, the company produced the amount that they had planned, whereas for others, they produced less than they had planned.

Thus, you can conclude that more than half of the production losses for the year was due to the shutdown in March. If they could find a way to reduce this shutdown time or eliminate it completely, the overall production would increase.

Using PLA, you can also determine exactly how much money your company lost during the shutdown in March and during the months when they could not reach the 100% production rate. You could then categorize these losses into planned and unplanned losses.

Access the PLA Overview Page

About This Task

This topic describes how to access the **PLA Overview** page, on which you can view all the information and perform tasks related to the production of various hierarchy levels.

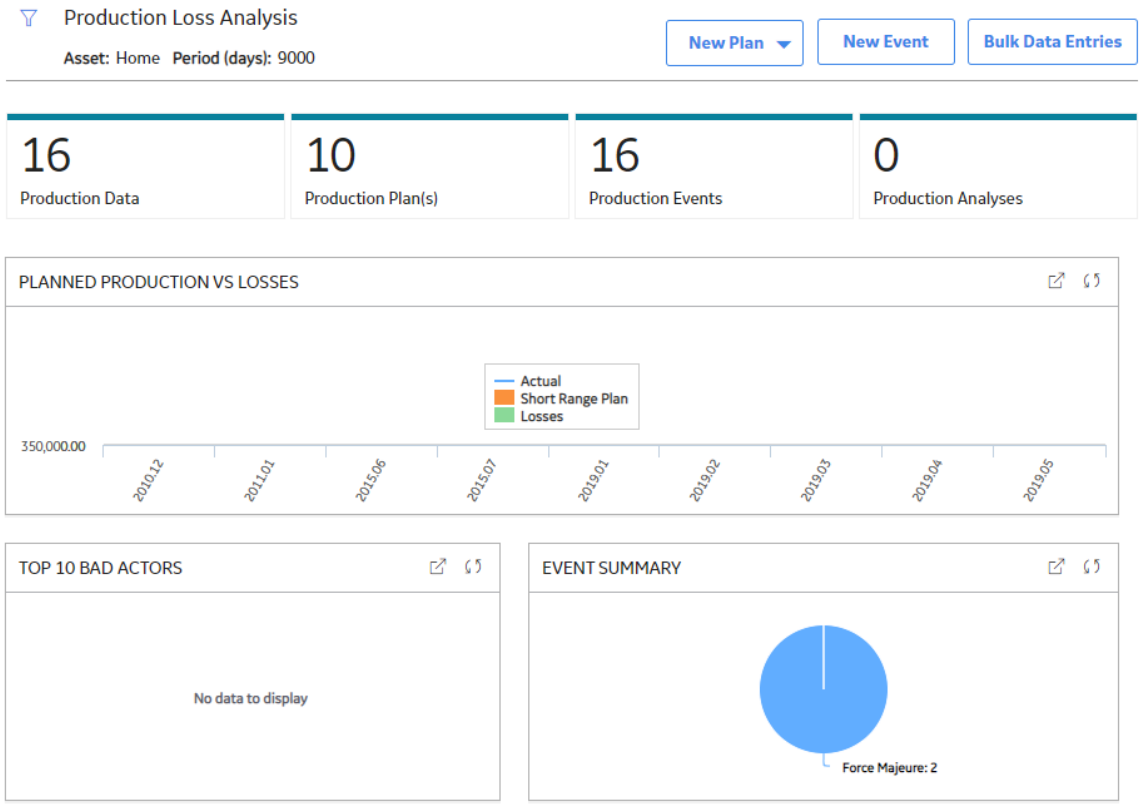
You can perform the various tasks on this page based on the Security Groups to which you are assigned.

Tip: For more information, refer to the Security Group topic for this module.

Procedure

In the module navigation menu, select **Reliability** > **Production Loss Analysis**.

The **PLA Overview** page appears.



The tabs at the top of the page summarize the number of items in each category. You can select a tab to view one of the following lists:

- **Production Data:** Contains a list of Production Plans that contain incomplete Production Data.

  Note: The number on the **Production Data** tab only includes Production Plans that are in progress. Production Losses do not have to be reconciled for Production Data to be considered complete.
- **Production Plans:** Contains a list of all Production Plans available in the APM database.
- **Production Events**: Contains a list of Production Events available in the APM database and allows you to create new Production Events.
- **Production Analyses:** Contains a list of Production Analyses, which are created in the PLA module.

On the page, you can also view the following sections:

- **Planned Production vs Losses :** Plots the planned production, actual production, and losses for given time period. By default, this chart shows values for last 90 days. You can select  on the upper-left corner of the **PLA Overview** page to modify the time period to 120 days or 365 days.
  In the chart:
  - The line representing Actual shows the number of units that were produced for a specific month. The horizontal axis (X) represents months. You can select a datapoint to view the total number of units produced in that month.
  - The bars representing Short Range Plans show the number of units that were planned to be produced for the specific month. You can select a bar to view the total number of units planned to be produced in a month and number of the month for which you are viewing the planned production.
  - The bars representing Losses show the amount of production (in number of units) that was lost. You can select a bar to view the total losses for a month and number of the month for which you are viewing the losses.

  While viewing the chart, you can select  in the upper-right corner of the chart to modify the appearance of the plot using standard graph features.
- **Top 10 Bad Actors:** Contains a chart that plots the total cost of losses that were contributed by the top 10 bad actors within a selected hierarchy level for a given time period. The losses represented here are the total amount of production lost for the affected plans, products, and units. By default, this chart shows values for last 90 days.
  You can select  on the upper-left corner of the **PLA Overview** page to modify the time period to 120 days or 365 days.
- **Event Summary:** Contains a chart that plots the count of Production Events filtered by the Event Code percentage for a given time period. By default, this chart shows values for last 90 days. You can select  on the upper-left corner of the **PLA Overview** page to modify the time period to 120 days or 365 days. You can select a datapoint for a Production Event to view:
  - The Event Code
  - The count of each Event Code

By default, the hierarchy level is set to Home. You can select on the upper-left corner of the page to filter the hierarchy level. The Production Loss Analysis information on the page is related to an Asset by default. If you also want to include Production Loss Analysis information that is not related to an Asset, in the **Include analyses without any assets?** box, select Yes. You can specify the time period for the graphs on the **PLA Overview** page by selecting the time period from the **Period** list, as needed.

PLA Workflow

This workflow provides the basic, high-level steps for using PLA. The steps and links in this workflow do not necessarily reference every possible procedure.

1. For each production unit, create a production plan to specify the amount of product you plan to produce during a set time period. You can create the plan on any schedule, such as yearly, quarterly, monthly, and so on.
2. If an event such as an equipment failure or a planned shutdown occurs and causes you to incur a production loss, document the event.
3. Enter production data on a daily basis. This includes entering the amount of product that you produced and accounting for any losses that you incurred each day.

Chapter 2

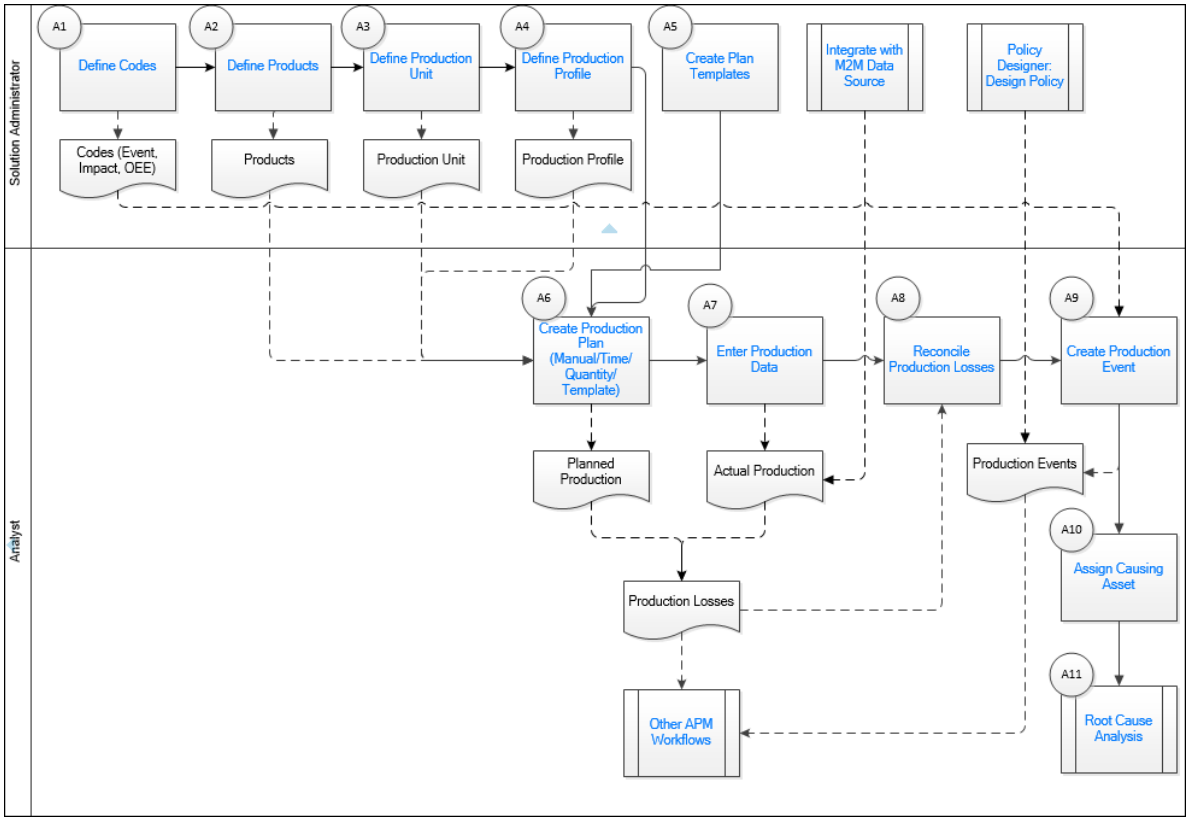
Workflow

Topics:

Product Workflow

This workflow describes the process for comparing actual production to planned production to uncover any minor or major factors causing loss in production.

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



1. Define Codes on page 8
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Define Codes

Persona: Solution Administrator

Define the event codes that are used to categorize the reasons for production losses and events.

Define Products

Persona: Solution Administrator

Define the type of commodities produced and offered for sale.

Define Production Unit

Persona: Solution Administrator

Define the type of production unit that represents the manufacturing processes.

Define Production Profile

Persona: Solution Administrator

Define what and how much each unit is capable of producing.

Create Plan Templates

Persona: Solution Administrator

Create Templated Plans for a Production Unit that may then be used to create actual production plans using a simplified wizard in the main application.

Create Production Plan (Manual/Time/Quantity/Template)

Persona: Analyst

Create a production plan by specifying the duration of the plan, how many products will be produced, how much of each product will be produced, and during which periods the products will or will not be produced.

Enter Production Data

Persona: Analyst

Enter the quantity of production for each of the products that was scheduled to be produced in a selected production period. Production Data entry can also be "automated" such that the production quantity is read into the Production Actual value from an OPC-compliant host system.

Reconcile Production Losses

Persona: Analyst

In cases where the Production Actual value is less than the Planned Production value an Unaccounted Loss will be created for the delta. Reconcile production losses to assign codes (e.g., OEE, Event, and Impact) and Production Events to account for the production losses.

Create Production Event

Persona: Analyst

Define a production event that causes shutdown, slowdown, or failure of production to meet the defined specification.

Assign Causing Asset

Persona: Analyst

Identify the cause of an event and assign that event to an asset.

Other Workflows

Persona: Analyst

Other workflows provide production data from: RCA, Bad Actors Charts, and Metrics and Scorecards.

Root Cause Analysis (RCA)

Persona: Analyst

See the RCA workflow.

Integrate with M2M Data Source

Persona: Solution Administrator

OPC Integration can be used to provide actual production data.

Go to the Integrate with M2M Data Source workflow.

Policy Designer: Design Policy

Persona: Analyst

Create Production Events and send email notification using Policy Designer. Once the event has been created, the PLA user will be able to enter the remaining details addressing why the event occurred.

Go to the Policy Designer: Design Policy workflow.

Chapter 3

Production Data

Topics:

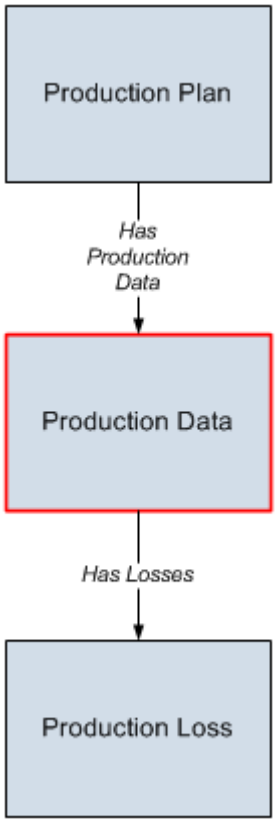
About Production Data

After you establish a Production Profile and create Production Plans for it, you are ready to start recording Production Data and accounting for any Production Losses. You can record:

- Production Values.
- Production Losses.
- Associate any Production Losses with specific Production Events, Impact Codes, and OEE Codes.

As you enter the data, the information will be summarized automatically and displayed in the **Production Summary** workspace.

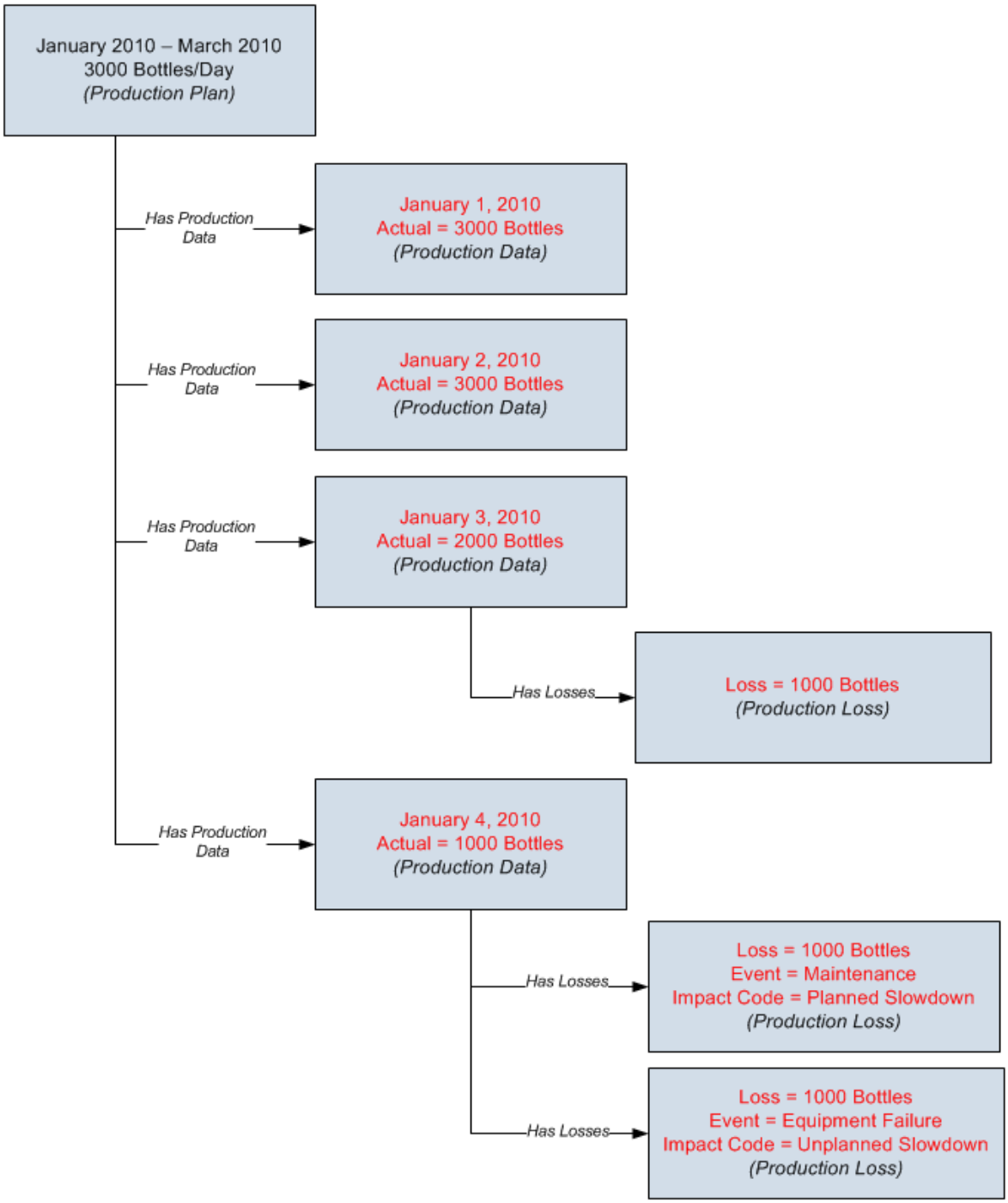
Each Production Data must be linked to a single predecessor Production Plan and can be linked to multiple successor Production Loss records. The following image shows these relationships, where the arrows represent relationship families, and boxes represent entity families. The Production Data family is outlined in red.



Example: Production Data

As you begin recording Production Data, the data is recorded in Production Data records. If you do not produce the planned amount in a given period, the Production Data for that day can be linked to multiple production loss reconciliations that indicate the amount of production lost, the Production Event that caused the loss, and the impact of the loss.

Suppose a Production Plan spans three months: January 2010 through March 2010. The planned production for each day is 3,000 bottles. On January 1 and January 2, you produce all 3,000 bottles, meeting the planned production. On January 3, however, you produce only 2,000 bottles. To account for the loss, you would create a Production Data and record the 1,000 bottles that were not produced. Now, suppose that on January 4, you again fail to meet the planned production. This time, you produce only 1,000 bottles due to an equipment failure and a scheduled maintenance activity. In this case, you would add two rows to the production loss, where one documents 1,000 bottles that were not produced due to a maintenance activity, and the other documents 1,000 bottles that were not produced due to an equipment failure.



Access a Production Data Record

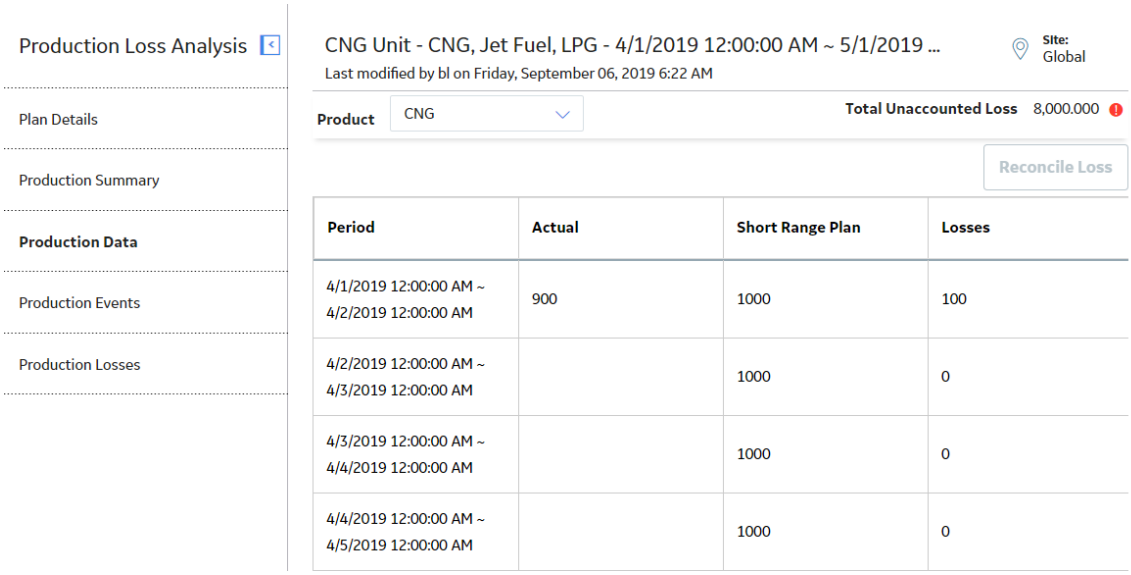
Procedure

1. Access the **PLA Overview** page.
2. Select the **Production Data** tab.

A list of Production Plans appears.

3. In the **Plan ID** column, select the link for the Production Plan whose Production Data record you want to access.

   The **Production Data** page for the Production Plan appears, displaying the **Production Data** workspace. Each Product that is associated with the Production Plan appears as an option in the **Product** drop-down list box.



   Tip: You can also access the Production Data record via a Production Plan. To do so, access a Production Plan, and then select the **Production Data** tab.

4. In the **Product** drop-down list box, select the Product for which you want to access the Production Data record.

   A table of Production Data records appears for the Product. These records are automatically created based on the period of the Production Plan. Each row in the table represents a Production Data record for each period of the Production Plan until the current date.

   The table contains the following columns:

   - **Period**
   - **Actual**
   - **Short Range Plan**
   - **Losses**
   - **Max Sustained Capacity**
   - **Unaccounted Loss**
   - **MSHR**

   Note: If the OT Connect feature has been configured and an administrator has linked Production Profile records to Policy Instance records for PLA, the Production Data records will be automatically created as a result of the integration.

Access the Losses Associated with a Production Data Record

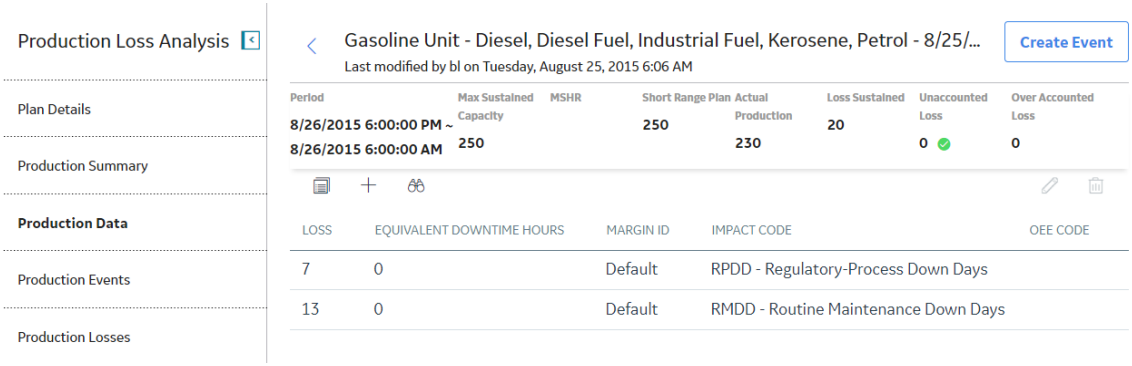
About This Task

You can access Production Losses associated with a Production Data record only if the actual production value has been provided for that record.

Procedure

1. Access the Production Data record for the Product for which you want to access the Production Losses.
2. In the table, select the row for the Production Data record whose Production Losses you want to access.
3. Select **Reconcile Loss**.

   In the **Production Data** workspace, a table of Production Losses that are associated with the selected Production Data record appears.



   The table displays the following columns:

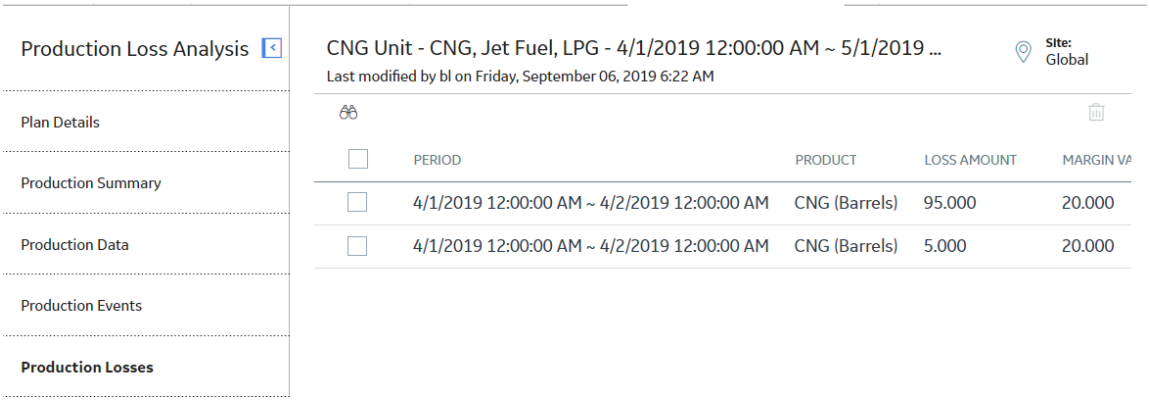
   - **Loss**
   - **Equivalent Downtime Hours**
   - **Margin ID**
   - **Impact Code**
   - **OEE Code**
   - **Production Event**
   - **Comment**

Access the Losses Associated with a Production Plan

Procedure

1. Access the Production Plan for which you want to access Production Losses.
2. Select the **Production Losses** tab.

   A table of Production Losses that are linked to the Production Data associated with each Product in the selected Production Plan appears.



The table displays the following columns:

- **Period**
- **Product**
- **Loss Amount**
- **Margin Value**
- **Cost**
- **Planned Production**

  Note: This column displays either the Maximum Sustained Capacity or the Short Range Plan of the associated Production Data, depending on the Loss Calculation Setting in the **Settings** window.

Color Coding for Unaccounted Loss

In the **Production Data** workspace, the Unaccounted Loss value for each Production Data record is accompanied by a color-coded symbol whose meaning is provided in the following table:

Color-Coded Symbol	Color	Meaning
	Red	The sum of actual production and reconciled loss is less than the planned production.
	Amber	The sum of actual production and reconciled loss is more than the planned production.
	Green	The sum of actual production and reconciled loss is equal to the planned production.

The Total Unaccounted Loss value, which appears in the **Production Data** workspace, is accompanied by a single color-coded symbol based on the following priority:

- Red
- Amber
- Green

Color Coding

Suppose that a Production Data record contains the following field values, where Short Range Plan is the basis for loss calculation:

- Short Range Plan: 50
- Actual: 40

The total loss incurred by this Production Data record is 10. The following table provides the color-coded symbol that will appear next to the Unaccounted Loss value for the specified reconciled and unaccounted losses:

Reconciled Loss	Unaccounted Loss	Color-Coded Symbol for Unaccounted Loss
5	5	
15	0	
10	0	

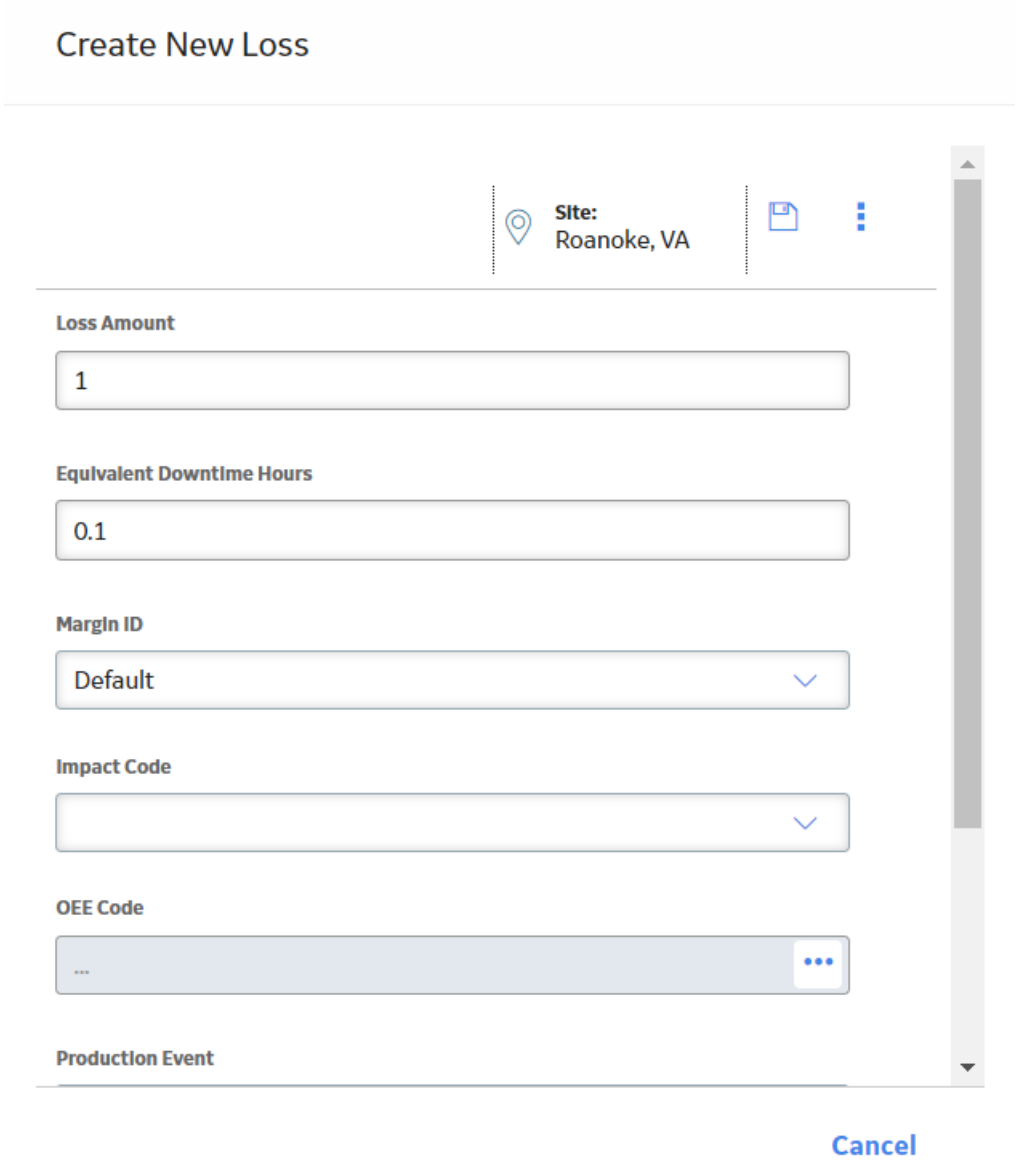
Create a Production Loss

About This Task

For a Production Data record, if the Actual value is less than the planned production, the difference between the two (that is, the Unaccounted Loss) can be accounted for by creating a Production Loss. If multiple events lead to a loss, you can create multiple Production Losses, each of which will be linked to the same Production Data record. This topic describes how to create a Production Loss.

Procedure

1. Access the losses associated with the Production Data record to which you want to add a Production Loss.
2. In the **Production Data** workspace, select  .
   The **Create New Loss** window appears.



3. Enter values in the available fields.

   If the value that you enter in the Loss Amount field is such that the remaining Unaccounted Loss would be less than the tolerance value of the planned production, the Loss Amount is adjusted to include that Unaccounted Loss. The adjusted value in the Loss Amount field is used to calculate the value in the Equivalent Downtime Hours field.

4. Select .
   The Production Loss is created.

   Note: If multiple events lead to a loss, you can create multiple Production Losses, each of which will be linked to the same Production Data record.

Results

In the **Production Data** workspace, each row for a Production Loss contains values that indicate the amount of loss, the event that caused the loss, and the impact of the loss. The

Loss Amount of each Production Loss is subtracted from the Unaccounted Loss of the Production Data record.

Tolerance Limit of the Planned Production

When you create a Production Loss for a Production Data record, the Loss Amount that you enter may be adjusted to include the remaining Unaccounted Loss, depending on the tolerance limit of the planned production.

The tolerance limit defines the allowable amount of unreconciled losses that can be reduced to zero, based on the tolerance value of the planned production. The tolerance value of the planned production is calculated using the following formula:

Tolerance Value = (Tolerance Limit (%) * Planned Production) / 100

where:

- Tolerance Limit (%) is the value that appears in the **Tolerance Limit (%)** box in the **Settings** window.
- Planned Production is the value that is stored in either the Maximum Sustained Capacity field or the Short Range Plan field, as applicable. It indicates the planned production for a Production Data record.

Suppose that the value in the **Tolerance Limit (%)** box is 0.1 and a Production Data record contains the following field values, where Short Range Plan is the basis for loss calculation:

- Short Range Plan = 50
- Actual = 40
- Losses = 6
- Unaccounted Loss = 4

The tolerance value of the planned production is calculated as follows:

- (0.1 * 50) / 100 = 0.05

This value determines whether the Loss Amount of a Production Loss will be adjusted, as illustrated in the following table:

Loss Amount entered	**Loss Amount adjusted to**	**Reason**
3.96	4	The difference between the entered Loss Amount (3.96) and the remaining Unaccounted Loss (4) is 0.04, which is less than the tolerance value of the planned production (0.05).
3.95	N/A	The difference between the entered Loss Amount (3.95) and the remaining Unaccounted Loss (4) is 0.05, which is

Loss Amount entered	Loss Amount adjusted to	Reason
		equal to the tolerance value of the planned production (0.05).
3.94	N/A	The difference between the entered Loss Amount (3.94) and the remaining Unaccounted Loss (4) is 0.06, which is more than the tolerance value of the planned production (0.05).

Note: In the **Production Data** workspace, the calculated values are displayed based on the Quantity Precision settings, which are specified in the **Settings** window.

Modify a Production Data Record

Procedure

1. Access the **Production Data** workspace for the Production Data that you want to modify.
2. In the table, select the row that contains the Production Data that you want to modify.
3. As needed, modify the values in following fields:
   - **Actual:** Enter the amount of product that was produced during the period.
   - **Short Range Plan:** Enter the amount of product that was planned to be produced during the period.

     Note: After you enter a value, you will need to move your cursor to a different row to see the updated sum of the values below the table.

   The changes to the Production Data are saved.

Results

The color-coded symbol that appears next to each value in the **Unaccounted Loss** cell indicates if the planned production has been met.

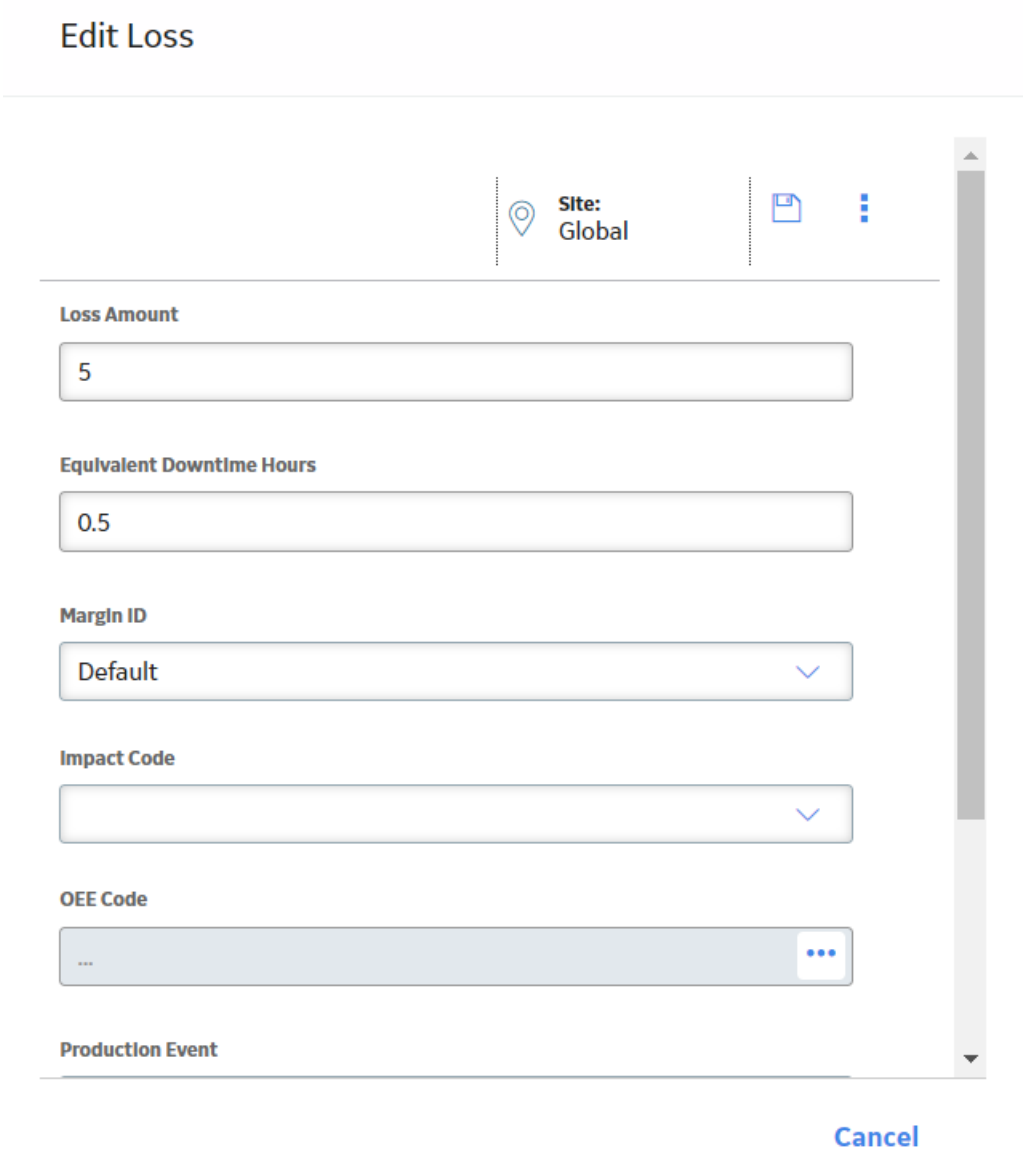
Modify a Production Loss

Procedure

1. Access the losses associated with the Production Data whose losses you want to modify.
2. Select the row containing the Production Loss that you want to modify.

   The  button is enabled.
3. Select  .

The **Edit Loss** window appears.



4. As needed, modify values in the available fields, and then select to save your changes.

   The changes are reflected in the **Production Data** and the **Production Summary** workspaces.

Reconcile Production Data and Losses in Bulk

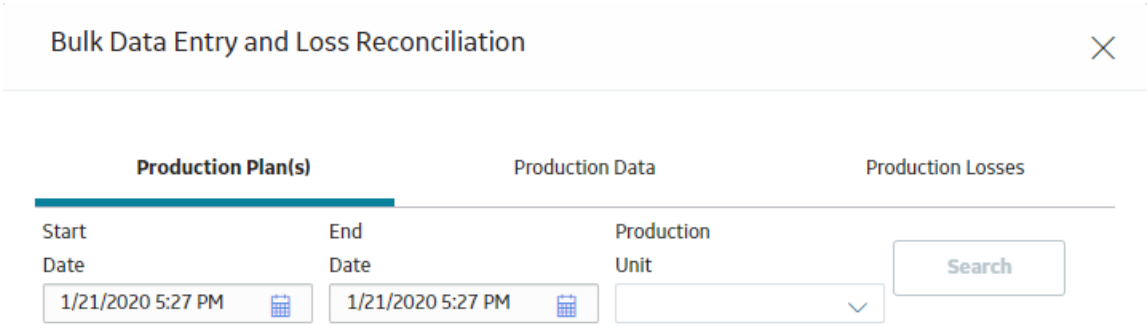
You can access multiple production plans from a production unit and reconcile multiple production data and production losses for an extended period.

Before You Begin

Ensure that production plans exist for the selected production unit during the required time period.

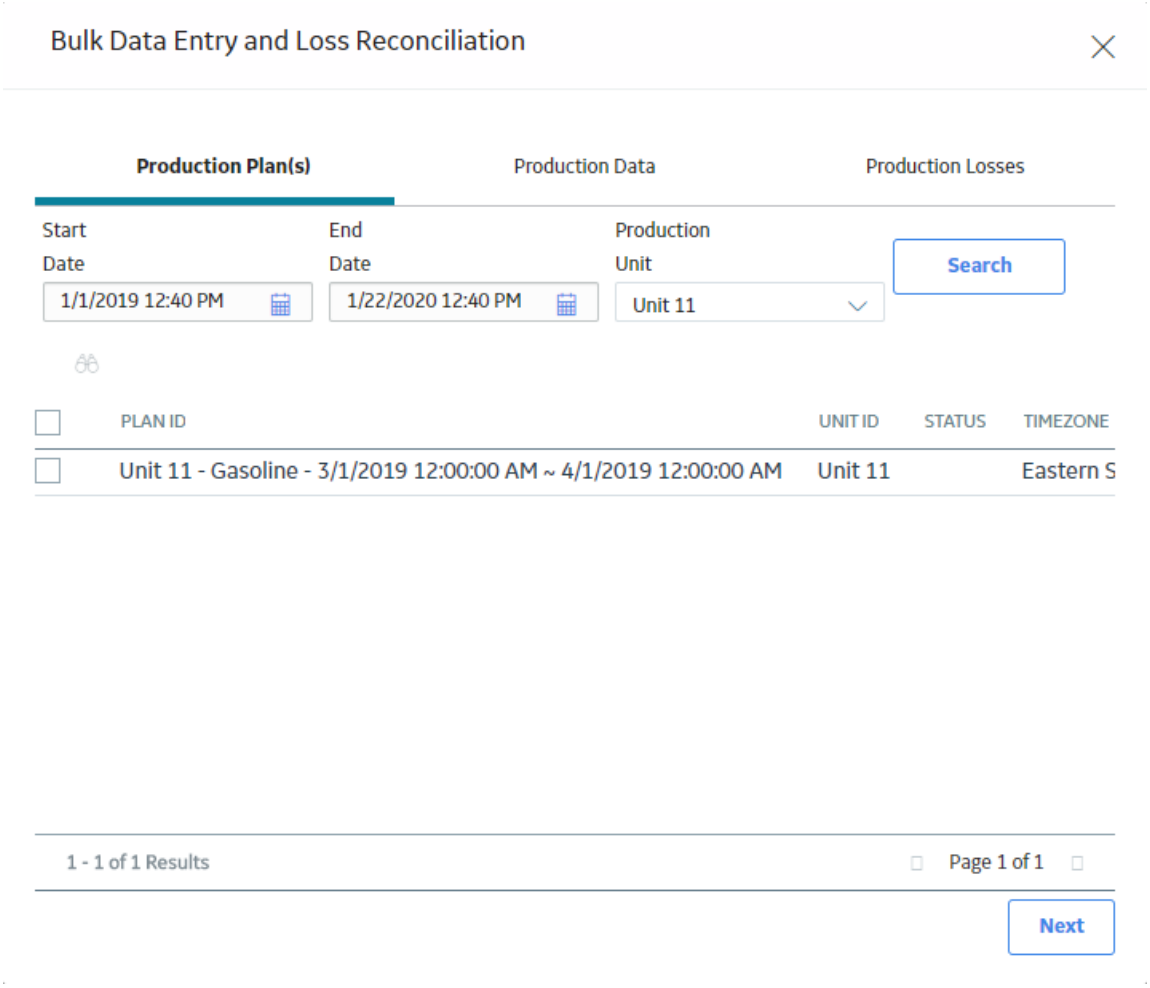
Procedure

1. Access the PLA overview page.
2. Select **Bulk Data Entries**.
   The **Bulk Data Entry and Loss Reconciliation** window appears.



3. Select  to select the date and time range.

   Note: You can also enter dates and times directly in the **Start Date** and **End Date** boxes.
4. Select the production unit, and then select **Search**.
   A table of production plans for the selected criteria appears.



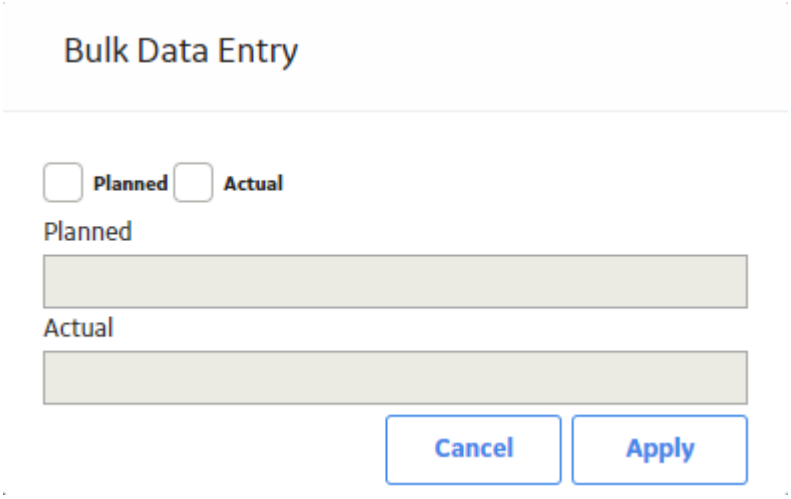
5. Select the check boxes against the plans for which you want to reconcile production data, and then select **Next**.

   Important: For best performance of APM, do not select more than five production plans for reconciliation.

   The **Production Data** section appears containing a table of production data for the selected plans.
6. Select the check boxes against the rows containing the data that you want to reconcile, and then select **Bulk Data Entry**.

   Important: For best performance of APM, do not select more than 750 production data records for reconciliation.

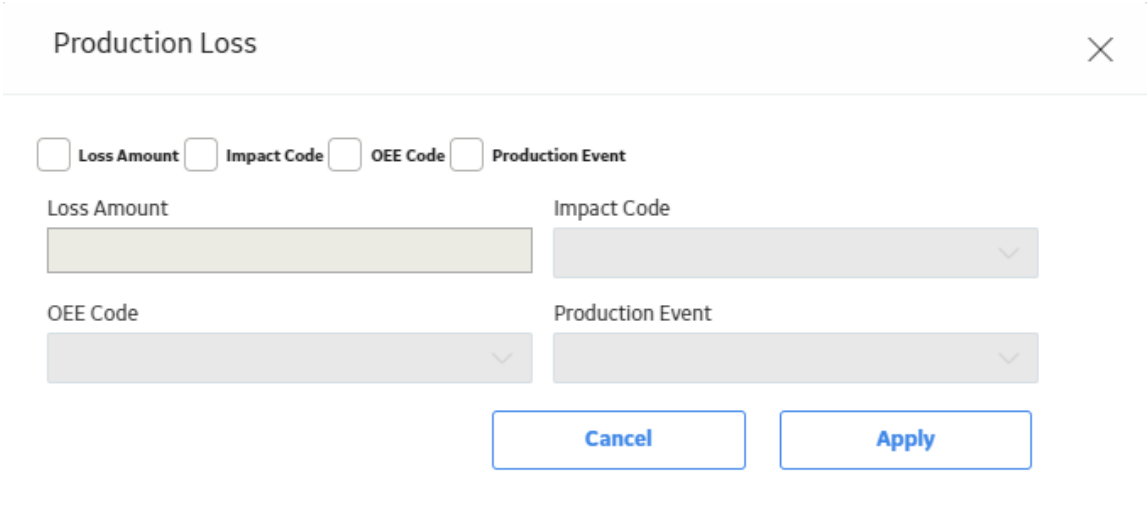
   The **Bulk Data Entry** window appears.



7. For the fields that you want to modify, select the check boxes and enter values in the corresponding boxes, and then select **Apply**.
   The values in the selected rows are modified.
8. Select **Save**.
   The production data is reconciled.
9. To reconcile production losses, select **Next**.
   The **Production Losses** section appears containing a table of production loss records for the selected plans.
10. Select the check boxes against the rows containing the production loss record that you want to reconcile, and then select **Bulk Loss Entry**.

    Important: For best performance of APM, do not select more than 100 production loss records for reconciliation.

    The **Production Loss** window appears.



11. For the fields that you want to modify, select the check boxes and enter or select values in the corresponding boxes, and then select **Apply**.
    The values in the selected rows are modified.
12. Select **Finish**.
    The production loss records are reconciled.

Copy the Production Losses

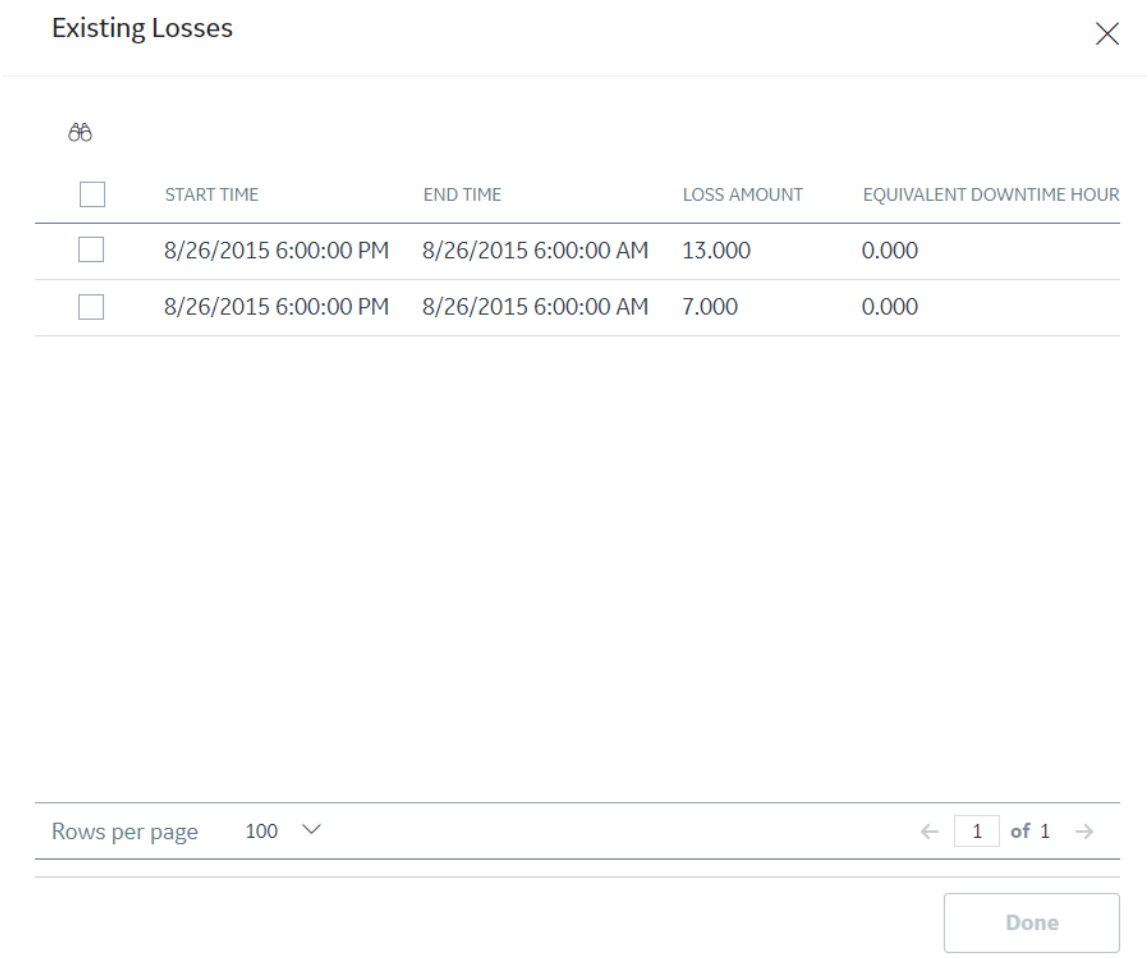
About This Task

For a given Product, you can copy Production Losses from one Production Data record to another or within the same Production Data record.

Procedure

1. Access the losses associated with the Production Data record to which you want to copy the Production Losses.
2. In the workspace, select .

   The **Existing Losses** window appears, displaying a table of all Production Losses associated with the Product.



3. Select the check box in the row for each Production Loss that you want to copy.

   Tip: You can copy multiple Production Losses available in the current page at once.
4. Select **Done**.

The Production Losses selected in the current page are copied to the Production Data record.

Note: If the date range of the Production Event associated with the Production Loss that you are copying does not include the date range of the Production Data record to which you want to copy the Production Loss, the Production Event field in the Production Loss is blank. You can, however, manually enter a value in this field.

Delete a Loss via the Production Data Workspace

Procedure

1. Access the losses associated with the Production Data record from which you want to delete the Production Loss.
2. Select the row containing the Production Loss that you want to delete.

   The  button is enabled.
3. Select  .

   The **Delete Loss** window appears, asking you to confirm that you want to delete the Production Loss.
4. Select **Yes**.

   The Production Loss is deleted.

Delete the Losses via the Production Losses Workspace

Procedure

1. Access the **Production Losses** workspace.
2. Select the check box in the row for each Production Loss that you want to delete.

   The  button is enabled.

   Tip: You can delete multiple Production Losses available in the current page at once.
3. Select  .

   The **Delete Loss** window appears, asking you to confirm that you want to delete the selected Production Losses.
4. Select **Yes**.

   The Production Losses selected in the current page are deleted.

Chapter 4

Production Plans

Topics:

About Production Plans

Each Production Unit can generate one or more products. For each product that it generates, a production profile will exist to identify information about that product, such as the maximum demonstrated rate of production and the amount of profit one of those products yields.

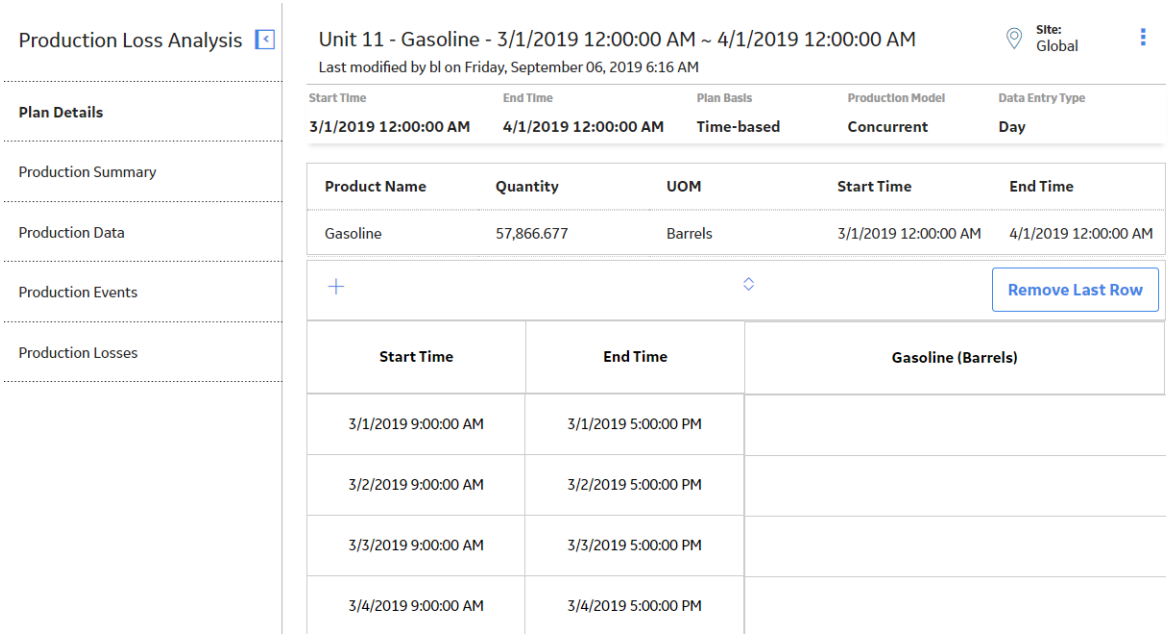
For each Production Unit, you will have one or more Production Plans in which you can define criteria, as outlined in the following table:

Plan Details	Description	Example
What	The products that you plan to produce. Each plan can include one or more products.	You plan to produce water bottles and labels.
When -or- How Much	**When:** The time period for which you want to track the production. In this case, you will provide the start and end dates, and the planned product quantity will be determined automatically based upon the production profile. This option is called a time-based plan. -or- **How Much:** The amount of each product that you plan to produce. In this case, you will provide the start time and the planned product quantity, and the end time will be determined automatically. This option is called a quantity-based plan.	**When:** You plan to produce bottles and labels from January 1, 2015 through April 30, 2015. -or- **How Much:** You plan to produce 50,000 bottles and 100,000 labels, starting January 1, 2015.
During Which Hours	The hours each day that you produce the specified products.	You have one shift running 8:00 A.M. to 5:00 P.M. -or- You have two shifts: • 8:00 A.M. to 8:00 P.M. • 8:00 P.M. to 8:00 A.M.
How Often You Enter Data	The frequency by which you enter production data and production losses. You can choose the Data Entry type to select the frequency by which you enter data.	You enter production data daily. -or- You enter production data once per shift.

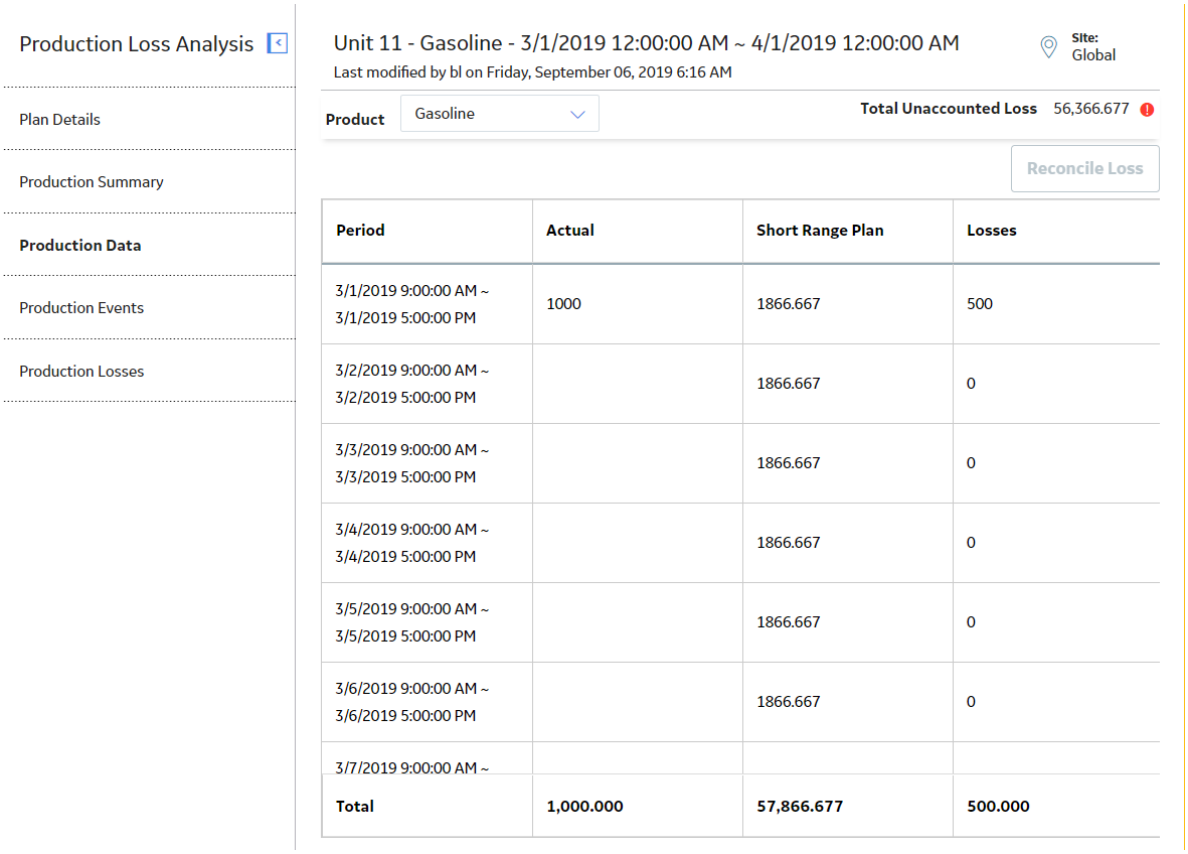
Each production plan is represented by a Production Plan record.

About Usage of the Planned Production Values

After you create a Production Plan, the plan will contain a row for each period for which you plan to produce a given product (i.e., an entire day or a specific shift within a day). Each row will contain a planned production value, where the product associated with those values is specified in the column heading. The following image illustrates planned production values for Gasoline.



When you access the **Production Data** workspace for a production plan, for each product, you will see a similar row for each period in the plan. Each row represents a separate Production Data record. In each row, the value in the **Short Range Plan** column is a copy of the planned production value.



Note: Via the **Production Data** workspace, the short range value can be changed manually if needed.

About the Short Range Plan

When you create a Production Profile, you can specify the quantity of Product that can be consistently produced by a Production Unit without adversely affecting the piece of equipment, the location, or the quality of the product. This value is stored in the Planning Rate field of the Production Profile.

For the Production Plan of a Production Unit, the planned production quantity is based on the value in the Planning Rate field of the related Production Profile. Based on the planned production quantity and your knowledge of the planned events within the facility, for a Production Data record, you can specify the quantity of Product that the Production Unit can produce. This quantity is called the Short Range Plan.

The Short Range Plan of a Production Data record can be the same as the planned production quantity, or it can be different to account for the various factors that can affect the production rate, such as weather, loss of cooling capacity due to high ambient temperatures, fluctuations in product demand depending on seasons, and other factors.

Short Range Plan in the Production Data Workspace of a Production Plan

Suppose that for a Production Plan, the planned production quantity, which is specified in the **Plan Details** workspace, is 500 barrels for June 1, 2018. If a hurricane occurs, and the facility is shut down for several weeks for repairs, you might want to modify the planned production quantity. This

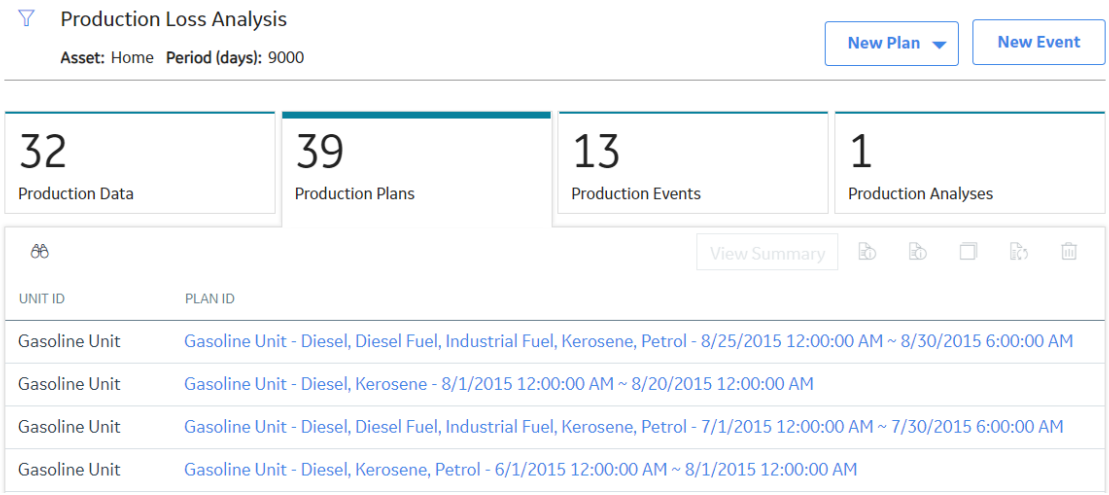
adjusted planned production quantity is stored in the Short Range Plan field of the Production Data record.

Access a Production Plan

Procedure

1. Access the **PLA Overview** page.
2. Select the **Production Plans** tab.
   A table of Production Plans appears, displaying the following columns:
   - **Production Unit Name:** Contains the name of the Production Unit associated with the Production Plan.
   - **Plan ID:** Contains the ID of the Production Plan.
   - **State:** Contains the state of the Production Plan (that is, New/Planning, Pending/Approval, Approved, or Complete).

     Note: This column is blank if State Management is disabled for the Production Plan family.
   - **Status:** Contains the status of the Production Plan (that is, Complete or Incomplete).
   - **Timezone:** Contains the time zone of the Production Unit associated with the Production Plan.



3. In the row containing the Production Plan that you want to access, in the **Plan ID** column, select the link.

   The **Plan Details** page appears, displaying the **Plan Details** workspace, which contains the following information:

   - Start Time: The start time of the Production Plan. This value is dependent on the value in the **Start Time** column of the first row in the second table.
   - End Time: The end time of the Production Plan. This value is dependent on the value in the **End Time** column of the last row in the second table.
   - Plan Basis: The type of the Production Plan (that is, manual, quantity-based, or time-based).
   - Production Model: The order in which the Products should be produced (that is, concurrent or sequential).

- Data Entry Type: The frequency with which production data and losses should be entered (that is, shift, day, week, month, quarter, year, or campaign).

The **Plan Details** workspace contains two tables.

In the first table, each row represents a Product that is produced during the plan. This table contains the following columns:

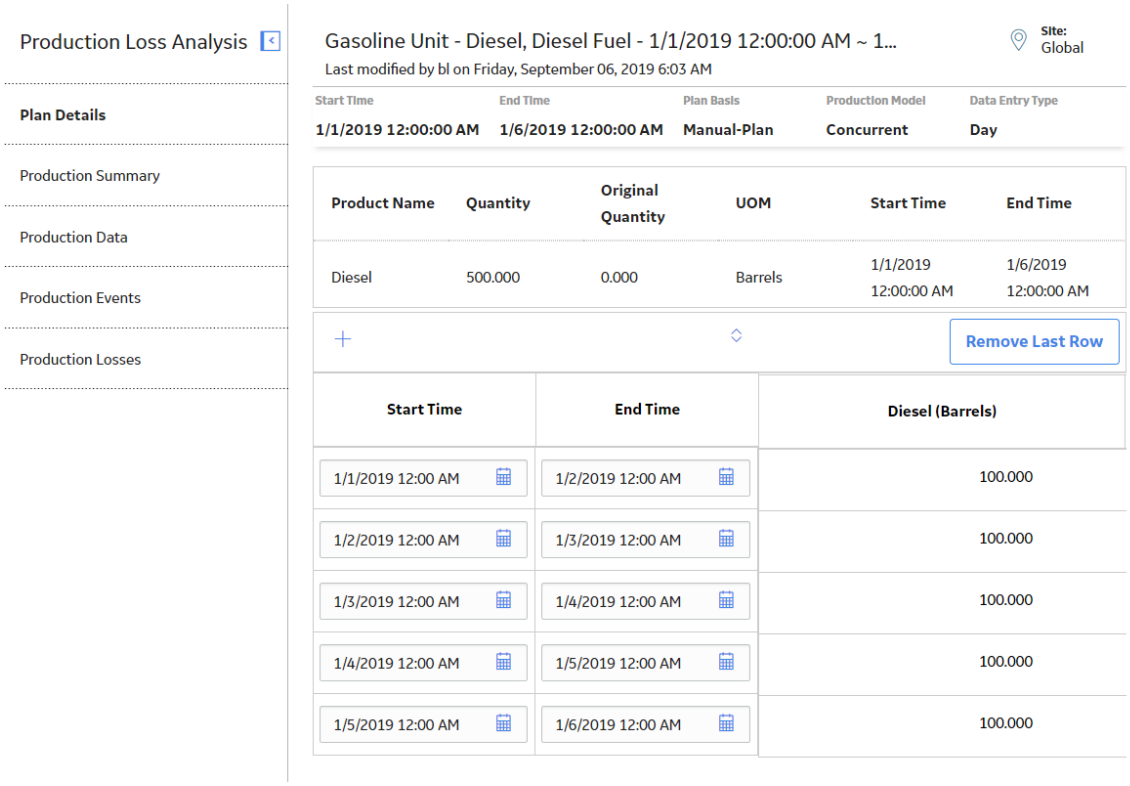
- **Product Name:** The name of the Product.
- **Quantity:** The amount of Product that should be produced during the plan. The value in this column depends on the planned production amount that appears for the respective Product in the second table. Therefore, if you modify the planned production amount for the Product in the second table, the value in this column is updated for the Product.

  For a quantity-based plan, the value in the column is the same as that you entered in the **Quantity** column in the **Production Plan Builder** window.

  For a time-based plan, the value is calculated based on the start and end dates and time that you specified in the **Production Plan Builder** window and the batch production values that are specified in the associated Production Profile.
- **Original Quantity:** This column appears only for manual-based and quantity-based plans. Unlike the value in the **Quantity** column, the value in this column is independent of the planned production amount.
- **UOM:** The unit of measurement for the Product.
- **Sequence:** The sequence of the order in which the Product is produced during the plan. This column appears only for a sequential plan.
- **Start Time:** The time when the Product should begin its production. If multiple Products exist, the start time for each Product is determined by the production model that you selected in the **Production Plan Builder** window. For example, if multiple Products are to be produced sequentially, the second Product should begin its production only after the first Product has ended its production.
- **End Time:** The time when the Product will end its production.

In the second table, each row represents a period in the plan, which is based on the data entry type. This table contains the following columns:

- **Start Time:** The start time of the period.
- **End Time:** The end time of the period.
- <Product> (<UOM>): The planned production amount for the period. You can modify the value in this column. The value, however, must not exceed the maximum demonstrated capacity specified in the associated Production Profile.



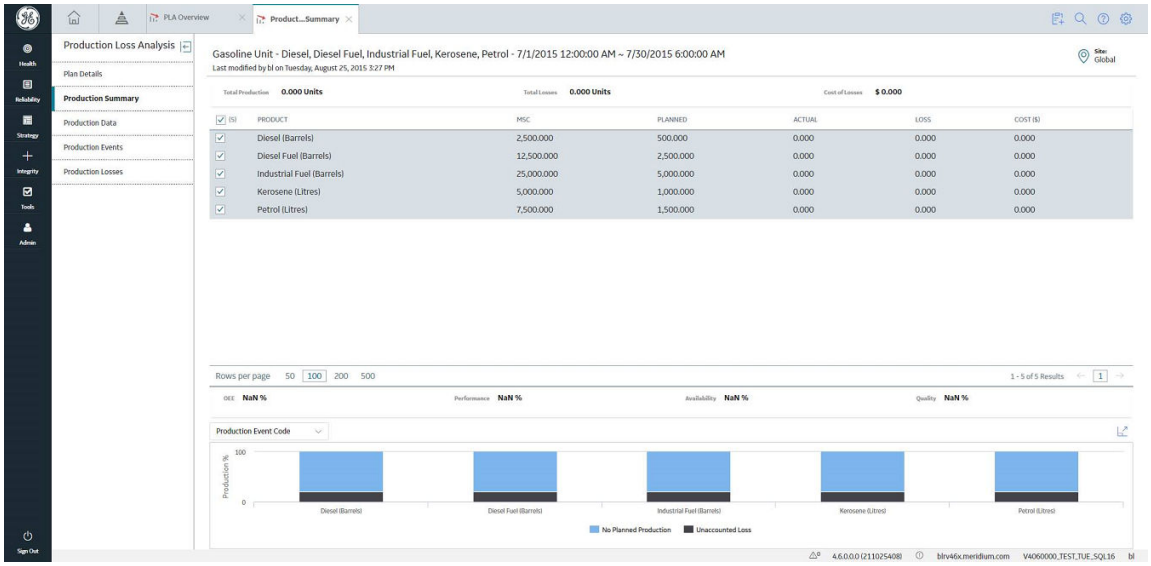
Access the Production Summary

Procedure

1. Access the **PLA Overview** page.
2. Select the **Production Plans** tab.

   The **Production Plans** section appears, displaying a list of Production Plans available in the database.
3. Select the row containing the Production Plan whose summary you want to view.
4. Select **View Summary**.

   The page for the selected plan appears, displaying summary information for the Production Plan in the **Production Summary** workspace.



The **Production Summary** workspace contains the following items:

- **Total Production:** The sum of all values in the Actual column on the corresponding **Production Data** workspace, appended with the value in the Product UOM field in the Production Profile that is associated with this Production Data. If the Production Plan includes more than one product, however, the total production value is appended with Units.
- **Total Losses:** The sum of all values in the Losses column on the corresponding **Production Data** workspace, appended with the value in the Product UOM field in the Production Profile that is linked to the Production Plan that you selected when you accessed the **Production Data** workspace (e.g., Barrels). If the Production Plan includes more than one product with different units of measure, however, the total losses value is appended with Units.
- **Cost of Losses:** The cost of all losses across all products that are included in the plan, where the value is calculated using the following equation:

  Cost of Losses = Σ Losses x Margin

  Note: The currency symbol that appears in the **Production Summary** workspace and the number of decimal places that appear in the Cost of Losses value are defined via the Production Loss Analysis Application Settings.
- **Product:** The name of the product and its associated unit of measure.
- **MSC:** The value in the Maximum Sustained Capacity Rate field in the Production Profile that is associated with this Production Plan.
- **Planned:** The sum of all values in the Short Range Plan column in the corresponding Production Data workspace.
- **Actual:** The sum of all values in the Actual column in the corresponding Production Data workspace.
- **Loss:** The sum of all values in the Losses column in the corresponding Production Data workspace.
- **Cost:** The sum of cost of all losses for all days in the plan, where the value is calculated using the following equation:

  Cost of Losses = Σ Losses x Margin
- **Production Data Summary Plots:** Displays a graphical representation of the data that exists in the Production Data workspace.

- **OEE:** The OEE percentage for the products that are selected in the production grid. OEE is calculated using the following equation:

  OEE = (Availability x Performance x Quality) x 100
- **Performance:** The performance percentage for the products that are selected in the production grid. Performance is calculated using the following equation:

  Performance = [(Good Production + Quality Loss) / (Good Production + Performance Loss + Quality Loss)] x 100
- **Availability:** The availability percentage for the products that are selected in the production grid. Availability is calculated using the following equation:

  Availability = [(Good Production + Performance Loss + Quality Loss) / (Good Production + Availability Loss + Performance Loss + Quality Loss)] x 100
- **Quality:** The quality percentage for the products that are selected in the production grid. Quality is calculated using the following equation:

  Quality = [Good Production / (Good Production + Quality Loss)] x 100
- **Production Summary Chart:** To improve usability, you can expand and collapse the Production Summary chart.

  Note: The grid will not be displayed in an expanded page view.

Create a Production Plan Using the Production Plan Builder

About This Task

This topic describes how to create a Production Plan using the Production Plan Builder. Alternatively, you can:

- Create a manual Production Plan.
- Copy a Production Plan to create a new plan.
- Create a Production Plan from a Plan Template

Procedure

1. Access the **PLA Overview** page.
2. On the upper-right corner of the page, select **New Plan**, and then select **Build a Plan**.
   The **Production Plan Builder** window appears, displaying the **Select Production Unit** screen.
3. In the **Select Unit** box, select the Production Unit for which you want to create a new Production Plan.
   The list of available products appears.

   Note: The Production Plan will be created in the time zone of the Production Unit.
4. Next to each product that you want to add, select the check box.

   Tip:

   - If you want to create a sequential plan, you must select at least two products.
   - If the list of products that you can add is long and you are having trouble finding the product that you want to add, you can search for a specific product by entering a value in the search box.
5. Select **Next**.
   The **Select Plan Basis** screen appears. You can use this screen to determine whether the plan will be time-based (i.e., you will define the time period for which you want to track

production), or quantity-based (i.e., you will define the amount of each product that you plan to produce).

6. If you want to generate a time-based plan, accept the default selection.

   Tip: If you want to generate a quantity-based plan, select **Plan is quantity-based**.

7. In the **Production Model** list, select the option that describes how the unit produces the products that you selected on the **Select Products** screen. You can select either of the following options:
   - **Concurrent:** The unit produces the products at the same time.
   - **Sequential:** The unit produces the first product first, and then begins producing the second product after production of the first product is complete.
8. Select **Next**.
   Depending on your selection, the **Time-based Plan** screen or **Quantity-based Plan** screen appears.
9. If you are creating a time-based plan, on the **Time-based Plan** screen:

   a. In the **Plan Start Time** box, enter or select the date on which the plan begins.
   b. In the **Plan End Time** box, enter or select the date on which the plan ends.

   If you are creating a quantity-based plan, on the **Quantity-based Plan** screen:

   a. In the **Plan Start Time** box, enter or select the date on which the plan begins.
   b. In the **Quantity** column, in each row, enter the amount of product that you plan to produce.

      Tip: If the unit produces multiple products, you can also sort them using the **Product** column to change the order in which each product will be produced.

10. Select **Next**.

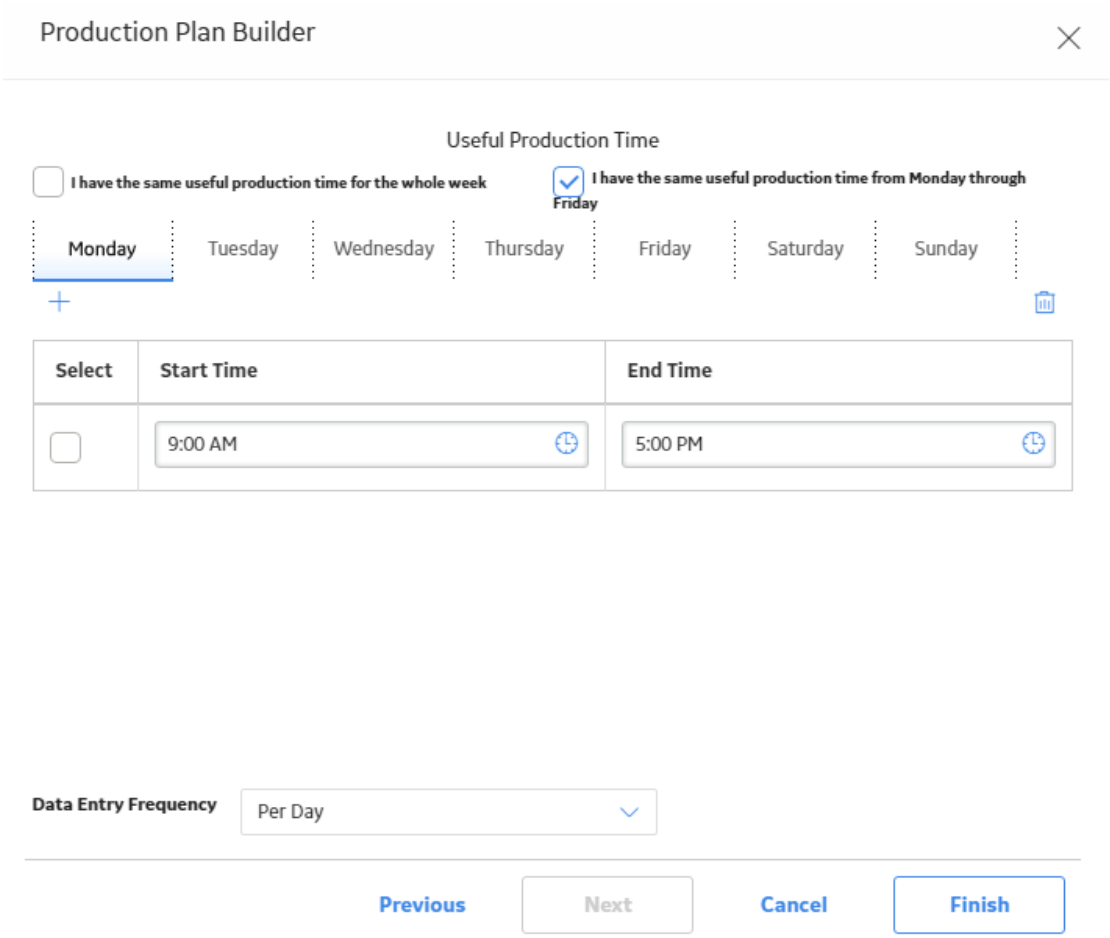
    The **Useful Production Time** screen appears.

    You can use this screen to define the hours each day that you produce the specified products. By default, the builder assumes that, Monday through Friday, your production hours are the same (9:00:00 A.M. to 5:00:00 P.M.). It also assumes that you do not produce anything on Saturdays or Sundays.

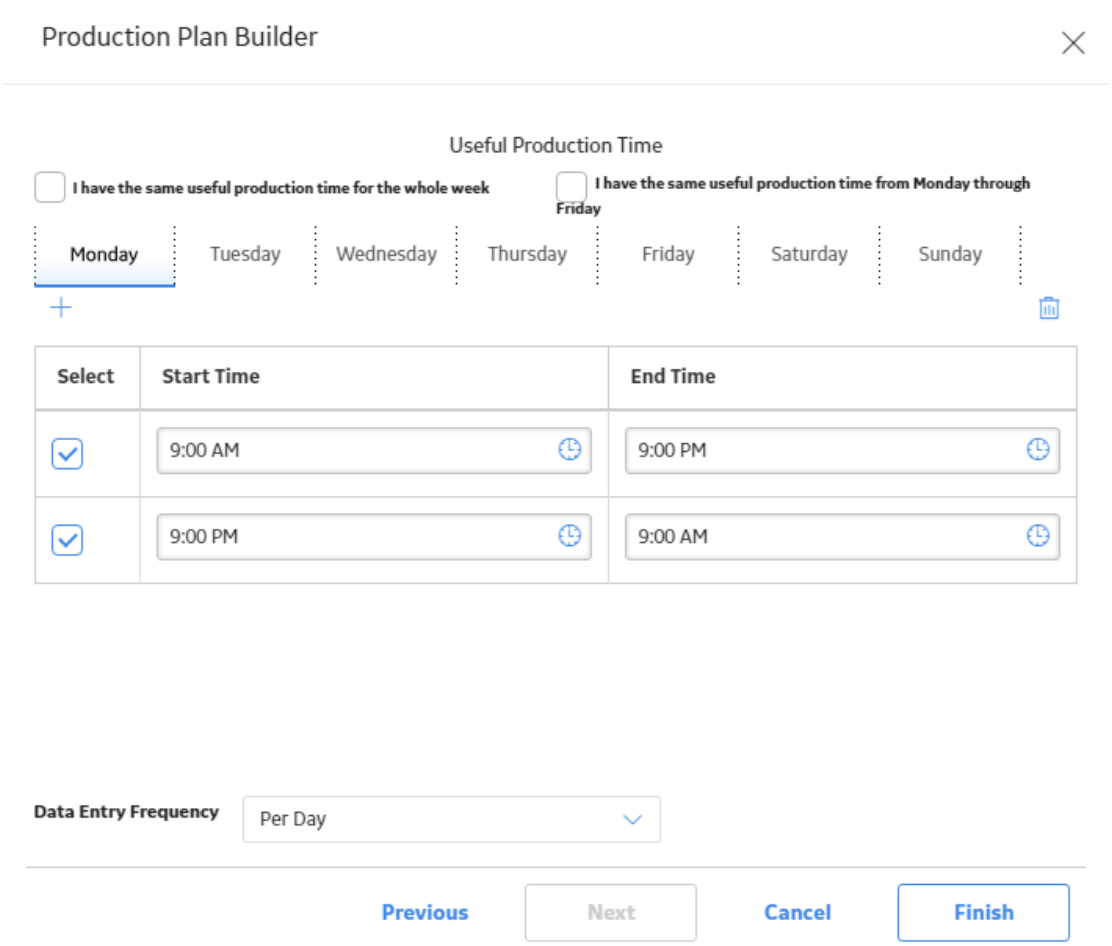
11. To refine the hours each day that you produce the specified products, by selecting the appropriate tabs, define your shifts as necessary.
    - If your shifts are the same Monday through Friday, you can leave the default **I have the same useful production time from Monday through Friday** check box selected, and then define the shift only for Monday. It will then be copied to Tuesday through Friday automatically.
    - If your shifts are the same every day of the week (including weekends), you can select the **I have the same useful production time for the whole week** check box. You can then define the shift only for Monday, and it will be copied to Tuesday through Sunday automatically.
    - If your shifts are on specific days, clear the **I have the same useful production time from Monday through Friday** and **I have the same useful production time for the whole week** check boxes, and then manually define the shifts for each day.

    When defining shifts:

    - If you run only one shift all day (24 hours a day), make the start time and end time the same, as shown in the following image:



- If you run multiple shifts per day, back to back, match the start time of the second shift to the end time of the previous shift, as shown in the following image:



12. In the **Data Entry Frequency** box, select the frequency with which you enter Production Data and Loss information.

    Tip: If you want to enter Production Data only once over the course of the entire plan period, select **Campaign**.

13. Select **Finish**.
    If a Production Plan already exists for the same Production Unit and start date, a warning message appears, indicating that a duplicate Production Plan will be created.

    The types of Production Plans for which a warning message appears are described in the following table.

Production Plan	Description
Time-Based Concurrent	Plans created for the same start date, end date, Products, and Production Unit.
Time-Based Sequential	Plans created for the same start date, end date, and Products with the same sequence and Production Unit.
Quantity-Based Concurrent	Plans created for the same start date and Products with the same quantity and Production Unit.
Quantity-Based Sequential	Plans created for the same start date and Products with the same quantity, sequence, and Production Unit.

14. Select **Continue**.
    The Production Plan is created, and it appears in the **Plan Details** workspace.

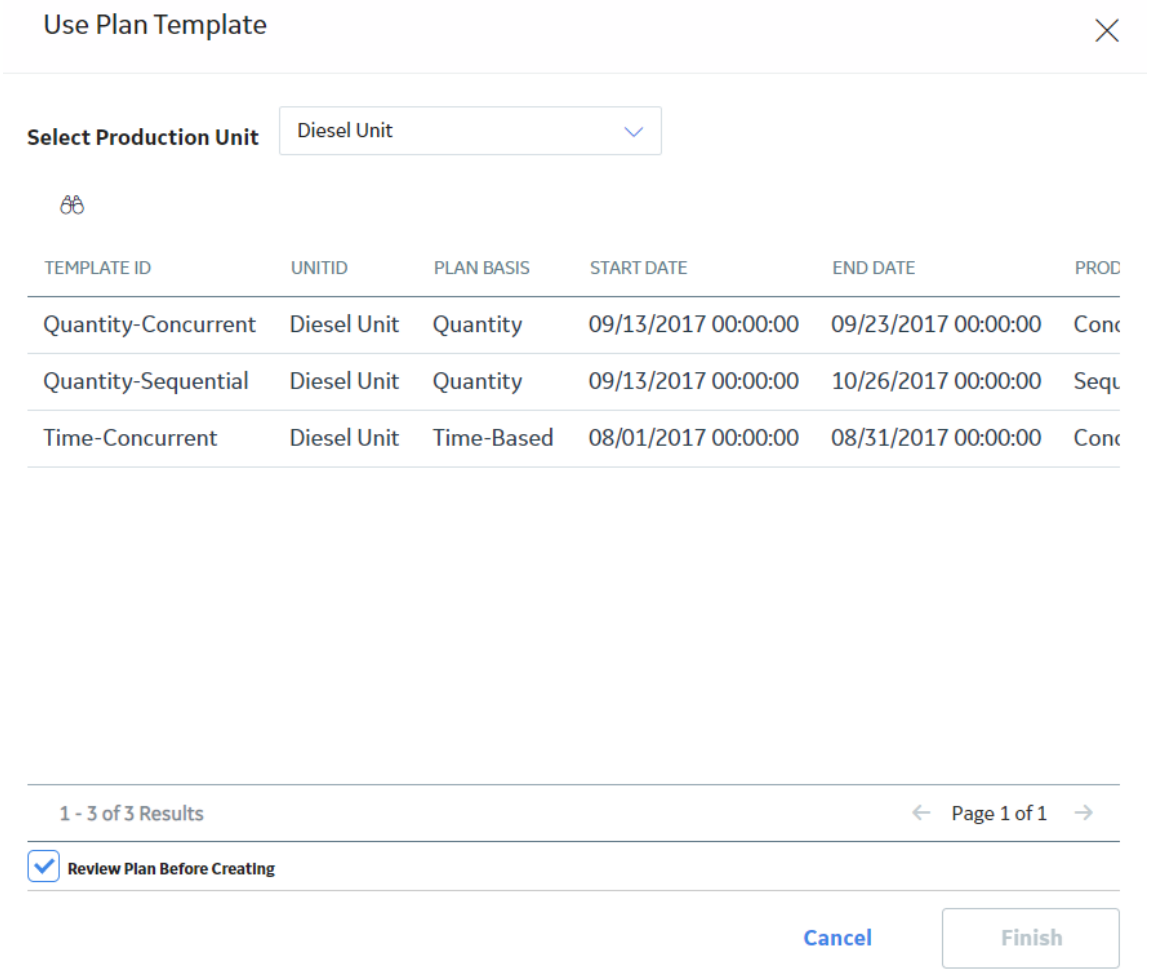
Next Steps

- Submit the Production Plan for review.

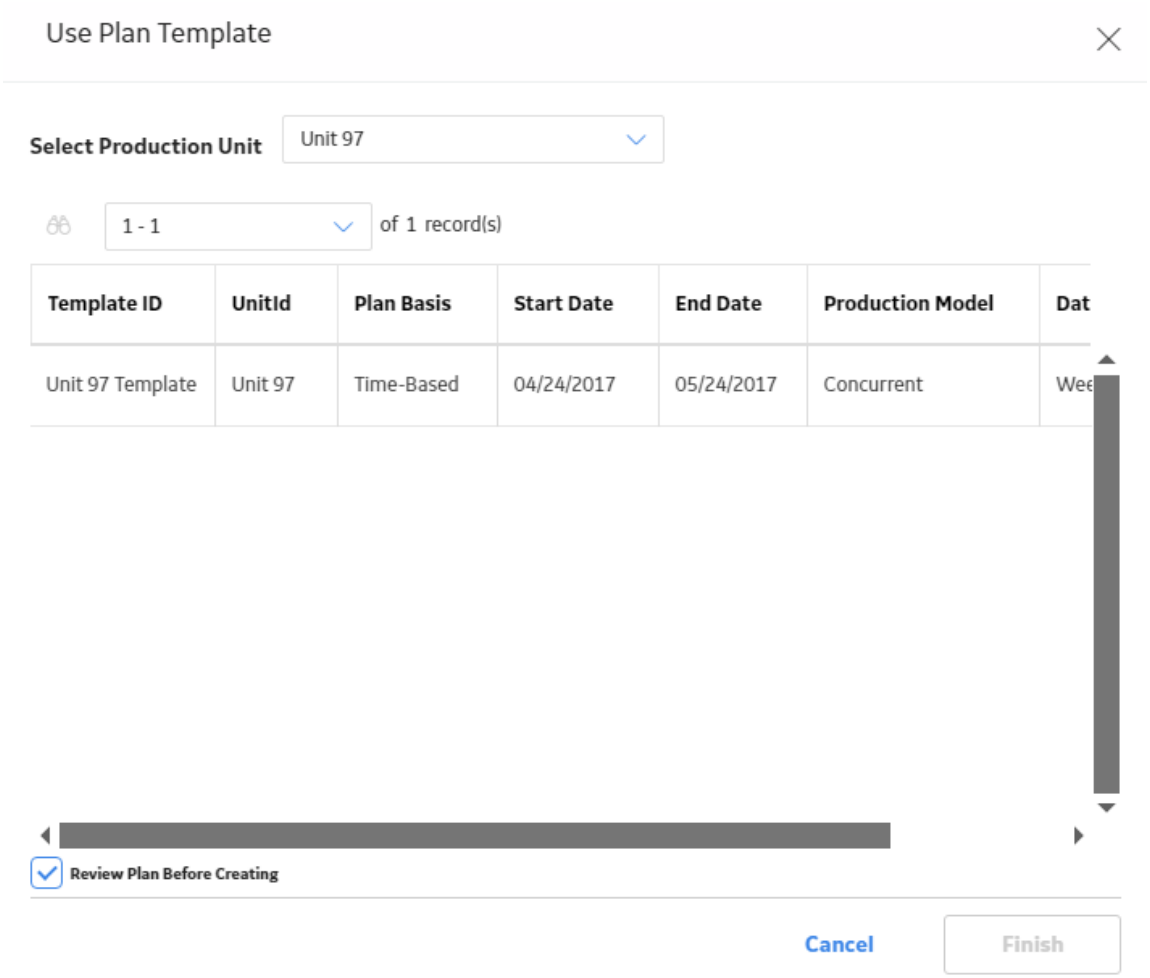
Create a Production Plan from a Plan Template

Procedure

1. Access the **PLA Overview** page.
2. On the upper-right corner of the **PLA Overview** page, select **New Plan**, and then select **Use Plan Template**.
   The **Use Plan Template** window appears.

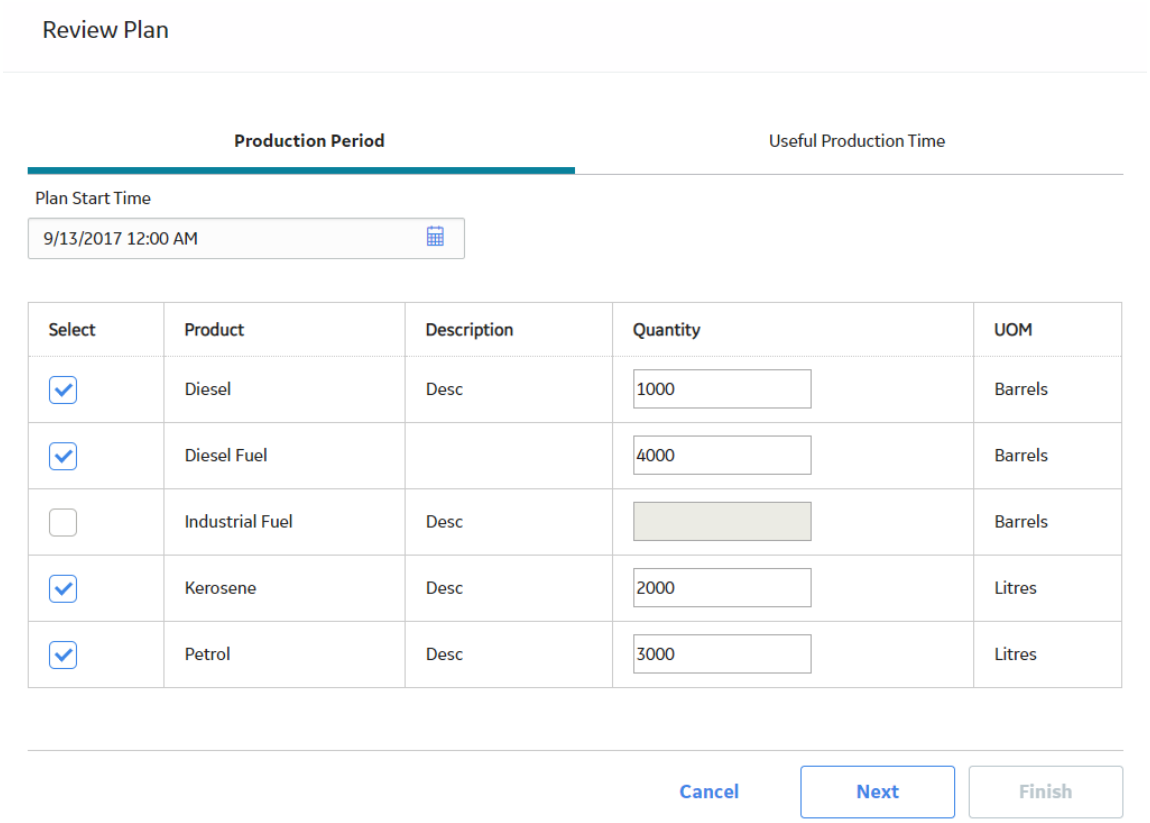


3. Select the Unit that contains the Plan Template that you want to use.
   A list of Plan Templates for the selected Unit appears.



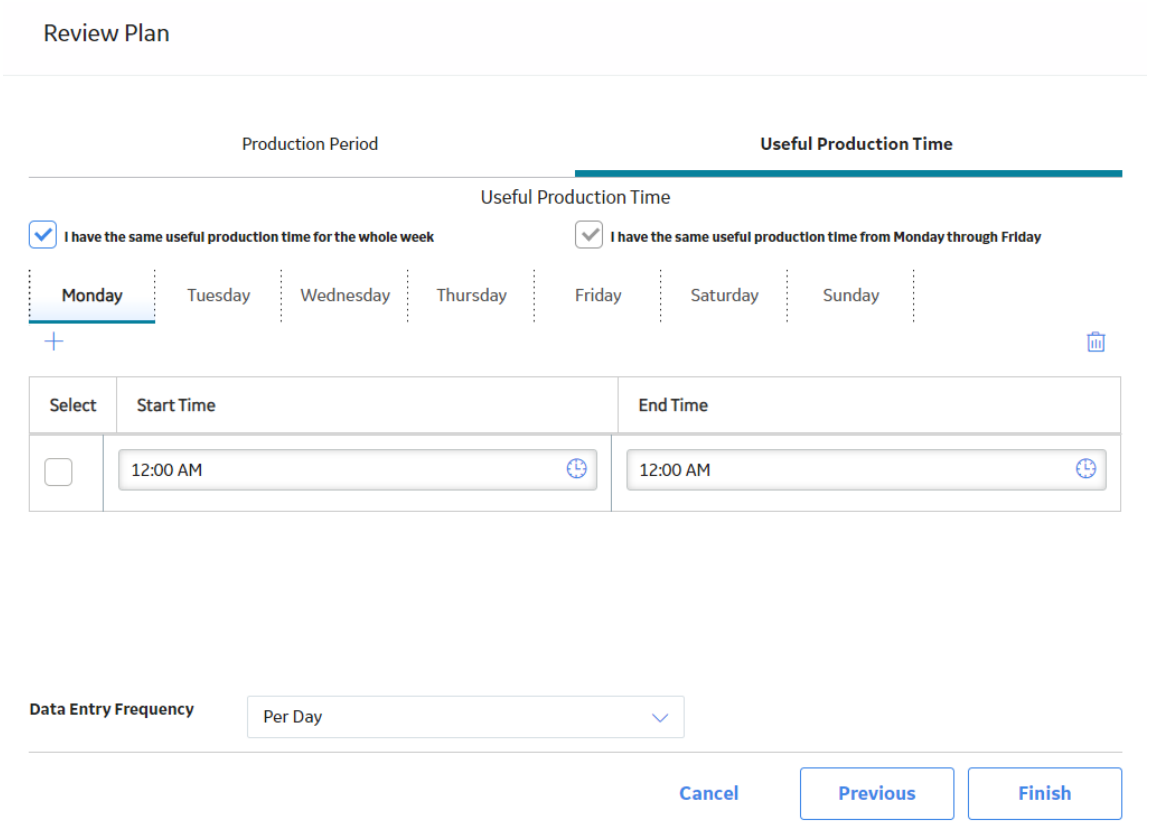
4. Select a Plan Template.

   These steps assume that you want to review or modify the plan details prior to generating the plan. If this is not the case, clear the **Review Plan Before Creating** check box and proceed to Step 9.
5. Select **Finish**.
   The **Review Plan** window appears, displaying the **Production Period** section.



6. For a concurrent plan, select the Plan Start Time and **Plan End Time**, and, in the table, select the check boxes for any products that you want to include in your plan.

   For a sequential plan, select the Plan Start Time. The Plan End Time is set automatically to one year after the Plan Start Time. In the table, select the check boxes for any products that you want to include in your plan.
7. Select **Next**.
   The **Useful Production Time** section appears.



8. Specify the days and times when useful production will occur. To do so:
   a. Select the appropriate check box to indicate whether the production occurs during the whole week or only Monday through Friday.
   b. Use the schedule controls to enter the shift times for each day that production occurs.
   c. In the **Data Entry Frequency** box, select how often data is entered into APM.
9. Select **Finish**.
   If a Production Plan already exists for the same Production Unit and start date, a warning message appears, indicating that a duplicate Production Plan will be created.

   The types of Production Plans for which a warning message appears are described in the following table.

Production Plan	Description
Time-Based Concurrent	Plans created for the same start date, end date, Products, and Production Unit.
Time-Based Sequential	Plans created for the same start date, end date, and Products with the same sequence and Production Unit.
Quantity-Based Concurrent	Plans created for the same start date and Products with the same quantity and Production Unit.
Quantity-Based Sequential	Plans created for the same start date and Products with the same quantity, sequence, and Production Unit.

10. Select **Continue**.
    The Production Plan is created, and it appears in the **Plan Details** workspace.

Next Steps

- Submit the Production Plan for review.

Create a Manual Production Plan

About This Task

After creating a manual Production Plan, you can add products to the plan, as well as modify the start and end time, via the **Plan Details** section.

Note: You cannot copy or regenerate a manual Production Plan.

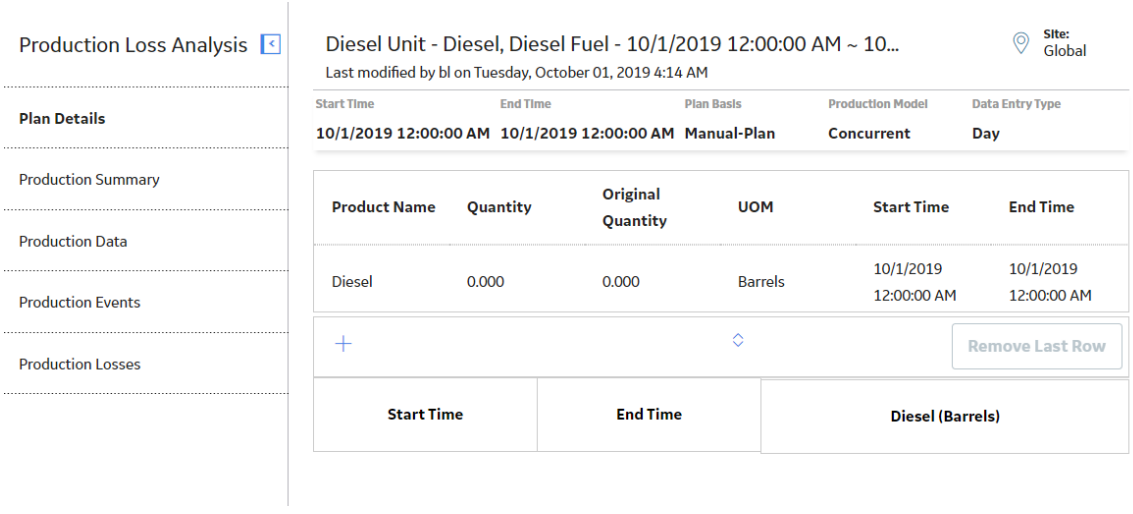
Procedure

1. Access the **PLA Overview** page.
2. Select **New Plan**, and then select **Manual Plan**.
   The **Create Plan by Manual Entry** window appears, displaying the **Select Production Unit** screen.
3. In the **Select Unit** list, select the Production Unit for which you want to create a new Production Plan.
   The list of available products appears.

   Note: The Production Plan will be created in the timezone of the Production Unit.
4. Next to each product that you want to add, select the check box.

   Tip: If the list of products is long and you are having trouble finding the product that you want to add, then you can search for a specific product by entering a value in the search box.
5. Select **Finish**.

   The plan is generated and appears in the **Plan Details** workspace.



Tip: The start time is automatically generated as the date the plan is created, and the end time is exactly 24 hours later. The start time and end time can be modified by selecting the field and entering new values.

Note: The initial quantity shown in the **Plan Details** section is based on the duration of the plan multiplied by the MSCR of the selected product, which can be modified along with the start time and end time.

Next Steps

- Submit the Production Plan for review.

Modify a Manual Production Plan

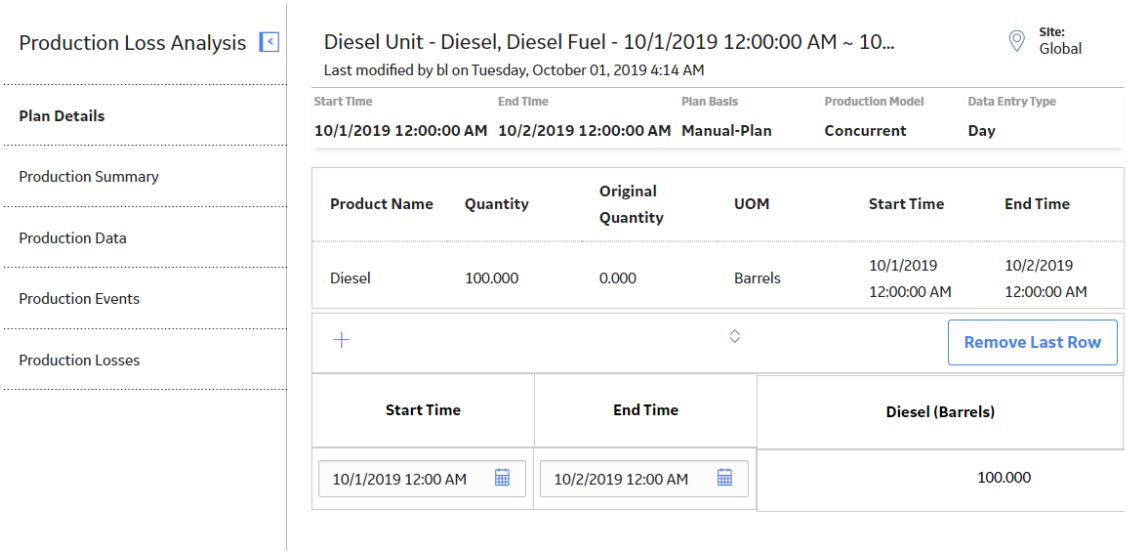
About This Task

Manual Production Plans can be modified in the **Plan Details** section.

Procedure

1. Access a manual Production Plan.

   The **Plan Details** workspace for the selected manual Production Plan appears.



2. As needed, modify the following details:
   - If you want to modify the Start Time and End Time, then complete the following steps:
     a. Select the row of data for which you want to modify the Start Time or End Time.
     b. In the **Start Time** cell, enter the new start time.
     c. In the **End Time** cell, enter the new end time.
        The values are saved automatically when you select outside the cell.
   - If you want to add a row at the bottom of the table, then complete the following steps:
     a. In the upper-left corner of the table, select +, and then select **Add Row**.
        A new row is added to the bottom of the table. The start time, end time, and planned production value for the new row will be determined automatically. An equivalent row is added in **Production Data** section if the start time for the new row is before the current start time.
     b. As needed, modify the values in the cells in the following columns:

i. **Start Time** : Enter the start time.
ii. **End Time** : Enter the end time.
iii. **<Product (UOM)>**: Enter the quantity of the product based on the Unit of Measure (UOM).
The values are saved automatically when you select outside the cell.

Note: If an overlap exists in the plan, then a warning message appears.

- If you want to insert a row before or after a row, then complete the following steps:

a. Select the row above or below which you want to insert a row.
b. In the upper-right corner of the table, select , and then select **Insert Row Above** or **Insert Row Below**.
A new row appears in the table based on your selection.
c. As needed, modify the values in the cells in the following columns:

i. **Start Time** : Enter the start time.
ii. **End Time** : Enter the end time.
iii. **<Product (UOM)>**: Enter the quantity in the column labeled with the selected UOM for the plan.
The values are saved automatically when you select outside the row.

Note: If an overlap exists in the plan, then a warning message appears.

- If you want to add a product, then complete the following steps:

a. In the upper-left corner of the table, select , and then select **Add Product**.
The **Product List** window appears.
b. Select a product from the list, and then select **OK**.
The product appears in the table in the upper section.

Next Steps

- Submit or resubmit the Production Plan for review.

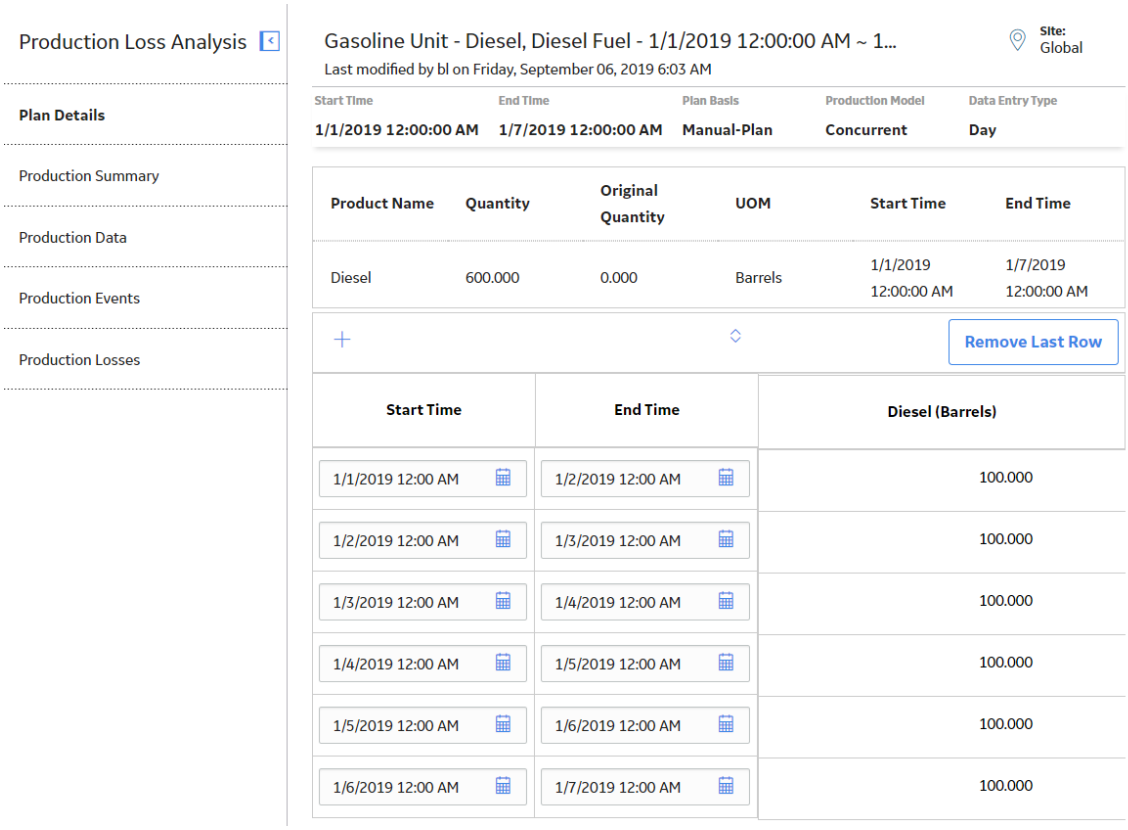
Add a Row in a Production Plan

Procedure

1. Access the Production Plan to which you want to add a row of data.
2. In the **Plan Details** workspace, select , and then select **Add Row**.

   A new row of data is added to the second table. The values in the **Start Time** and **End Time** columns and the planned production value for the new row are determined automatically.

   The values in the **Quantity** and **End Time** columns in the first table and the Plan ID are updated.



Copy a Production Plan

About This Task

You can copy a Production Plan to create a Production Plan for the same Production Unit for which the source Production Plan was created. The records associated with the original Production Plan, including the actual production data and losses, are not copied. The copied Production Plan will be created in the time zone of the Production Unit. This topic describes how to copy a Production Plan.

Note:

- You cannot copy a manual Production Plan.
- You cannot copy a Production Plan that uses a deactivated Product.

Procedure

1. Access the Production Plan that you want to copy.
2. In the **Plan Details** workspace, select , and then select **Copy Plan**.
   The Production Plan is copied. The copied Production Plan has the same name as the Production Plan from which it was copied.

Remove the Last Row in a Production Plan

Procedure

1. Access the Production Plan from which you want to remove the last row of data.
2. In the **Plan Details** workspace, select **Remove Last Row**.

   The **Confirm Remove** window appears, indicating that this action will also delete the corresponding row of data in the **Production Data** workspace.
3. Select **Yes**.

   The last row of data in the **Plan Details** workspace and the corresponding row of data in the **Production Data** workspace are deleted.

   The values in the **Quantity** and **End Time** columns in the first table and the Plan ID are updated.

Regenerate a Production Plan

About This Task

You can modify only the planned production values of a Production Plan that is quantity-based or time-based. If you want to modify the start time or the end time of the shift of the Production Plan, you can regenerate the Production Plan. This will replace the current Production Plan. This topic describes how to regenerate a Production Plan.

Note: You cannot regenerate a manual Production Plan.

Procedure

1. Access the Production Plan that you want to regenerate.
2. In the **Plan Details** workspace, select  , and then select **Regenerate Plan**.
   The **Regenerate Plan** window appears, asking you to confirm that you want to regenerate the Production Plan.

   Important: Regenerating a Production Plan will delete all the records associated with the Production Plan, including the actual production data and losses.
3. Select **Yes**.

   The **Production Plan Builder** window appears.
4. Follow Steps 4-13 provided in Create a Production Plan via the Production Plan Builder.

   Note: You cannot use a deactivated Product to regenerate a Production Plan.

   The Production Plan is regenerated.

Delete a Production Plan

Procedure

1. Access the **PLA Overview** page.

2. Select the **Production Plans** tab.

   The **Production Plans** section appears, displaying a list of Production Plans available in the database.
3. Select the row containing the Production Plan whose summary you want to delete.
4. In the upper-right corner of the workspace, select  .

   The **Delete Plan** dialog box appears, asking if you really want to delete the selected Production Plan.
5. Select **Yes**.

   The selected Production Plan is deleted. The list of Production Plans is updated.

Submit or Resubmit a Production Plan for Review

Before You Begin

- Ensure that the State Management functionality has been enabled for the Production Plan family.
- Ensure that you belong to at least one of the following Security Roles:
  - Production Loss Accounting User
  - Production Loss Accounting Service
  - Production Loss Accounting Administrator

About This Task

A Production Plan that is in the New/Planning state can be submitted or resubmitted for review. The New/Planning state of a Production Plan indicates one of the following:

- It has never been submitted for review.
- It has been rejected.
- It has been opened after approval.

This topic describes how to submit or resubmit a Production Plan for review.

Procedure

1. Access the **Production Plan** that you want to submit or resubmit for review.

   Tip: For the Production Plan that can be submitted or resubmitted for review, in the **PLA Overview** page, in the **Production Plans** section, the value in the **State** column is New/Planning.

   Note: To know which scenario caused the Production Plan to move to the New/Planning state, you can access the **History** section in the **State Assignments** window. To access this window, select the **New/Planning** drop-down list box in the Production Plan, and then select the **Manage State Assignments** option.
2. Select the **New/Planning** drop-down list box, and then select the **Propose** option, followed by the **Done** button.
   The Production Plan is submitted or resubmitted for review, and its state is changed to Pending/Approval. You can no longer modify the Production Plan.

Next Steps

- Approve or reject the Production Plan.

Approve or Reject a Production Plan

Before You Begin

- Ensure that a Production Plan has been submitted for review.
- Ensure that you belong to the Production Loss Accounting Administrator Security Role or the Production Loss Accounting Service Security Role.

Procedure

1. Access the **Production Plan** that you want to approve or reject.

   Tip: For the Production Plan that is ready for review, in the **PLA Overview** page, in the **Production Plans** section, the value in the **State** column is Pending/Approval.
2. Select the **Pending/Approval** drop-down list box, and then select the **Approve** or **Reject** option as needed, followed by the **Done** button.
   - If you selected the **Approve** option: The Production Plan is approved, and its status is changed to Approved. You can no longer modify the Production Plan.
   - If you selected the **Reject** option: The Production Plan is rejected, and its status is changed to New/Planning. You can now modify the Production Plan.

Next Steps

- Close the approved Production Plan.
- If you want to modify the approved Production Plan, open it.
- Modify the rejected Production Plan, and then resubmit it for review.

Open an Approved Production Plan

Before You Begin

- Ensure that a Production Plan has been approved.
- Ensure that you belong to the Production Loss Accounting Administrator Security Role.

Procedure

1. Access the **Production Plan** that you want to open.

   Tip: For the Production Plan that can be opened, in the **PLA Overview** page, in the **Production Plans** section, the value in the **State** column is Approved.
2. Select the **Approved** drop-down list box, and then select the **Edit** option, followed by the **Done** button.
   The Production Plan is opened, and its status is changed to New/Planning. You can now modify the Production Plan.

Next Steps

- Modify the Production Plan, and then resubmit it for review.

Close a Production Plan

Before You Begin

- Ensure that a Production Plan has been approved.
- Ensure that you belong to the Production Loss Accounting Administrator Security Role.

Procedure

1. Access the **Production Plan** that you want to close.

   Tip: For the Production Plan that can be closed, in the **PLA Overview** page, in the **Production Plans** section, the value in the **State** column is Approved.
2. Select the **Approved** drop-down list box, and then select the **Close** option, followed by the **Done** button.
   The Production Plan is closed, and its status is changed to Complete. You can no longer modify the Production Plan.

Chapter 5

Production Events

Topics:

About Production Events

A Production Event is any event that results in reduced production output, such as:

- An equipment failure.
- An intentional reduction in production output as the result of some condition (e.g., lack of demand for the product).
- User error in operating the piece of equipment.
- Holidays requiring a facility shutdown.
- Loss of employees (e.g., due to vacation days or employee termination).

Details

When an event occurs that causes you to produce less output than what you had planned, you can manually add the event to a Production Event and record all the details related to the event. You can link the event to:

- An Asset
- A Production Unit. The losses for the Production Unit will be the combined losses of each Equipment and Functional Location that is part of the Production Unit.

This allows you to view the actual cost of unreliability.

Alternatively, you can automate the creation of a Production Event via the Create Production Event node in Policy Designer. Using this node, you can design a policy to create new Production Events whenever certain thresholds or limits are exceeded or met. This enables the creation of Production Events through integration with other systems, including OPC, AMS, and GE.

About the Available Production Events

In the **Production Data** workspace, for each product, when you access the Losses, the **Production Event** list displays the Record IDs of all the Production Event records that are returned by the EventList query, which is stored in the Catalog folder `\\Public\Meridium\Modules\PLA\Queries`.

The EventList query returns the Record ID of all Production Event records whose date range includes the date in the Period column in the selected Production Data record. A Production Event record's date range is determined from the values in its Start Date and End Date fields.

Note: If the Production Event record does not have a start date, its Record ID will appear in the Production Event list for losses that are associated with any day before the end date. Likewise, if the Production Event record does not have an end date, its Record ID will appear in the Production Event list for losses that are associated with any day after the start date.

> **Capturing Loss outside the Production Event Date Range**
>
> Consider a Production Event record with a date range of 1/1/2015 to 1/15/2015. The date range is determined from the values in the Start Date and End Date fields of the Production Event record.

If you were recording a loss for 1/18/2015, you would not be able to associate the loss with this Production Event record because the date range of the production event (1/1 through 1/15) does not include 1/18/2015.

Capturing Loss within the Production Event Date Range

Continuing with the above example, if you were recording a loss for 1/8/2015, you would be able to associate the loss with this Production Event record because the date range of the production event (1/1 through 1/15) does include 1/8/2015.

About Relationships Involving a Production Event Code

When you create a Production Event record, on the datasheet, you can select in the **Production Event Code** cell to select the Production Event Code record that most accurately represents the type of event that the Production Event record represents. Likewise, when you create a Production Event Template record, you can select in the **Production Event Code** cell to select the Production Event Code record that most accurately represents the type of events that will be created automatically from that Production Event Template record.

Details

When you save the Production Event or Production Event Template record, it will be linked automatically to:

- The selected Production Event Code record, using the Has Base Production Event Code relationship.
- The selected Production Event Code record, using the Has Production Event Code relationship.
- All Production Event Code records that categorize the selected Production Event Code record, using the Has Production Event Code relationship.

In other words, the new Production Event or Production Event Template record will always be linked to one and only one Production Event Code record through the Has Base Production Event Code relationship and the Has Production Event Code relationship. Depending on how that Production Event Code record is categorized, the new Production Event or Production Event Template record might also be linked to multiple additional Production Event Code records through the Has Production Event Code relationship.

Access a Production Event

About This Task

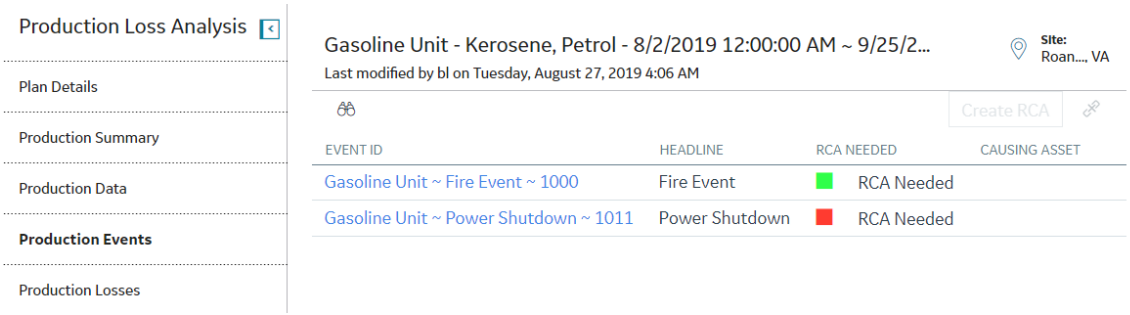
You can access a Production Event associated with a Production Plan, or access all the Production Events that exist in APM. This topic describes how to access a Production Event associated with a Production Plan.

Procedure

1. Access the Production Plan for which you want to access a Production Event.

Tip: To access all the Production Events that exist in APM, in the **PLA Overview** page, select the **Production Events** tab.

2. In the pane, select **Production Events**.
   The **Production Events** workspace appears, displaying a table of Production Events associated with the Production Losses for the Production Plan.



3. In the **Event ID** column, select the link in the row that contains the Production Event that you want to access.
   The datasheet of the selected Production Event appears.

   Note: As needed, you can modify the values in the available fields, and then select to save your changes. If the Production Event is associated with a Production Loss, you cannot modify the values in the Start Date and End Date fields such that they no longer coincide with the period of the Production Loss.

Access a Root Cause Analysis (RCA) from PLA

About This Task

A Production Event can be associated with only one RCA. After an RCA is linked to a Production Event, you can access the corresponding RCA from the PLA module.

Important: You can view the list of RCAs created from PLA only if the license for Root Cause Analysis is active.

Procedure

1. Access the Production Plan for which you want to view an associated RCA.
2. In the left pane, select **Production Events**.

   The **Production Events** workspace appears, displaying a list of Production Events associated with the losses in the selected Production Plan.
3. In the row that contains the Production Event for which you want to view the associated RCA, in the **RCA ID** column, select the link.

   In a new page, the **Analysis Summary** workspace appears, displaying the details of the selected RCA.

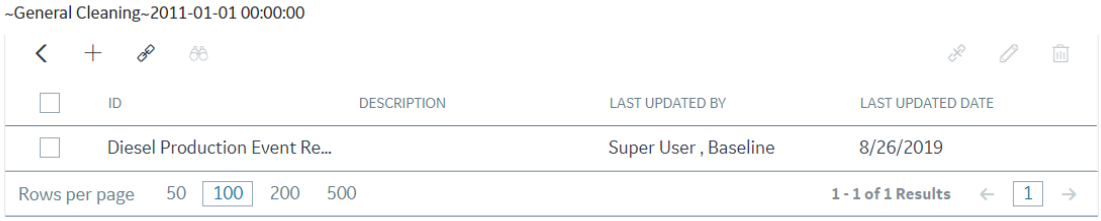
Access the Reference Documents in a Production Event

Procedure

1. Access the Production Event for which you want to access the Reference Documents.

2. In the upper-right corner of the workspace, select , and then select **Reference documents**.

   A list of Reference Documents associated with the Production Event appears.



   Note: See the Manage Reference Documents section of the documentation for additional options when working with Reference Documents.

Create a Production Event

About This Task

You can create a Production Event using one of the following methods:

- Create a Production Event via the Production Events section of the PLA Overview page.
- Create a Production Event via the **Production Data** workspace.

Note: If the OT Connect feature has been configured correctly, then Production Event records will be created automatically as a result of the integration.

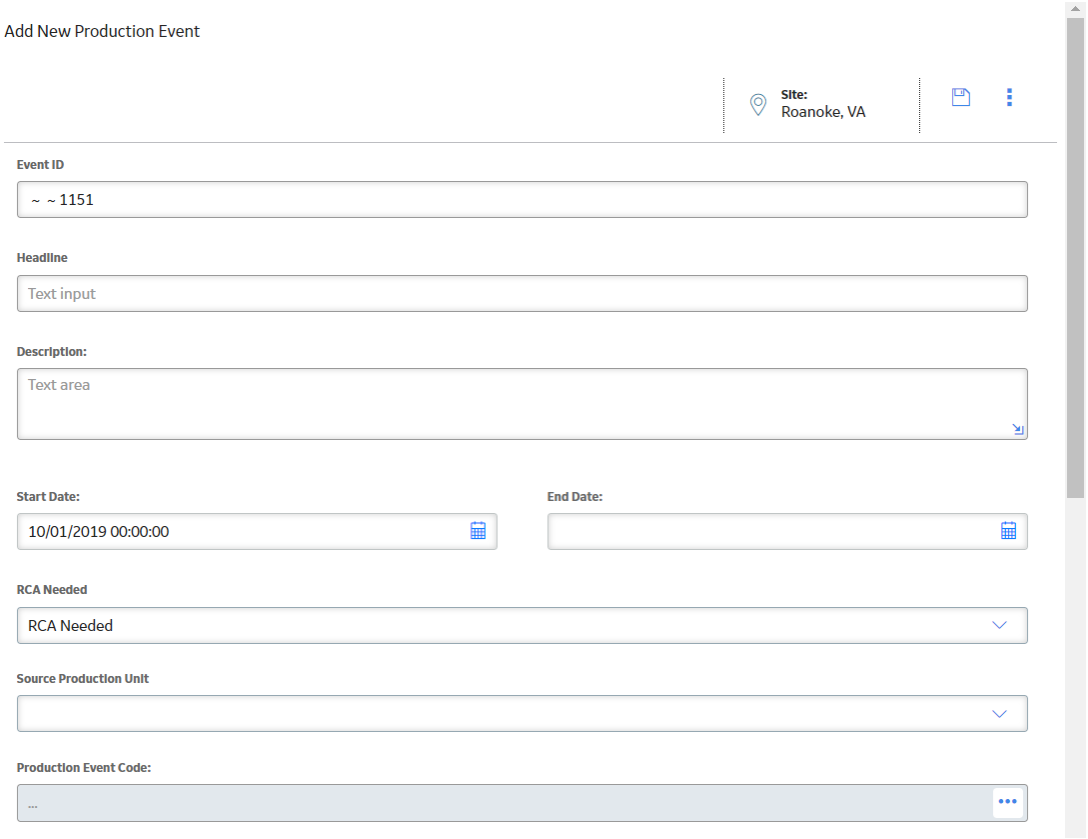
This topic describes how to create a Production Event via the Production Events section of the PLA Overview page.

Procedure

1. Access the **PLA Overview** page.
2. Select the **Production Events** tab.

   The **Production Events** section appears, displaying a list of Production Events.
3. In the upper-left corner of the **Production Events** section, select .

   The **Add New Production Event** datasheet appears.



4. As needed, enter the values in the available fields, and then select .

   Note: The values in the Start Date and End Date fields must represent the time zone of the Production Unit, not your time zone.

   The Production Event is saved.

Create a Production Event via the Production Data Workspace

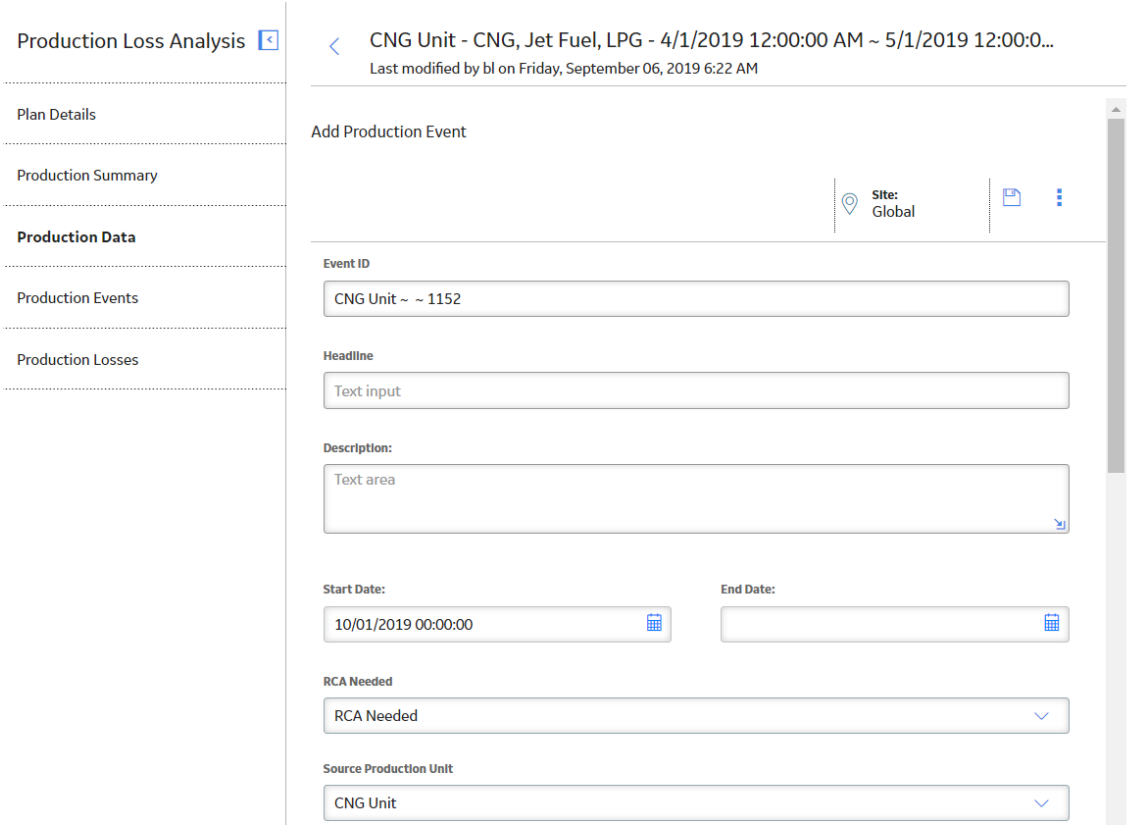
Before You Begin

- Add Production Loss

Procedure

1. Access the losses that you want to associate with a new Production Event.
2. Select **Create Event**.

   The **Add Production Event** datasheet appears.



3. As needed, enter the values in the available fields, and then select .

   The Production Event is saved.

Create an RCA from PLA

Before You Begin

- Ensure that the license for the Root Cause Analysis (RCA) module is active.
- Ensure that you are assigned to one of the following Security Groups:
  - MI PROACT Administrator
  - MI PROACT Team Member
- Create a Production Loss that is associated with a Production Event.

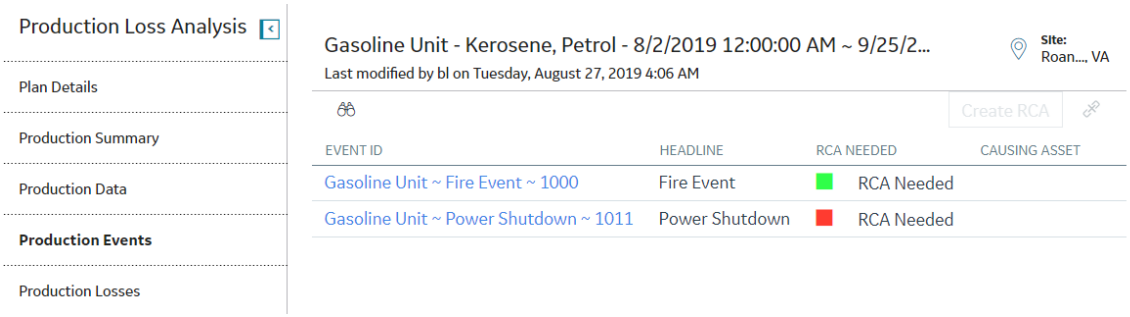
About This Task

You should associate a Production Event with an RCA if the value in the RCA Needed field in the Production Event is RCA Needed. You can create only one RCA from a Production Event in the **Production Events** workspace.

Procedure

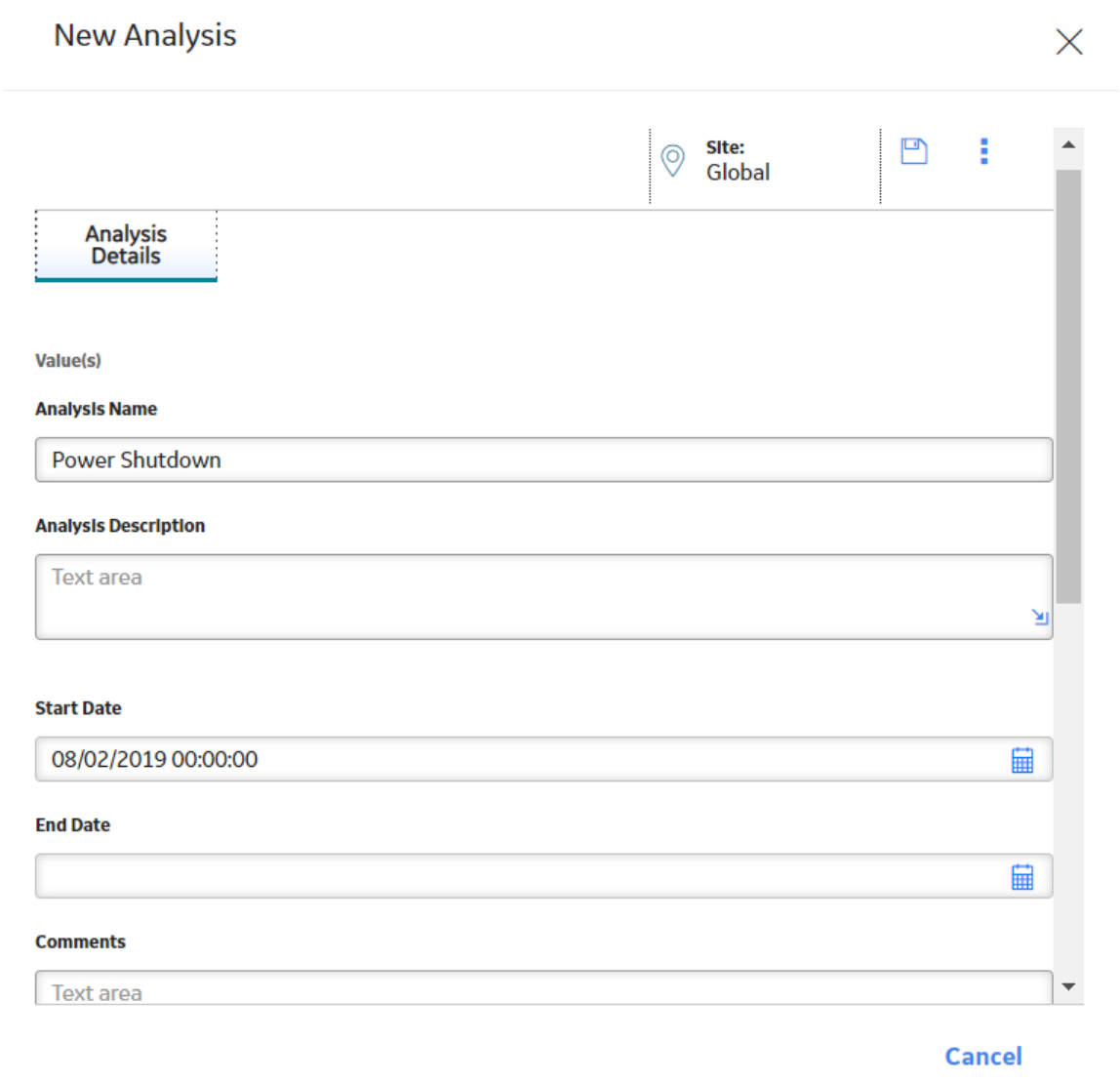
1. Access the Production Plan for which you want to create an RCA.
2. In the pane, select the **Production Events** tab.

   The **Production Events** workspace appears, displaying a table of Production Events associated with the Production Losses for the Production Plan.



3. Select the row that contains the Production Event for which you want to create an RCA.
4. Select **Create RCA**.

   The **New Analysis** window appears, displaying the datasheet of the RCA Analysis record.



Note:

The following fields in the RCA Analysis record are automatically populated, depending on the corresponding values in the selected Production Event:

- Analysis Name
- Comments
- Long Description (labelled **Analysis Description** in the **New Analysis** window)
- Start Date

5. As needed, enter values in the available fields.

   Note: For more information about these available fields, refer to the RCA Analysis Records section of the documentation.

6. Select .

   The RCA is created.

Results

The **Analysis Summary** workspace for the linked RCA appears in a new page. In the **Linked Assets** section, the Causing Asset associated with the Production Event appears in the **Record ID** column.

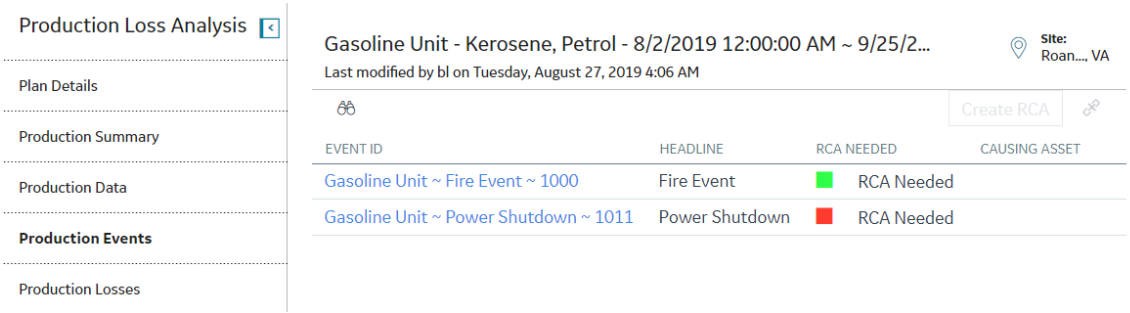
In the **Production Events** workspace of the Production Plan, the Analysis Name appears in the **RCA ID** column.

Unlink a Production Event from a Production Plan

Procedure

1. Access the Production Plan from which you want to unlink a Production Event.
2. In the left pane, select **Production Events**.

   The **Production Events** workspace appears, displaying a list of Production Events associated with the losses in the selected Production Plan.



3. Select the row that contains the Production Event that you want to unlink from the Production Plan.

   The button is enabled.

4. Select .

   The **Unlink the Production Event** dialog box appears, asking you to confirm that you want to unlink the selected Production Event from all the losses in the Production Plan.

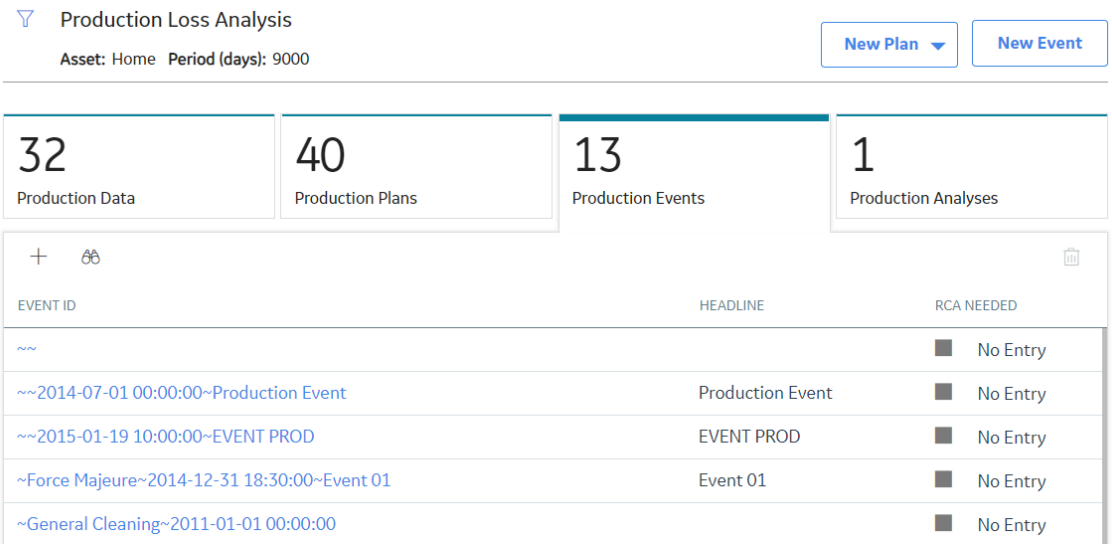
5. Select **Yes**.

   The selected Production Event is unlinked from the Production Plan.

Delete a Production Event

Procedure

1. Access the **PLA Overview** page.
2. Select the **Production Events** tab.
   The **Production Events** section appears, displaying a list of Production Event records.



3. Select the row containing the Production Event that you want to delete.
4. Select .
   The **Delete Production Event** window appears, asking you to confirm that you want to delete the selected Production Event and its associated links.
5. Select **Yes**.
   The selected Production Event is deleted. If the **Production Event** is associated with losses for a plan, the Production Event will be unlinked from the **Production Event** column in the **Reconcile Losses** table.

Submit or Resubmit a Production Event for Review

Before You Begin

- Ensure that the State Management functionality has been enabled for the Production Event family.
- Ensure that you belong to at least one of the following Security Roles:
  - Production Loss Accounting User
  - Production Loss Accounting Service
  - Production Loss Accounting Administrator

About This Task

A Production Event that is in the New/Planning state can be submitted or resubmitted for review. The New/Planning state of a Production Event indicates one of the following:

- It has never been submitted for review.
- It has been rejected.
- It has been opened after approval.

This topic describes how to submit or resubmit a Production Event for review.

Procedure

1. Access the **Production Event** that you want to submit or resubmit for review.

   Tip: For the Production Event that can be submitted or resubmitted for review, in the **PLA Overview** page, in the **Production Events** section, the value in the **State** column is New/Planning.

   Note: To know which scenario caused the Production Event to move to the New/Planning state, you can access the **History** section in the **State Assignments** window. To access this window, select the **New/Planning** drop-down list box in the Production Event, and then select the **Manage State Assignments** option.
2. Select the **New/Planning** drop-down list box, and then select the **Propose** option, followed by the **Done** button.
   The Production Event is submitted or resubmitted for review, and its state is changed to Pending/Approval. You can no longer modify the Production Event.

Next Steps

- Approve or reject the Production Event.

Approve or Reject a Production Event

Before You Begin

- Ensure that a Production Event has been submitted for review.
- Ensure that you belong to the Production Loss Accounting Service Security Role or the Production Loss Accounting Administrator Security Role.

Procedure

1. Access the **Production Event** that you want to approve or reject.

   Tip: For the Production Event that is ready for review, in the **PLA Overview** page, in the **Production Events** section, the value in the **State** column is Pending/Approval.
2. Select the **Pending/Approval** drop-down list box, and then select the **Approve** or **Reject** option as needed, followed by the **Done** button.
   - If you selected the **Approve** option: The Production Event is approved, and its status is changed to Approved. You can no longer modify the Production Event.
   - If you selected the **Reject** option: The Production Event is rejected, and its status is changed to New/Planning. You can now modify the Production Event.

Next Steps

- If you want to modify the approved Production Event, open it.
- Modify the rejected Production Event, and then resubmit it for review.

Open an Approved Production Event

Before You Begin

- Ensure that a Production Event has been approved.
- Ensure that you belong to the Production Loss Accounting Administrator Security Role.

Procedure

1. Access the **Production Event** that you want to open.

   Tip: For the Production Event that can be opened, in the **PLA Overview** page, in the **Production Events** section, the value in the **State** column is Approved.
2. Select the **Approved** drop-down list box, and then select the **Edit** option, followed by the **Done** button.
   The Production Event is opened, and its status is changed to New/Planning. You can now modify the Production Event.

Next Steps

- Modify the Production Event, and then resubmit it for review.

Chapter 6

Production Analysis

Topics:

Access a Production Analysis from PLA

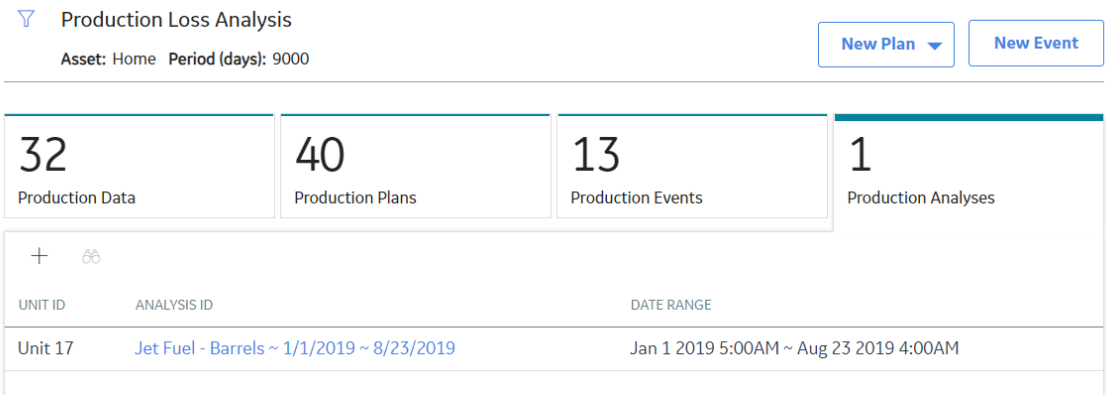
About This Task

Important: You can view the list of Production Analyses created from PLA only if the license for Reliability Analytics is active.

Procedure

1. Access the **PLA Overview** page.
2. Select the **Production Analyses** tab.

   The **Production Analyses** section appears, displaying a list of Production Units and the associated Production Analyses.



3. For the Production Analysis that you want to view, select the link in the **Analysis ID** column.

   The **Reliability Analytics** page for the selected Production Analysis appears, displaying the **Analysis Summary** workspace.

Create a Production Analysis from PLA

About This Task

Important: You can create a Production Analysis from PLA only if the Reliability Analytics license is active.

Procedure

1. Access the **PLA Overview** page.
2. Select the **Production Analyses** tab.

   The **Production Analyses** section appears, displaying a list of Production Units and the associated Production Analyses.

3. In the upper-left corner of the **Production Analyses** section, select +.

   The **Production Analysis Builder** window appears.
4. Select **Next**.

The **Select Unit and Profile** screen appears.

5. In the **Choose Unit** list, select a Production Unit for which you want to create a Production Analysis.
6. In the **Choose Profile** list, select a profile that you want to use to build the Production Analysis, and then select **Next**.

   The **Select Time Period** screen appears.
7. In the **Start Time** list, select the first day whose production data you want to plot in the Production Analysis.
8. In the **End Time** list, select the last day whose production data you want to plot in the Production Analysis, and then select **Next**.

   The **Specify production analysis name** screen appears, displaying a default Analysis ID.
9. If needed, change the name of the analysis in the **Analysis ID** box, and then select **Finish**.

   Note: Several fields in the Production Analysis are populated automatically.

   The Production Analysis is created and appears on the **Production Analysis** page.

Chapter 7

Admin

Topics:

Access the PLA Administrator Page

Access the PLA Administrator Page

About This Task

You can access the **PLA Administrator** page only if you are a member of the MI Production Loss Accounting Administrator Security Group.

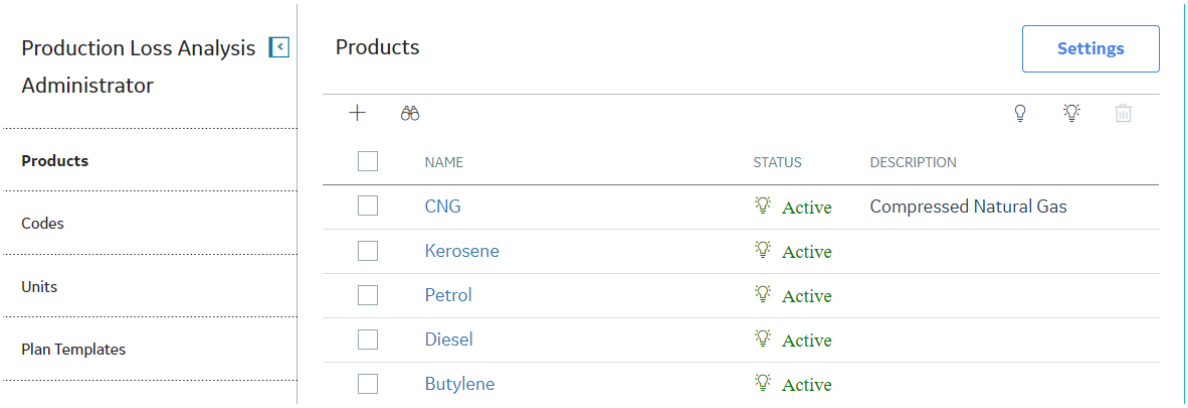
Note: For more information, refer to PLA Security Groups.

Procedure

In the module navigation menu, select **Admin** > **Application Settings** > **Production Loss Analysis**.

The **PLA Administrator** page appears, displaying the following workspaces:

- **Products:** Contains a table of Products.
- **Codes:** Contains Impact Codes, OEE Codes, and Event Codes.
- **Units:** Contains a table of Production Units.
- **Plan Templates:** Contains a table of Plan Templates.



About the PLA Service Policy

About the PLA Service Policy

The PLA Service policy is delivered as a baseline module workflow policy in Policy Designer and is used to integrate PLA and the OT Connect feature. You can configure the instances of the PLA Service policy with OT Connect tags, and then link Production Profile records to Policy Instance records. After the policy instances are linked to the Production Profiles, any readings that are recorded in the associated OT Connect Tags will be used to create Production Data records automatically. The Production Data that is created appears in the **Production Data** workspace for each product.

Configure the PLA Service Policy

Before You Begin

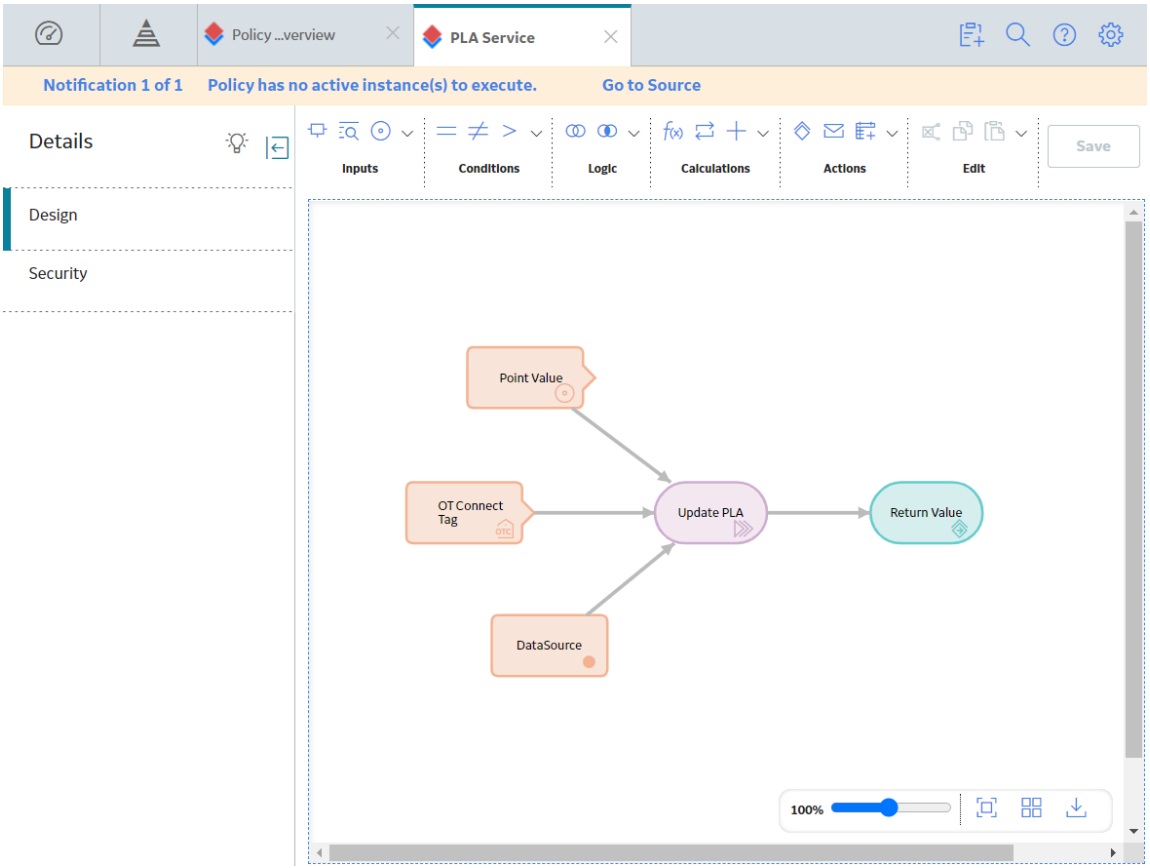
- Make sure that the following licenses are active:
  - Policy Designer
  - APM OT Connect
- Make sure that the PLA Admin user is added to the following security groups:
  - MI OT Connect Viewer
  - MI Content Template User
  - MI Policy Designer
- Make sure that the OT Connect server is configured.

About This Task

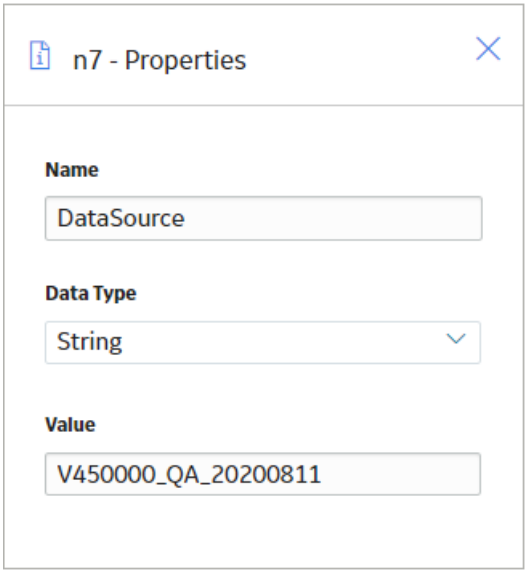
The PLA Service policy is available as a baseline module workflow policy. You can use this policy to integrate PLA and the OT Connect feature. This topic contains the steps that you need to perform to configure the PLA Service policy.

Procedure

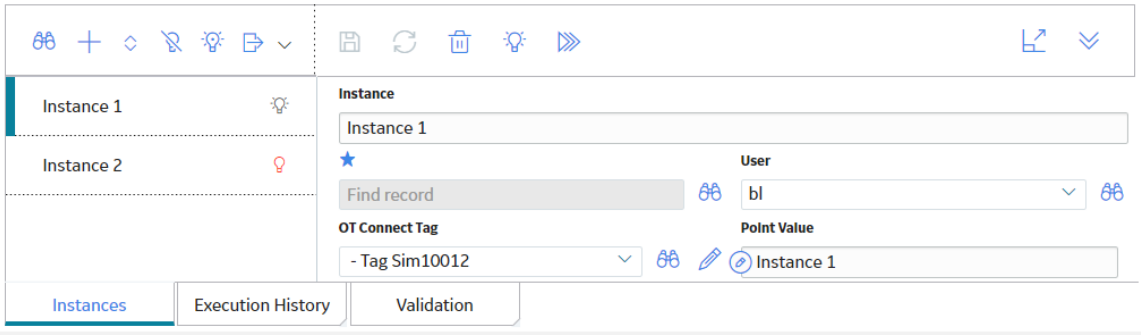
1. In the module navigation menu, select **Tools** > **Policy Designer**.
   The **Policy Designer Overview** page appears.
2. Select the **Module Workflow Policies** tab.
   The **Module Workflow Policies** section appears, displaying the list of module workflow policies.
3. Select the PLA Service policy.
   The PLA Service policy details appear.
4. Select the **Design** tab.
   The Design workspace appears displaying the policy model.



5. Select the DataSource node.
6. In the **Value** box of the Properties window, configure the Database ID.



7. At the bottom of the **Design** workspace, select the **Instances** tab.
   The **Instances** pane appears.
8. On the left side of the **Instances** pane, select +.
   A new policy instance appears.



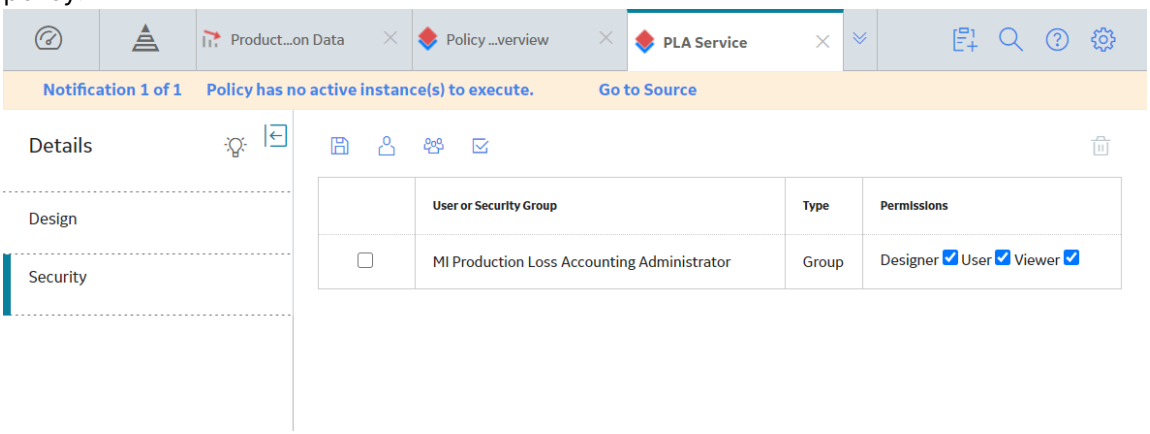
9. Next to the **OT Connect Tag** box, select , and then select the OT Connect Tag.
10. In the **Point Value** box, enter the Instance name.

    Important: The values are case sensitive. Make sure that the values in the **Instance** and **Point Value** boxes are exactly the same.

11. On the right side of the **Instances** pane, above the grid, select .
    The policy instance is activated.
12. On the **Instances** pane, select .
    The policy instance is saved.

    Note:

    - You can create more than one policy instance. However, for each instance, the OT Connect Tag must be unique.
    - If you delete a policy instance, make sure that the instance is unlinked from the production profile. The deleted instances may appear as junk values in the **Policy Instance** box of the Production Profile datasheet.
13. Select the **Security** tab.
    The Security workspace appears displaying the list of assigned users and groups to the policy.



14. Add the `MI Production Loss Accounting Administrator` security group to the policy, and then assign the following permissions:

    - Designer
    - User
    - Viewer
15. Select .
    The security group is configured to the policy.

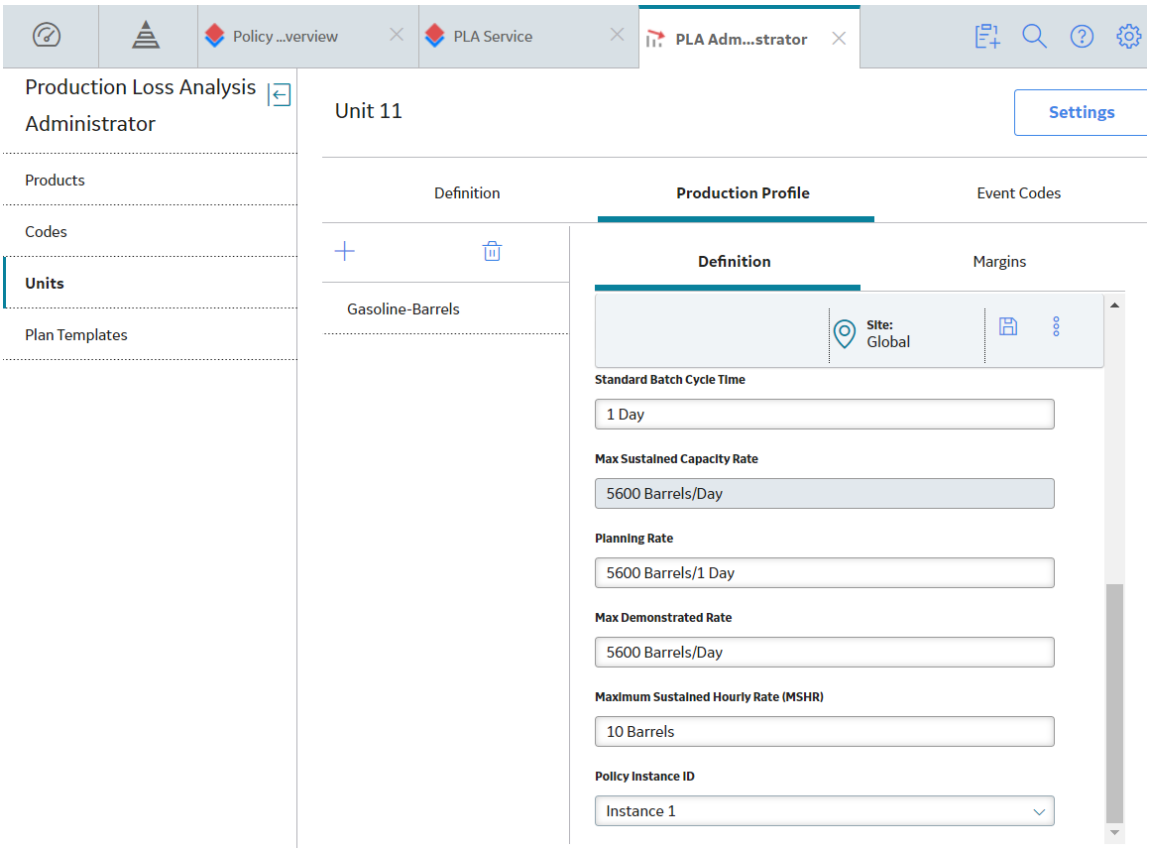
Link a Production Profile to a Policy Instance

About This Task

You can enable the OT Connect feature to create Production Data records automatically using the PLA Service Policy . To enable this integration, you will need to link Production Profile records to Policy Instance records. As a result, any readings that are recorded in the associated OT Connect Tags will be used to create Production Data records automatically. If the Production Data is already present, the value in the Actual field of the Production Data record will be updated.

Procedure

1. Access the Production Profile that you want to link to a Policy Instance.
2. In the **Production Profile** section, select the desired Production Profile.
   The datasheet for the selected Production Profile appears, displaying the details of the Production Profile.



3. In the **Policy Instance ID** box, select the Policy Instance that you want to link to the Production Profile.
4. Select .
   Any readings that are recorded in the OT Connect Tag will be used to create Production Data records automatically.

   Note: The mapping between Production Profile and Policy Instance is a 1:1 relationship. If a Policy Instance is linked to a Production Profile, you cannot link it to another Production Profile until it is unlinked from the previous one.

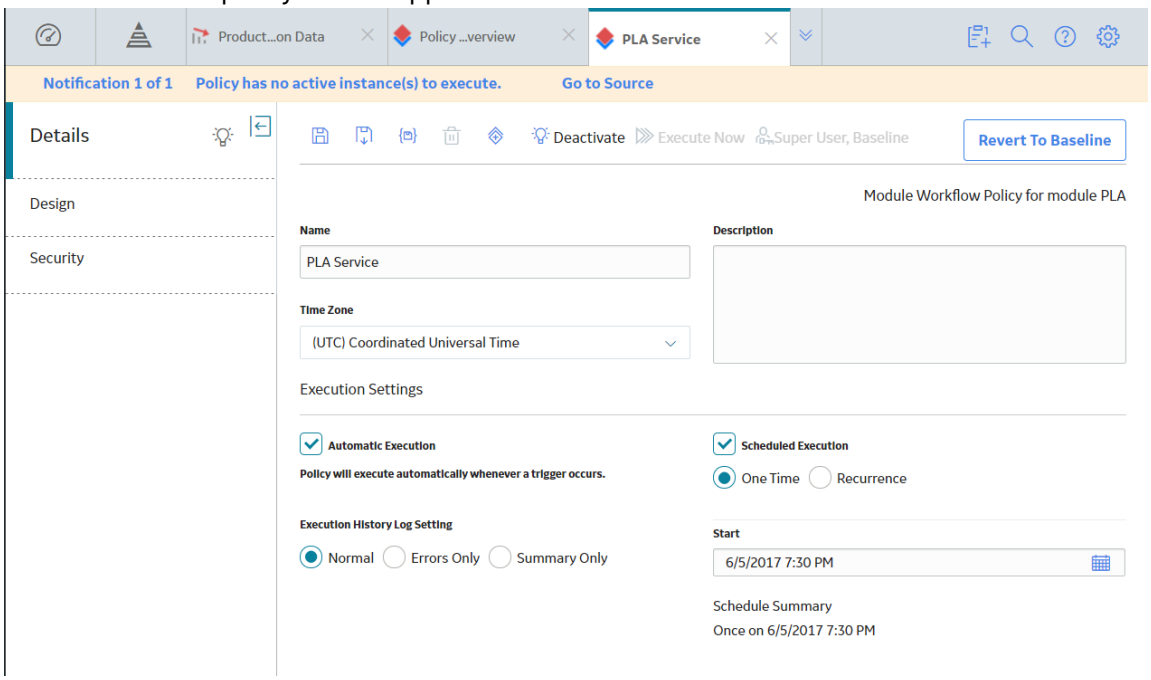
Next Steps

Make sure a Production Plan is created for the Production Profile linked with Policy Instance and the plan date is matching.

Configure PLA Service Policy Execution

Procedure

1. In the module navigation menu, select **Tools** > **Policy Designer**.
   The **Policy Designer Overview** page appears.
2. Select the **Module Workflow Policies** tab.
   The **Module Workflow Policies** section appears, displaying the list of module workflow policies.
3. Select the PLA Service policy.
   The PLA Service policy details appear.



   Note: The default Time Zone is in UTC. Do not change the Time Zone.
4. Select the **Scheduled Execution** check box, and then configure the schedule frequency.

   Note: Make sure that all the instances are activated.
5. If you do not want execute the policy for every trigger from the OT Connect tags, clear the **Automatic Execution** check box.
6. Select .
   The PLA Service policy will be executed as per the scheduled interval, and the Production Data will be created or updated for the Production Profile associated plans.

   Note: The Production Data record is created by the MIJOB user, and not by the logged in user.

Change the Currency Symbol

Change the Currency Symbol

About This Task

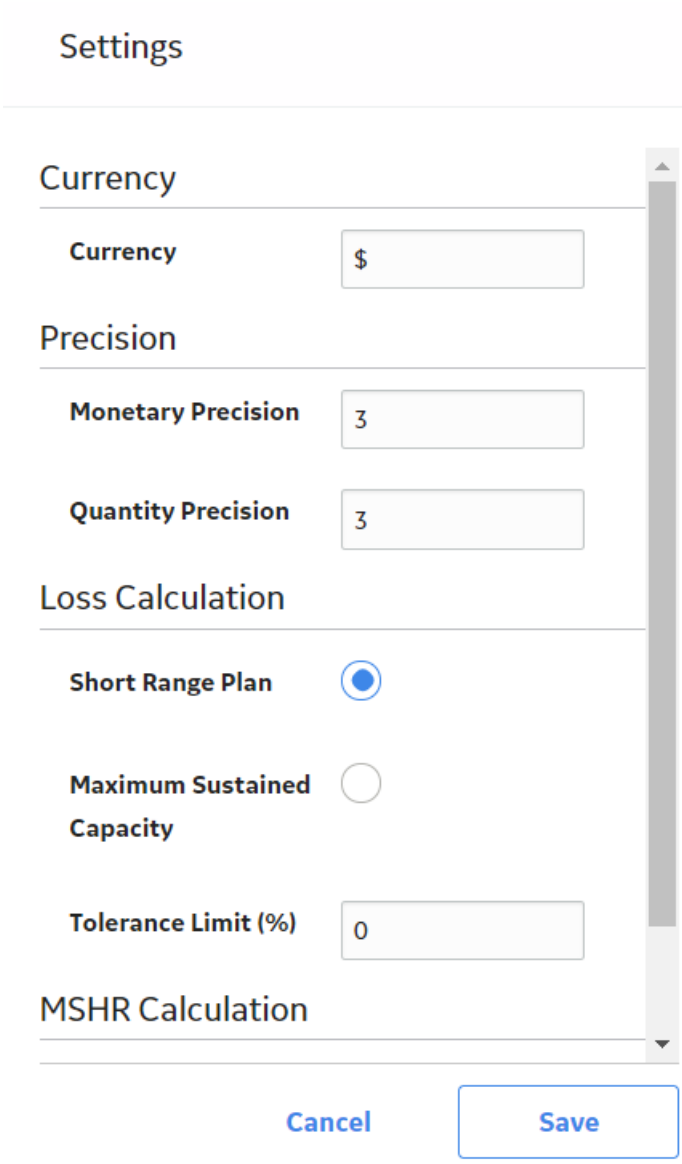
Throughout Production Loss Analysis, the cost is displayed using the currency symbol that is defined in the Currency settings. The default currency symbol is $. When you change the currency symbol, the new currency symbol is displayed globally where a cost value appears in the Production Loss Analysis.

This topic describes how to change the currency symbol.

Procedure

1. Access the **PLA Administrator** page.
2. On the upper-right corner of the page, select **Settings**.

   The **Settings** window appears.



3. In the **Currency** box, enter the required currency symbol.
4. Select **Save**.

   The currency symbol is saved.

Specify the Precision of Calculated Values

Specify the Precision of Calculated Values

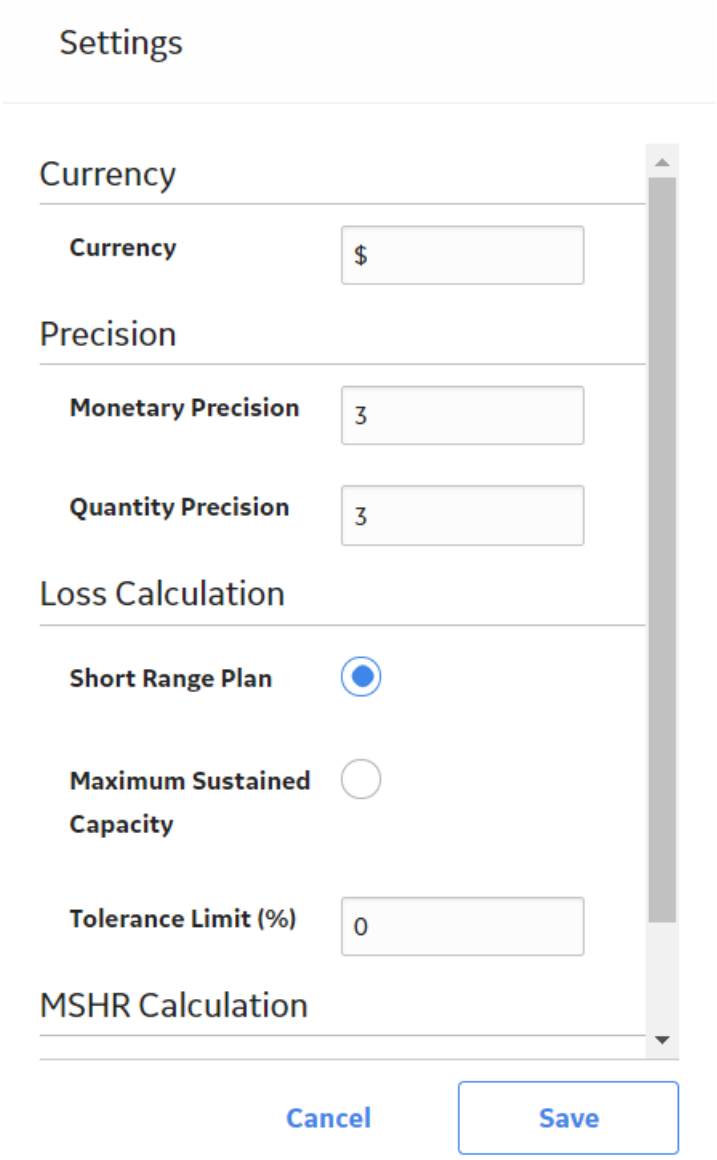
About This Task

In PLA, the values that are calculated by the APM system will be displayed using the number of decimals defined in the **Settings** window. You can change the number of decimal places that appear for the Monetary and Quantity fields using the following instructions.

Procedure

1. Access the **PLA Administrator** page.
2. On the upper-right corner of the page, select **Settings**.

   The **Settings** window appears.



3. In the **Monetary Precision** box, enter the required number of decimal places for monetary fields (i.e., **Cost of Losses** box and **Cost** box in the **Production Summary** workspace). This value must be greater than or equal to 0 (zero) and less than or equal to 9. By default, the value in this field is set to 2.
4. In the **Quantity Precision** box, enter the required number of decimal places for quantity fields (i.e., Actual, Losses, Short Range Plan, Unaccounted Loss, MSC, and Planned). This value must be greater than or equal to 0 (zero) and less than or equal to 9. By default, the value in this field is set to 0.
5. Select **Save**.

   The precision values are saved.

Specify the Loss Calculation Settings

Specify the Loss Calculation Settings

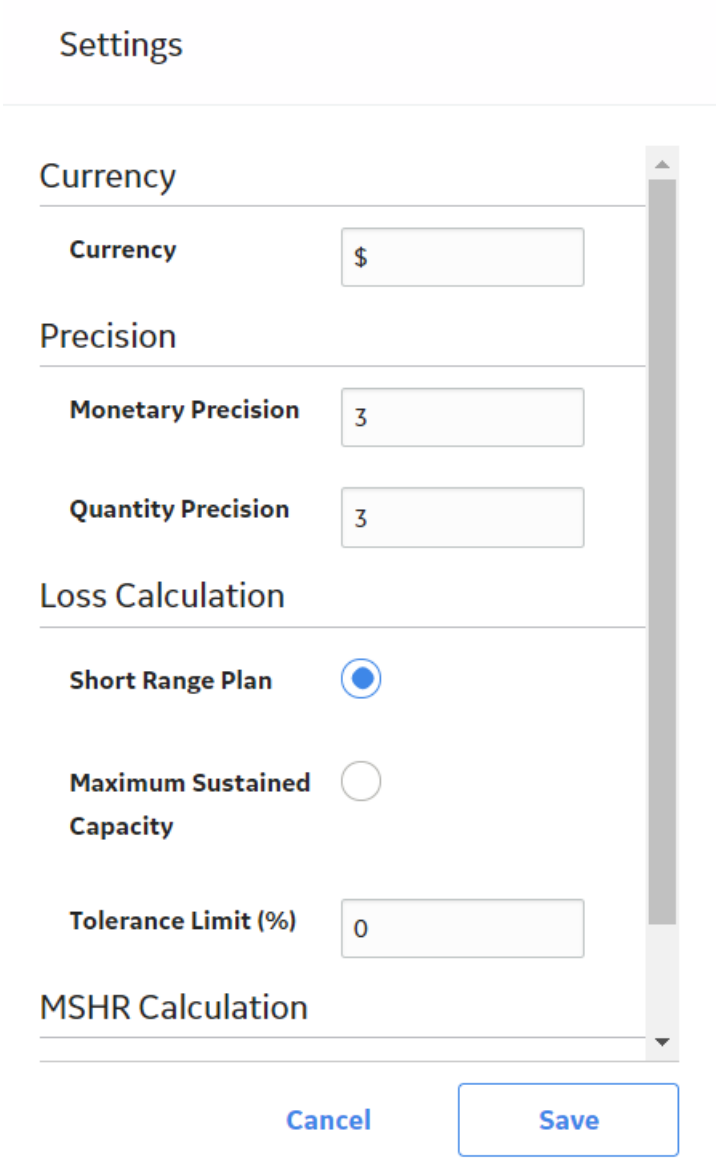
About This Task

The Loss Calculation settings affect the calculation of Production Loss and Unaccounted Loss.

Procedure

1. Access the **PLA Administrator** page.
2. Select **Settings**.

   The **Settings** window appears.



3. Select the **Maximum Sustained Capacity** or **Short Range Plan** option.

   Note: The **Short Range Plan** option is automatically selected.
4. In the **Tolerance Limit (%)** box, enter a value.

   Note: The **Tolerance Limit (%)** box is automatically populated with the value 0.
5. Select **Save**.

   The Loss Calculation settings are saved.

Results

The planned production value for a Production Data record will be determined by either the Maximum Sustained Capacity or the Short Range Plan, depending on the option you select.

The value in the **Tolerance Limit (%)** box will determine whether a Loss Amount of a Production Loss for the Production Data record will be adjusted to include the remaining Unaccounted Loss.

Specify the MSHR Calculation Setting

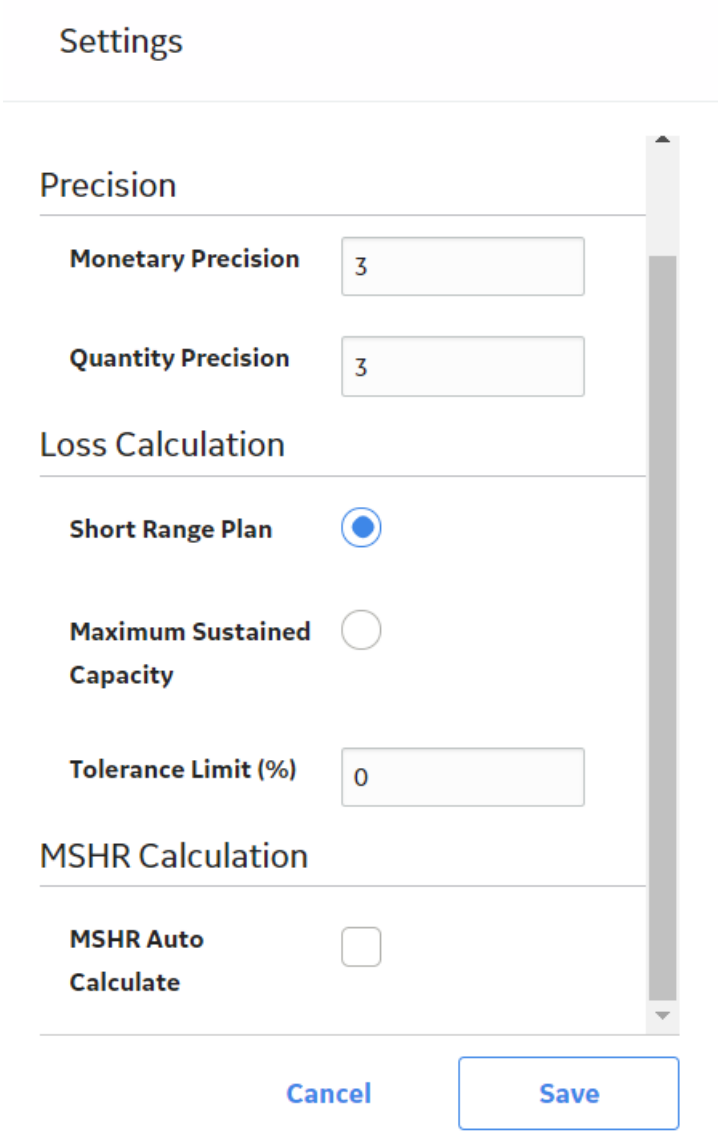
Specify the MSHR Calculation Setting

About This Task

The Maximum Sustained Hourly Rate (MSHR) Calculation setting determines whether to automatically populate the Maximum Sustained Hourly Rate field in a Production Profile.

Procedure

1. Access the **PLA Administrator** page.
2. Select **Settings**.
   The **Settings** window appears.



3. Select the **MSHR Auto Calculate** check box.
4. Select **Save**.
   The MSHR Calculation setting is saved.

Results

When you create a Production Profile, the Maximum Sustained Hourly Rate field will be automatically populated.

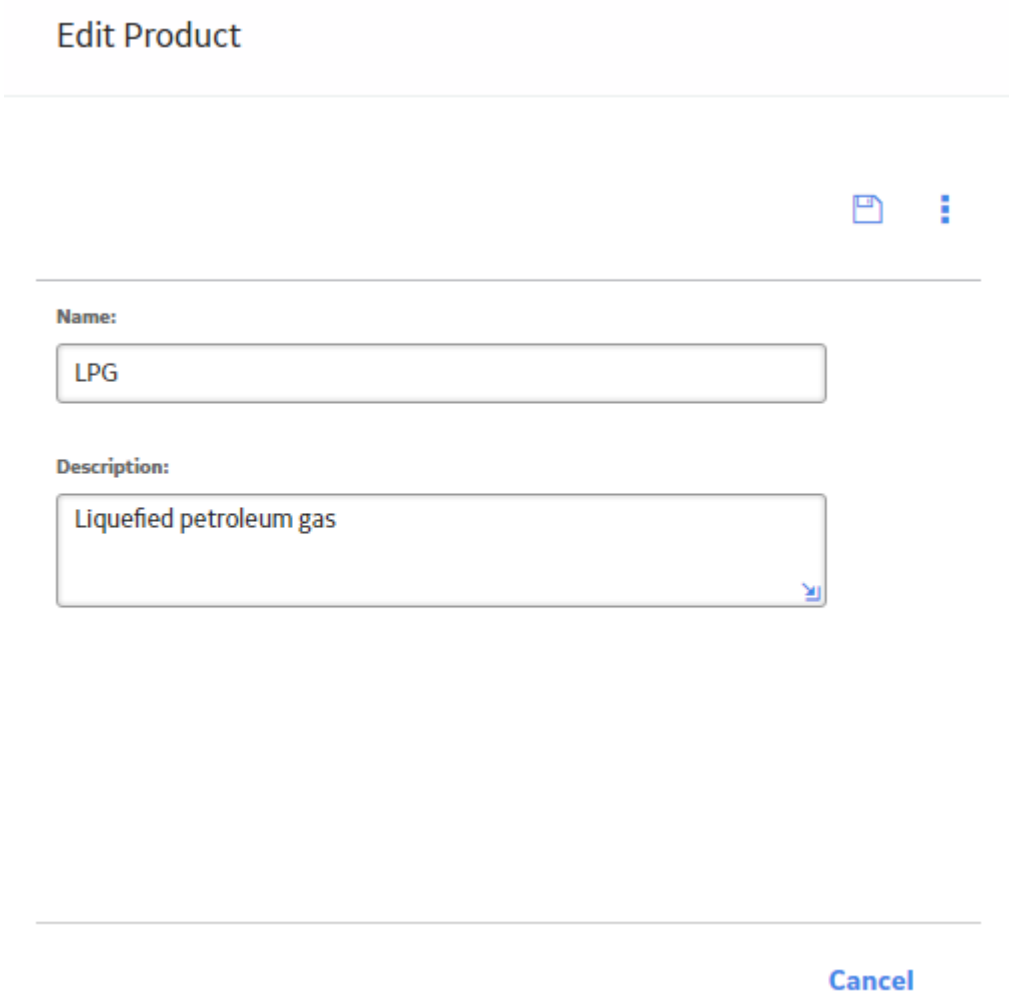
Products

Access a Product

Procedure

1. Access the **PLA Administrator** page.
2. In the **Name** column, select the Product that you want to access.

   The **Edit Product** window appears, displaying the details of the selected Product.



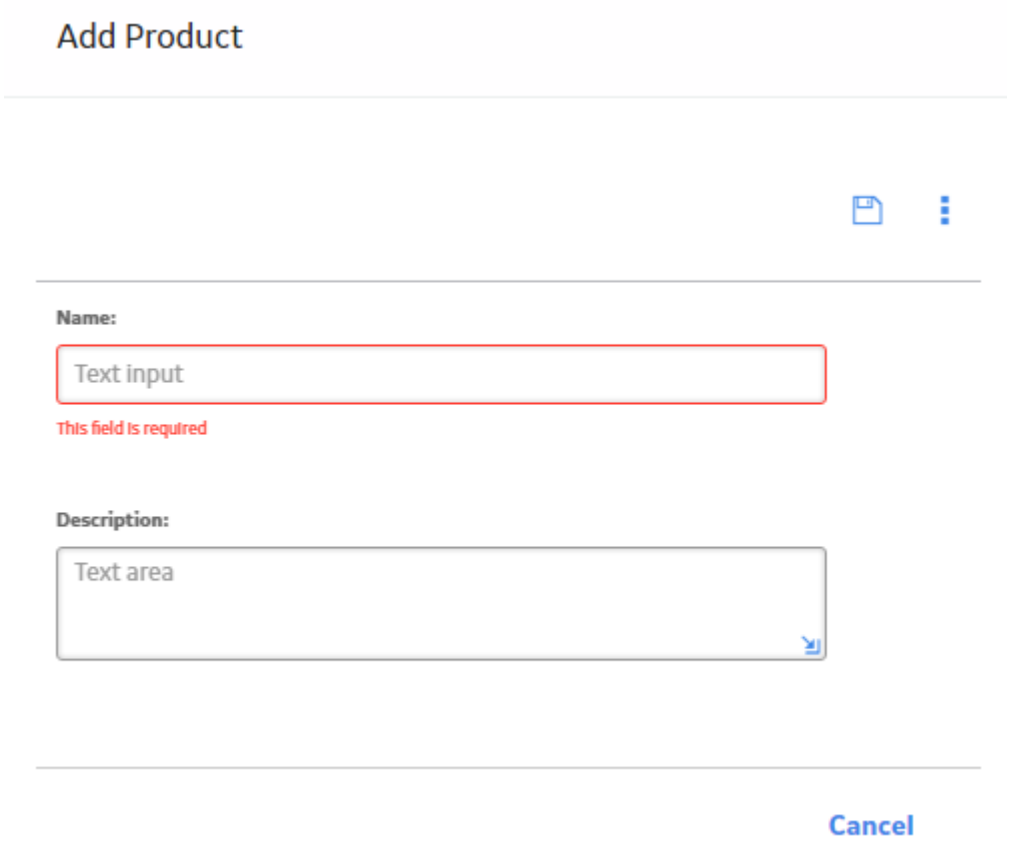
Note: As needed, you can modify the values in the available fields, and then select to save your changes.

Add a Product

Procedure

1. Access the **PLA Administrator** page.
2. In the upper-left corner of the **Products** workspace, select .

   The **Add Product** window appears.



3. As needed, enter values in the available fields.
4. Select .

   The Product is saved.

   Note: The name of the product and the alias name of the product appear in the Production Profile datasheet whereas, the alias name of the product appears in the Production Plan. Thus, a modified alias name will be displayed as the intended name in the Production Plan.

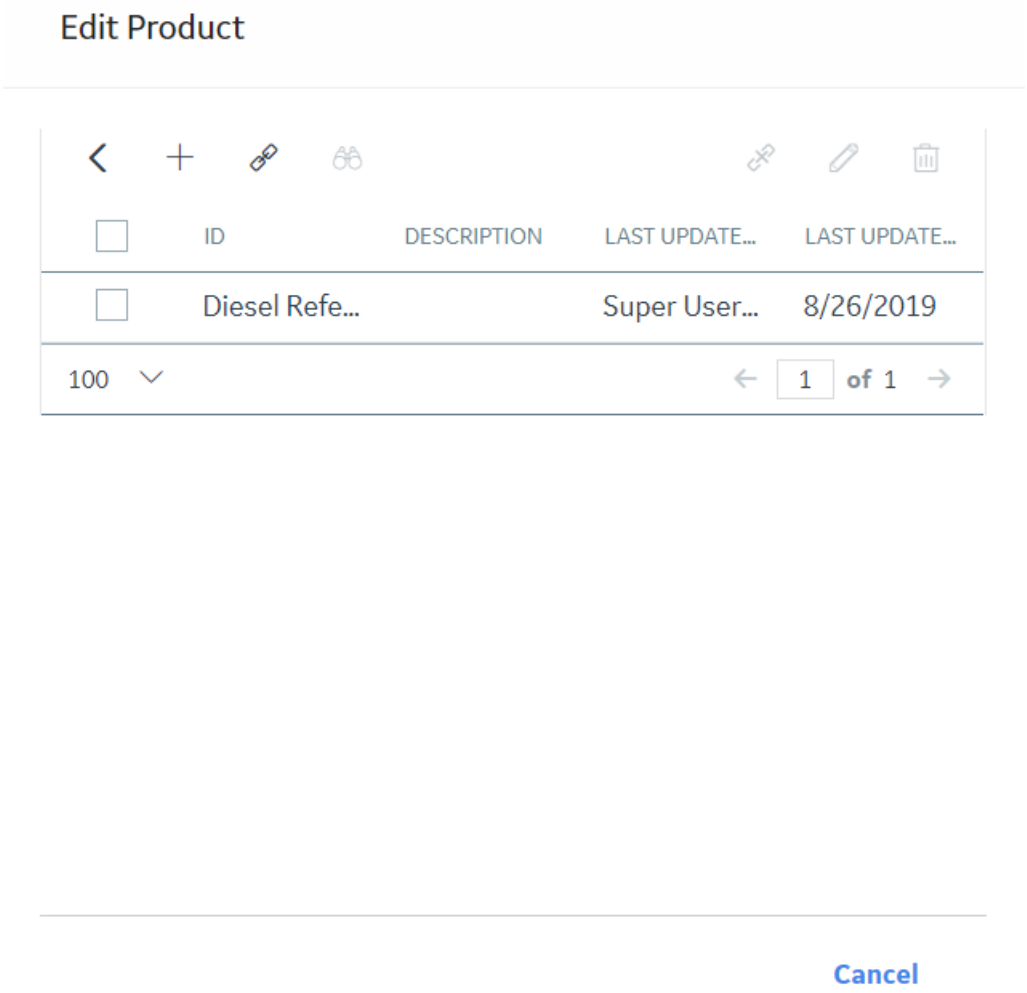
Access the Reference Documents in a Product

Procedure

1. Access the Product to which you want to link a reference document.

2. Select , and then select **Reference documents**.

   The Reference Documents section of the **Edit Product** window appears, displaying a list of Reference Documents linked to the current Product.



   Tip: For more information, refer to the Reference Documents section of the documentation.

Deactivate Products

About This Task

By default, all the Products in PLA are active, indicating that they can be used in Production Profiles, Plan Templates, and Production Plans. This topic describes how to deactivate Products.

Procedure

1. Access the **PLA Administrator** page.

2. In the **Products** workspace, select the check box next to each Product that you want to deactivate.

   Tip:

   - For an active Product, the value in the **Status** column is Active.
   - To select all the check boxes at once, select the check box next to the first column heading.

3. Select .

   The **Deactivate Products** window appears, asking you to confirm that you want to deactivate the Products.

4. Select **Yes**.
   The Products are deactivated. The value in the **Status** column changes to Inactive for the deactivated Products.

   Note: To activate the Products, select the check boxes next to them, and then select .

Results

- You can no longer use the deactivated products to create or modify Production Profiles, Plan Templates, and Production Plans.
- In the existing Production Profiles and Plan Templates that use the deactivated records, the text (Inactive) appears next to the names of the deactivated Products.
- You can no longer modify the Production Profiles that use the deactivated Products.
- You can no longer copy the Production Plans that use the deactivated Products.
- You can no longer use the deactivated Products to regenerate the Production Plans.

Delete a Product

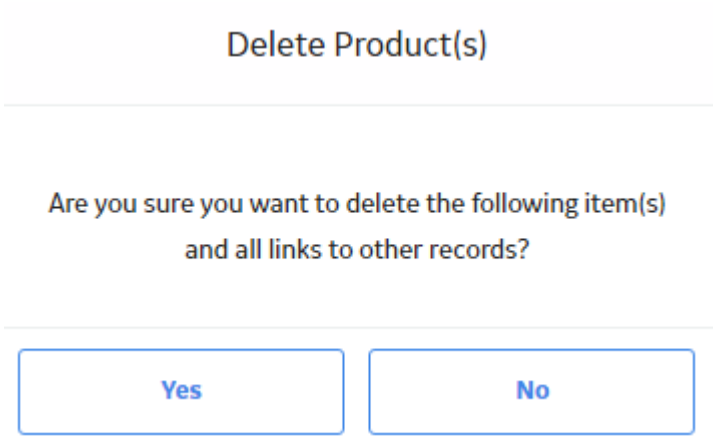
Procedure

1. Access the **PLA Administrator** page.
2. In the **Products** workspace, select the check box to the left of the Product that you want to delete.

   Tip: You can select more than one Product.

3. Select .

   The **Delete Product(s)** dialog box appears, confirming that you really want to delete the selected product.



4. Select **Yes**.

   The selected Product is deleted, and the updated list of Products appears in the **Products** workspace.

Codes

About Impact Codes

Solomon Associates has developed definitions that are used to categorize operational losses as well as many other measures used to determine the effectiveness and efficiency of maintenance and operations. The Impact Codes used in Production Loss Analysis are based on operational loss categorization as defined by Solomon, which enable an organization to measure production performance and loss categorization, based on terms that are used and accepted in that organization.

About OEE Codes

Many companies report how well a manufacturing operation is running overall using Overall Equipment Effectiveness (OEE) Codes. These codes categorize production losses using three specific areas: equipment availability, performance, and product quality. The losses associated with these categories are then used to calculate an overall OEE percentage, which indicates the effectiveness of the production process.

Important: OEE Codes are based on the definitions listed in the SMRP Best Practices, 4th Edition. Modification of OEE Codes should be coupled with testing the accuracy of the associated calculations.

The goal is to reach a 100% OEE level, or 100% efficiency. To achieve this, each category must operate at 100% (i.e., 0 losses are assigned to each category). The OEE level is a standard way to measure efficiency that can be compared across power generation industries (e.g., electric, refining, pulp and paper, manufacturing, chemical, mining).

In the APM system, you can categorize losses according to OEE Codes via the OEE Code field in Production Loss records. After production losses are categorized using OEE Codes, for each production unit, you can view the overall OEE percentage that is calculated by the APM system via the OEE Metric View. To view the production loss amount attributed to each OEE Code, you can view the Losses by OEE Code Metric View.

About Production Event Codes

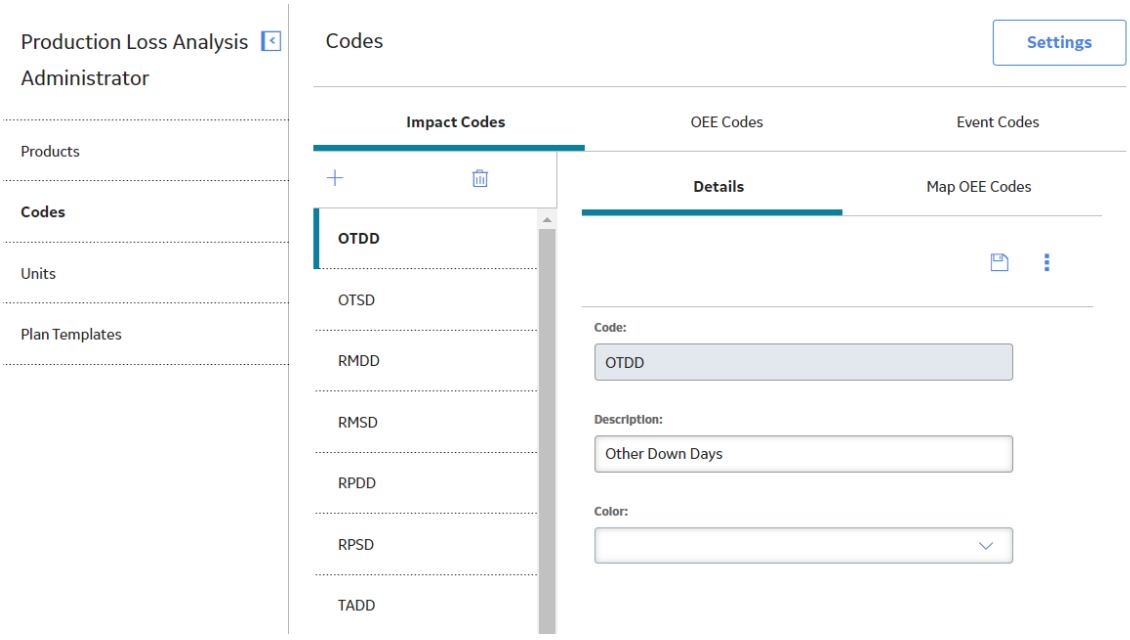
Impact Codes and OEE Codes are only related to the loss whereas an organization requires a more granular view of what caused the loss. Production Event Codes provide a granular view of causes of loss. The Production Event Codes are not based on specific standards or industry accepted benchmarks, but rather on good and generally accepted manufacturing principles in quantifying or qualifying the reasons for a loss. Each of the codes used in Production Loss Analysis is fully customizable by the end user. Production Event Codes, however, are not related to a standard. Therefore, this is the area where we typically see the most unique or user-specific codes.

You can group Production Event Code records into categories, where each category is also represented by its own Production Event Code record. Within each category, specific types of events can be added to provide more detail about the Production Event.

Access the Codes Workspace

Procedure

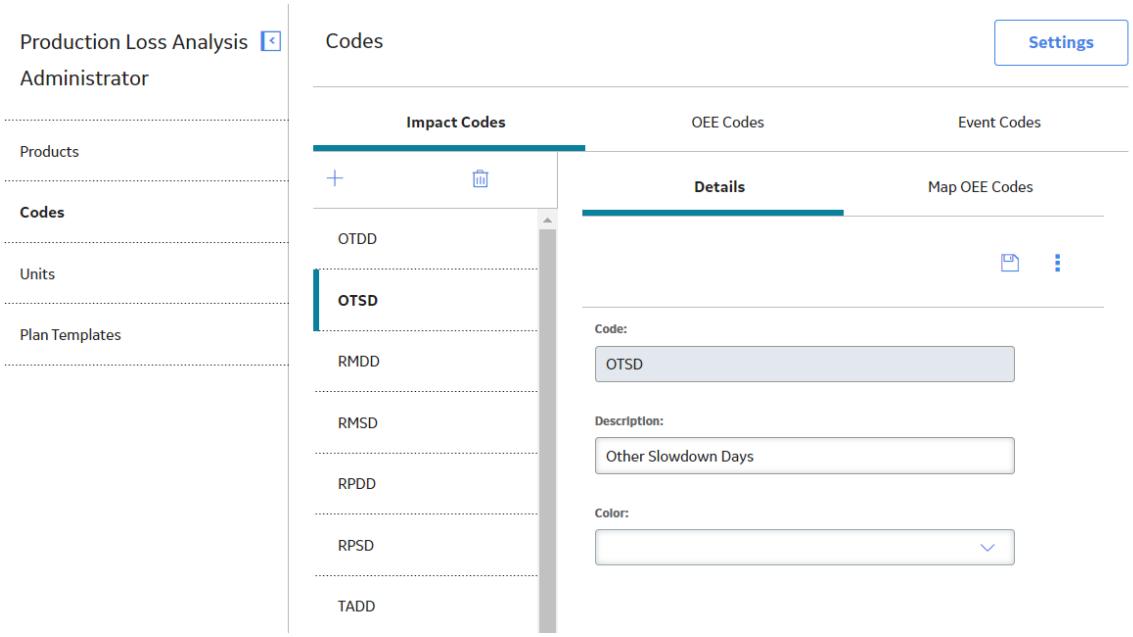
1. In the module navigation menu, select **Admin** > **Application Settings** > **Production Loss Analysis**.
2. Select the **Codes** tab.
   The **Codes** workspace appears, displaying the following sections:
   - **Impact Codes**: Contains the following subsections:
     - **Details**
     - **Map OEE Codes**
   - **OEE Codes**
   - **Event Codes**



Access an Impact Code

Procedure

1. Access the **Codes** workspace.
2. In the **Impact Codes** section, in the pane, select the Impact Code that you want to access.
   The **Details** subsection appears, displaying details of the selected Impact Code.



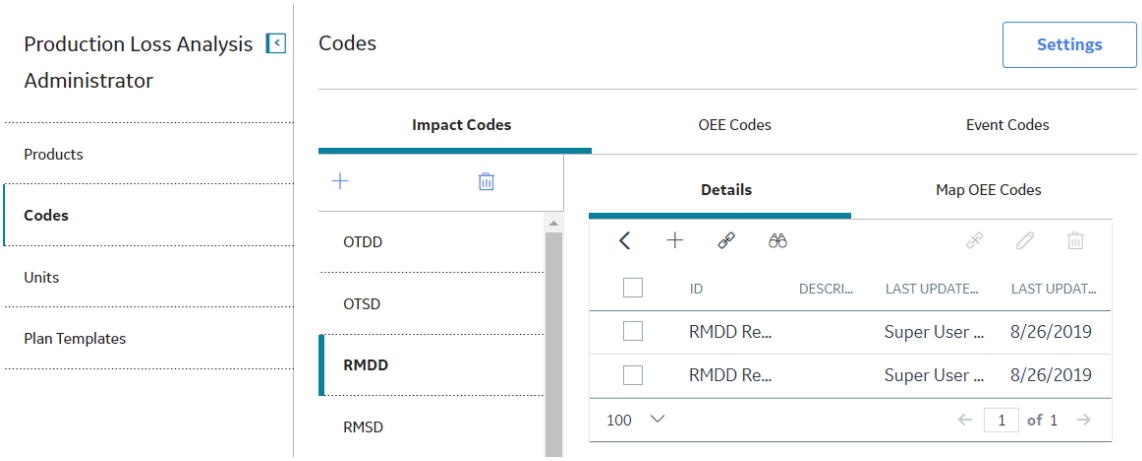
Note: As needed, you can modify the values in the available fields, and then select to save your changes. You cannot, however, modify the value in the Code field if:

- The Impact Code has been provided in the baseline APM database.
- The Impact Code is associated with a Production Loss record. You can, however, modify it if you modify the Production Loss record such that it is not linked to the Impact Code.

Access the Reference Documents in an Impact Code

Procedure

1. Access the Impact Code whose Reference Documents you want to access.
2. Select , and then select **Reference Documents**.
   A table of Reference Documents linked to the selected Impact Code appears.



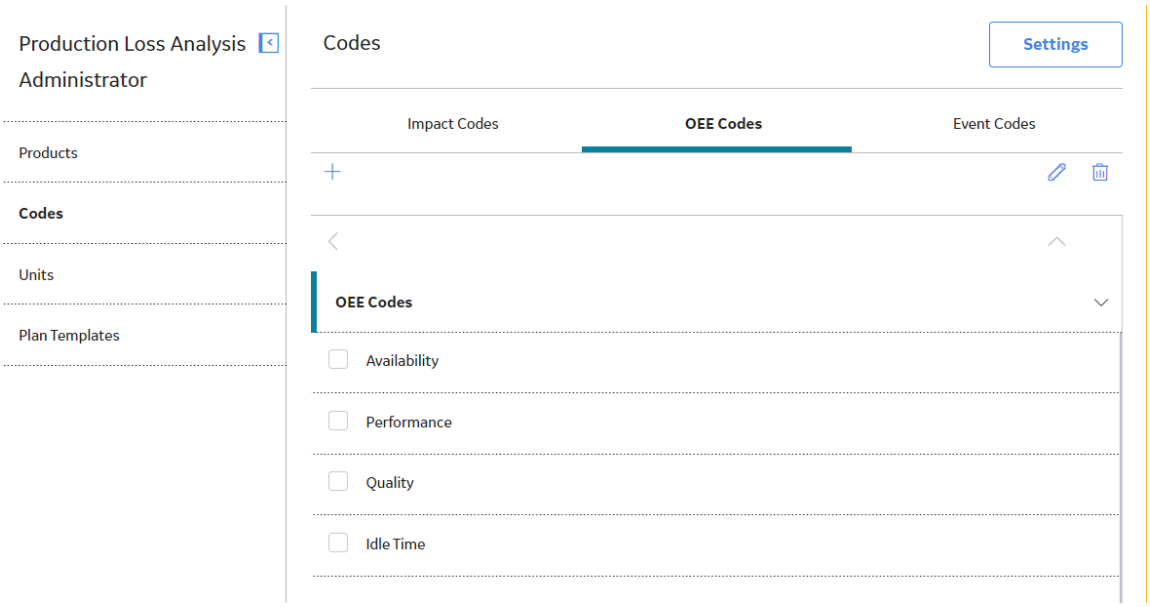
Tip: For more information, refer to the Reference Documents section of the documentation.

Access an OEE Code

Procedure

1. Access the **Codes** workspace.
2. Select the **OEE Codes** tab.

   A list of OEE Codes appears.

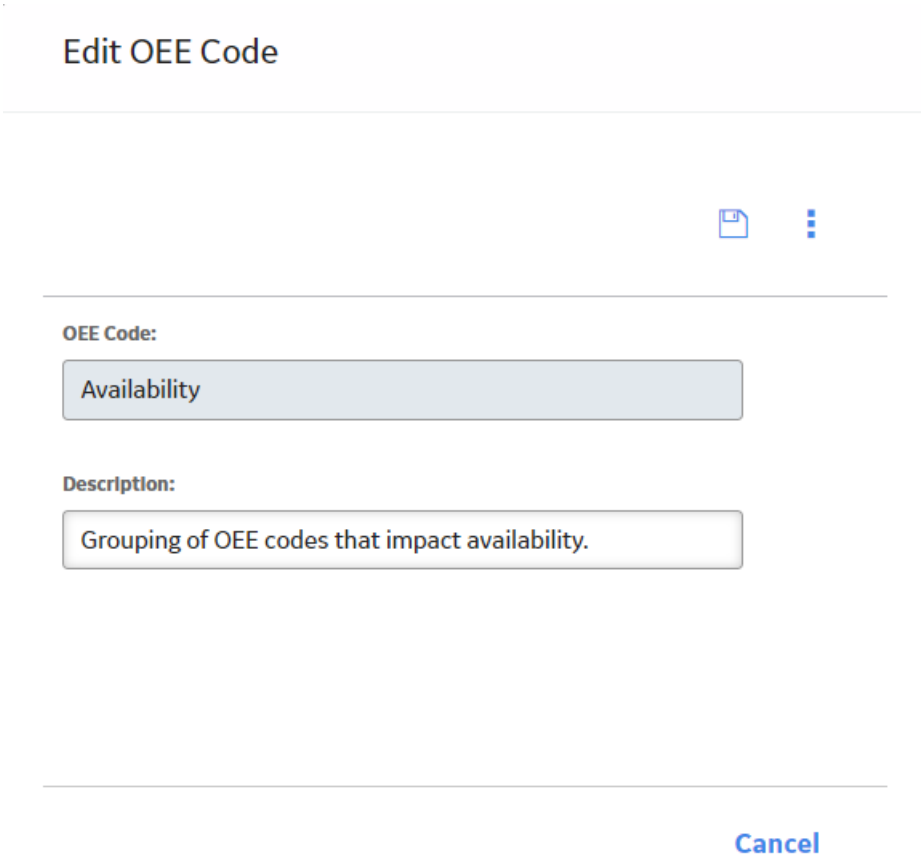


3. Select the check box next to the OEE Code that you want to access.

   Tip: To access a child OEE Code, select its parent OEE Code, and then select the check box next to the child OEE Code.

4. Select .

   The **Edit OEE Code** window appears, displaying the datasheet of the selected OEE Code.



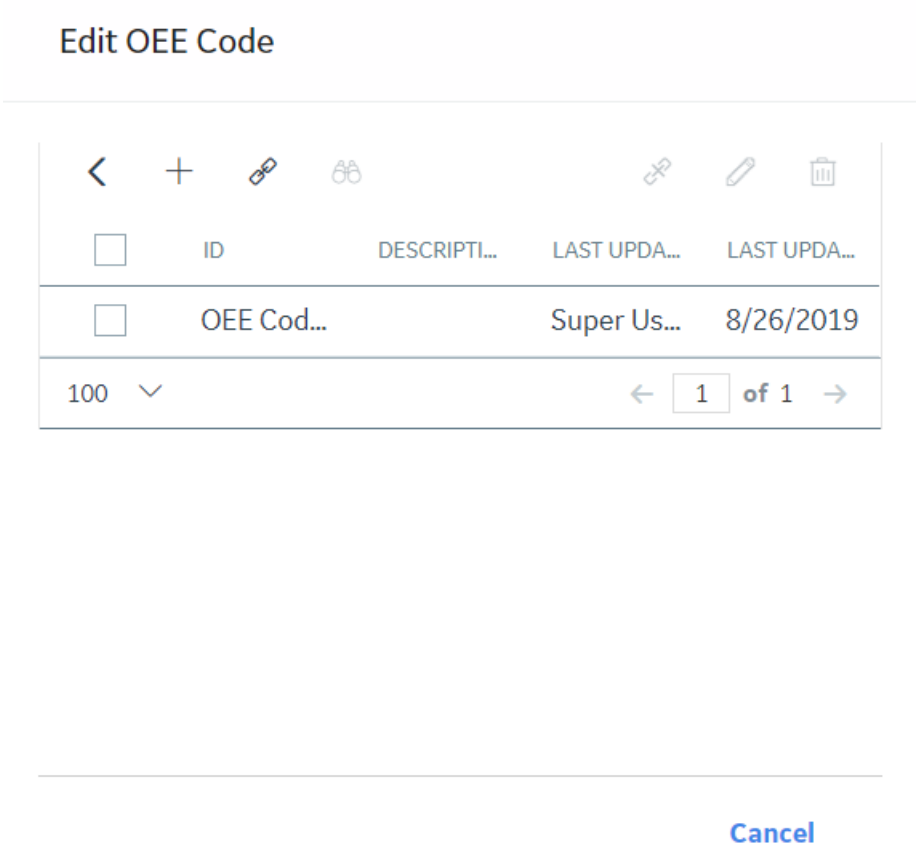
Note: As needed, you can modify the values in the available fields, and then select to save your changes. You cannot, however, modify the value in the **OEE Code** field if:

- The OEE Code has been provided in the baseline APM database.
- The OEE Code is associated with a Production Loss record. You can, however, modify it if you modify the Production Loss record such that it is not linked to the OEE Code.

Access the Reference Documents in an OEE Code

Procedure

1. Access the OEE Code whose Reference Documents you want to access.
2. Select , and then select **Reference Documents**.
   A table of Reference Documents linked to the selected OEE Code appears.



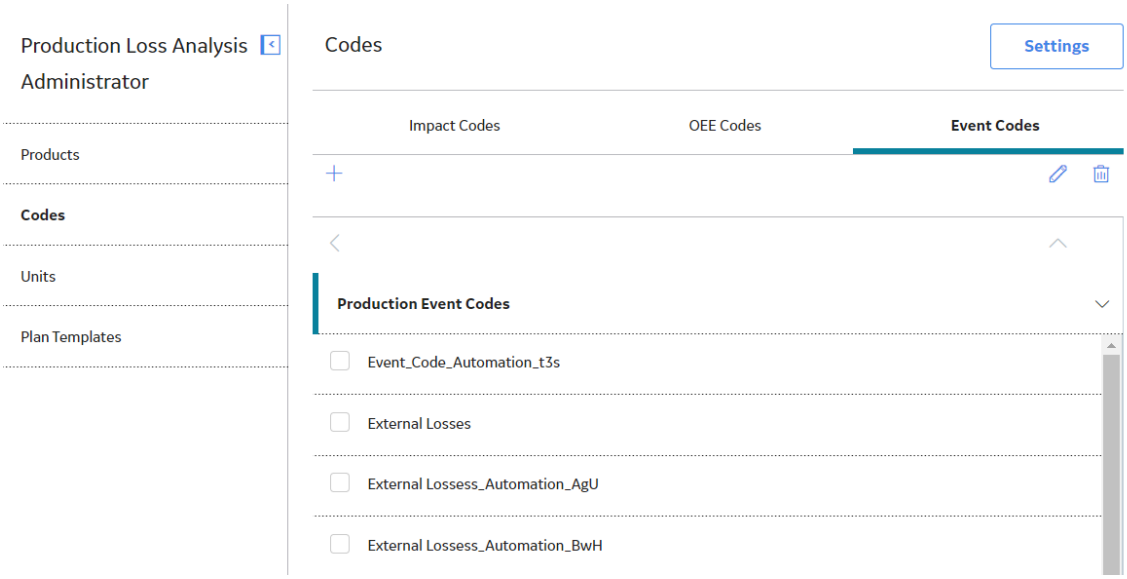
Tip: For more information, refer to the Reference Documents section of the documentation.

Access a Production Event Code

Procedure

1. Access the **Codes** workspace.
2. Select the **Event Codes** tab.

   A list of Production Event Codes appears.

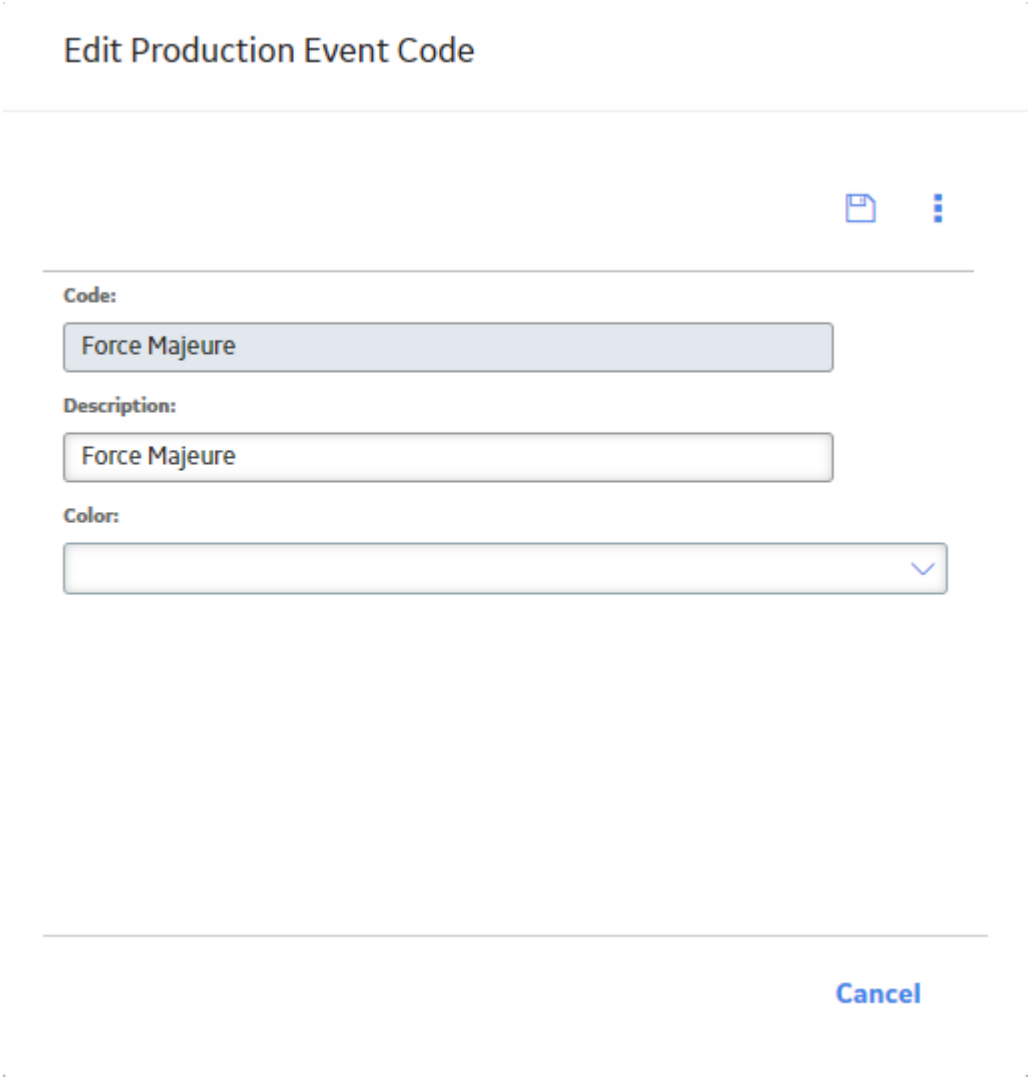


3. Select the check box next to the Production Event Code that you want to access.

   Tip: To access a child Production Event Code, select its parent Production Event Code, and then select the check box next to the child Production Event Code.

4. Select  .

   The **Edit Production Event Code** window appears, displaying the datasheet of the selected Production Event Code.



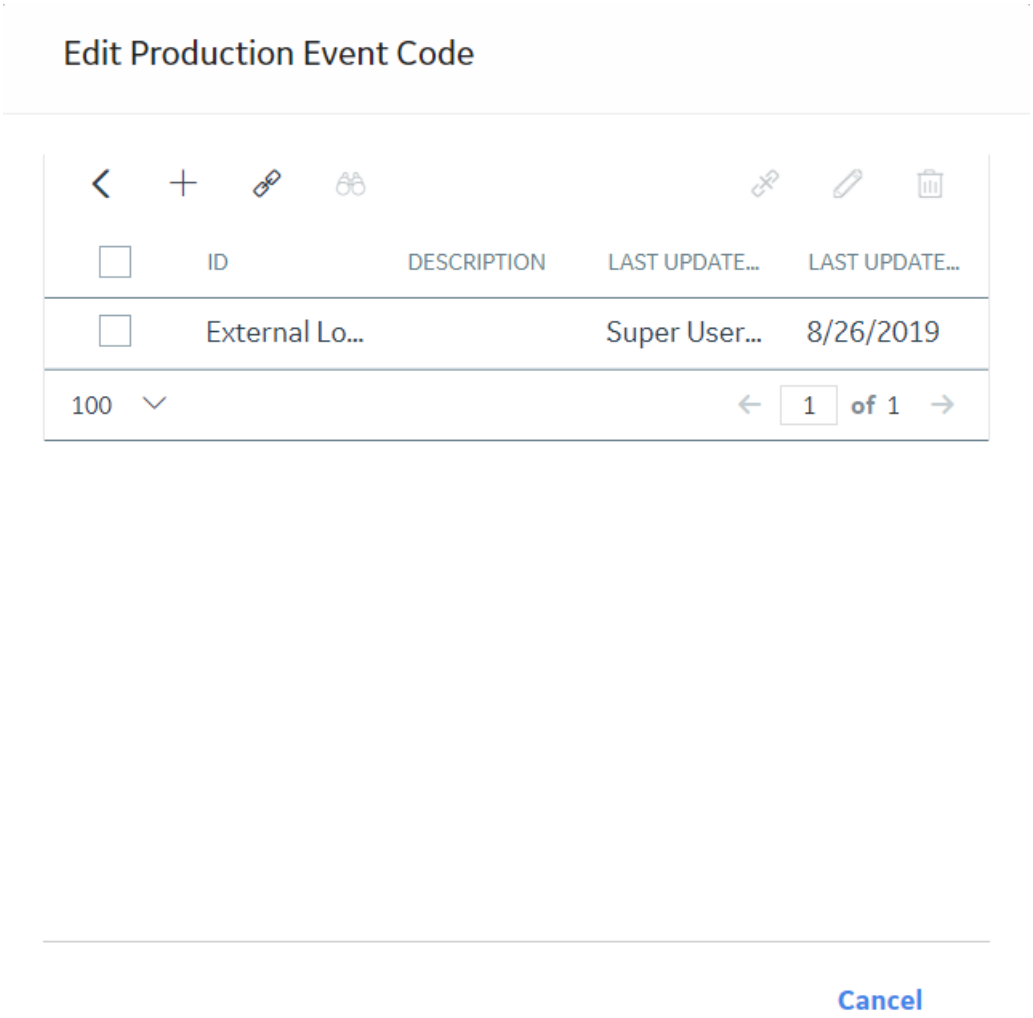
Note: As needed, you can modify the values in the available fields, and then select to save your changes. You cannot, however, modify the value in the Code field if:

- The Production Event Code has been provided in the baseline APM database.
- The Production Event Code is associated with a Production Event record or a Production Unit record. You can, however, modify it if you modify the Production Event record or the Production Unit record such that it is not linked to the Production Event Code.

Access the Reference Documents in a Production Event Code

Procedure

1. Access the Production Event Code whose Reference Documents you want to access.
2. Select , and then select **Reference Documents**.
   A table of Reference Documents linked to the selected Production Event Code appears.



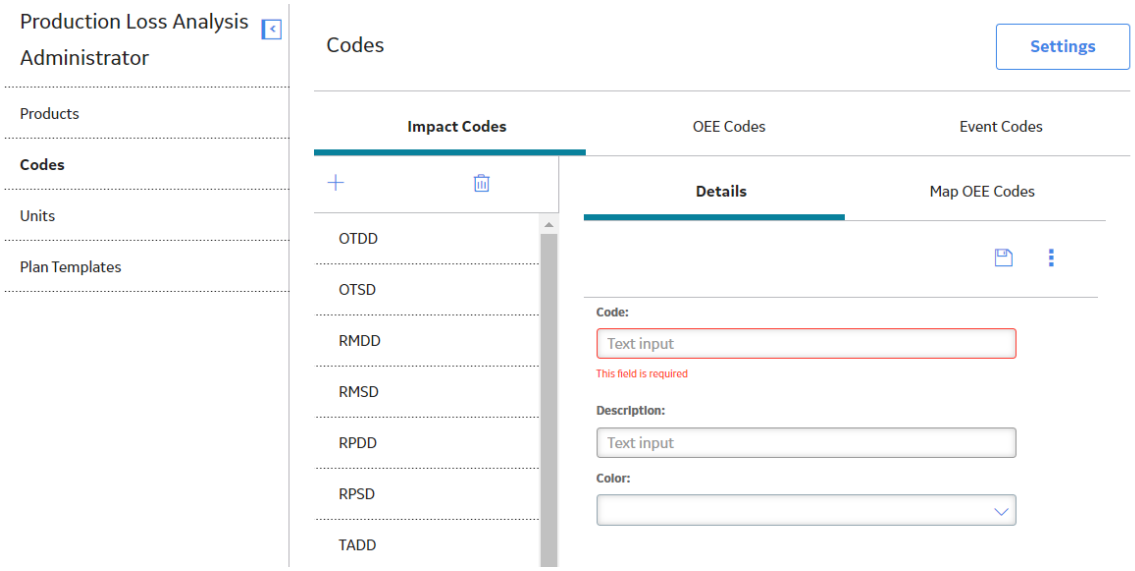
Tip: For more information, refer to the Reference Documents section of the documentation.

Create an Impact Code

Procedure

1. Access the **Codes** workspace.
2. In the **Impact Codes** section, select +.

   The **Details** subsection appears, displaying the datasheet to create an Impact Code.



3. As needed, enter values in the available fields.
4. Select .

   The Impact Code is created.

Next Steps

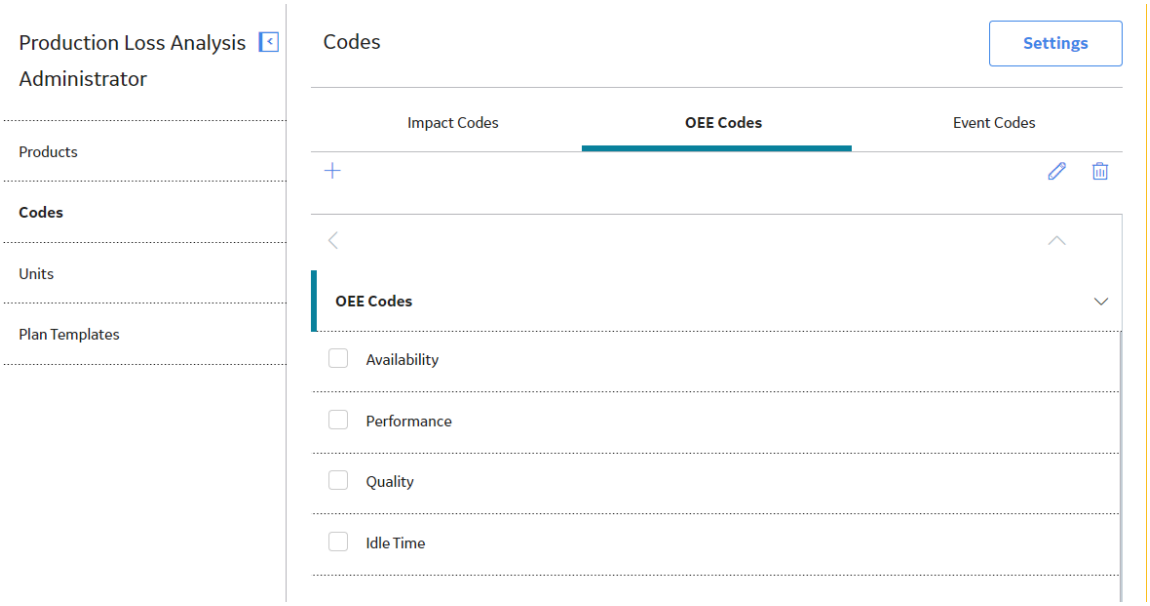
- Create a mapping between the Impact Code and OEE Codes.

Create an OEE Code

Procedure

1. Access the **Codes** workspace.
2. Select the **OEE Codes** tab.

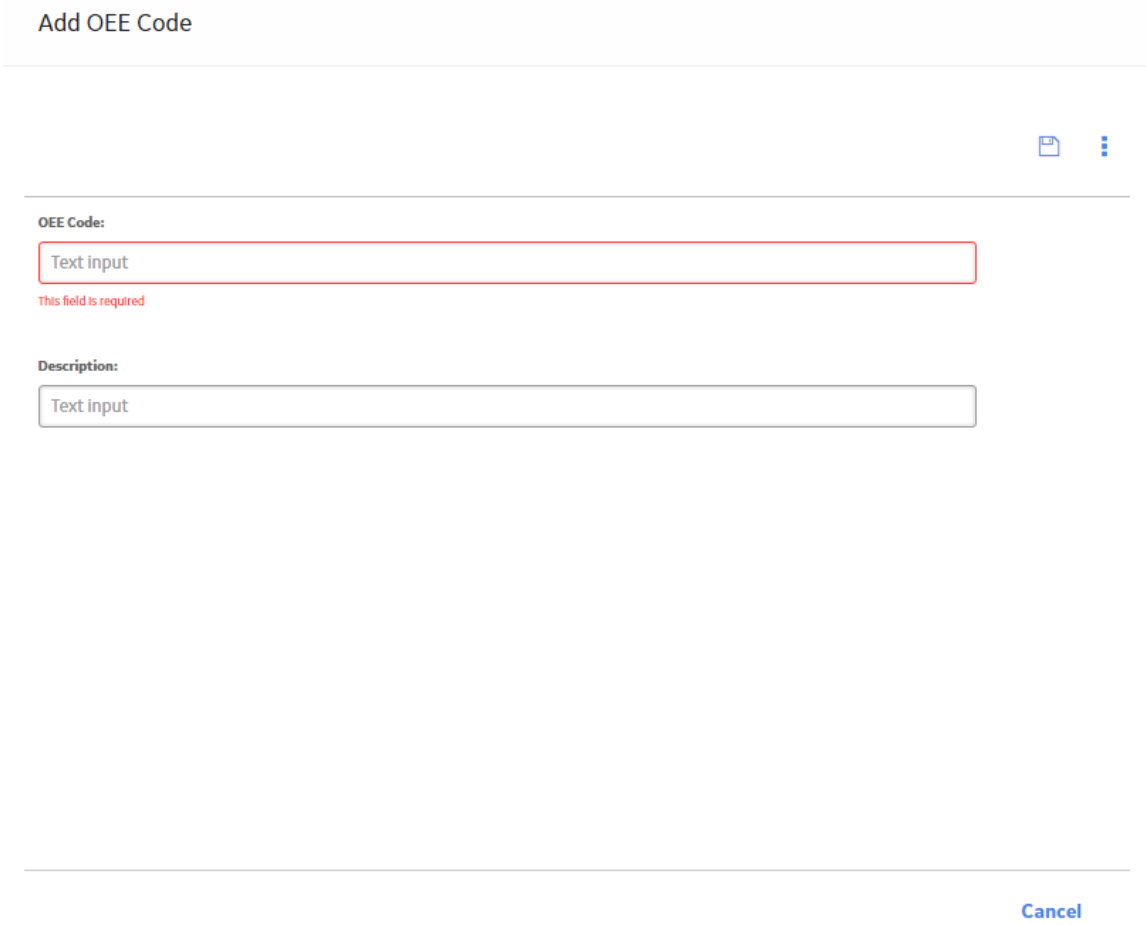
   A list of OEE Codes appears.



3. Select +.

   Tip: To add a child OEE Code to an existing OEE Code, select the check box next to the OEE Code, and then select +.

   The **Add OEE Code** window appears.



4. As needed, enter values in the available fields.
5. Select .

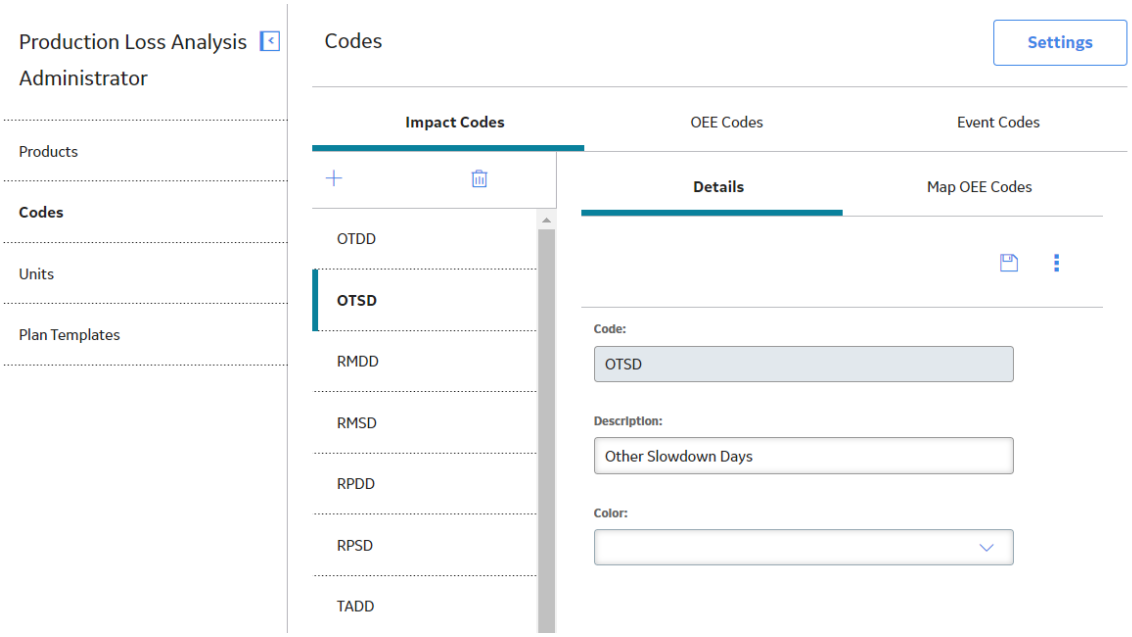
   The OEE Code is created.

Create a Mapping Between an Impact Code and OEE Codes

Procedure

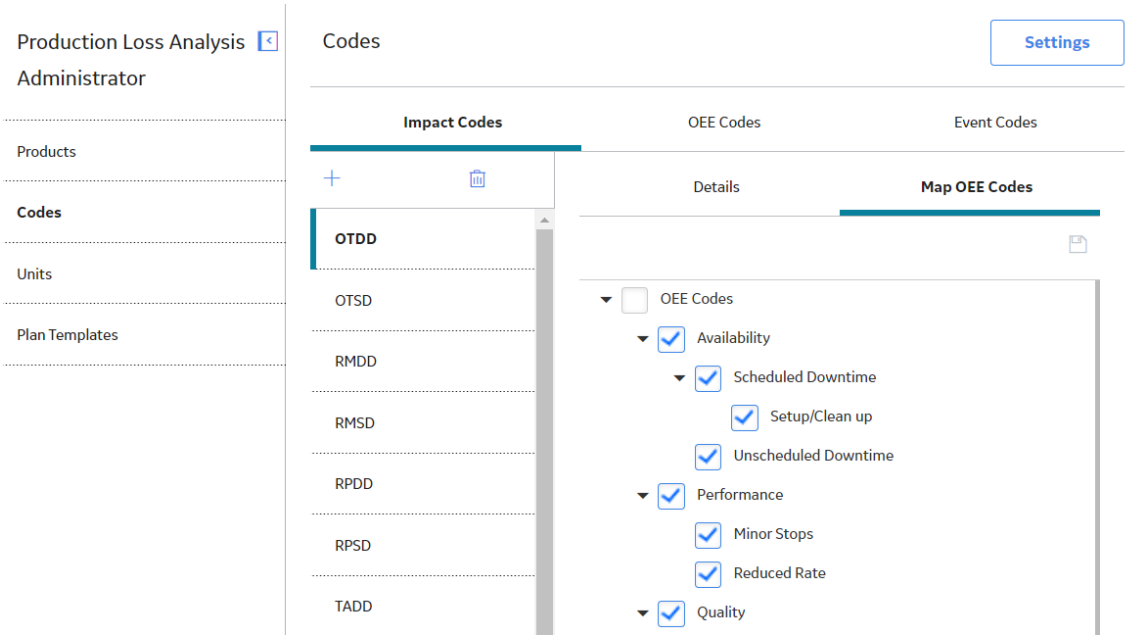
1. Access the **Codes** workspace.
2. In the **Impact Codes** section, in the pane, select the Impact Code that you want to access.

   The **Details** subsection appears, displaying details of the selected Impact Code.



3. Select the **Map OEE Codes** tab.

   A list of all OEE Codes appears with check boxes.



4. Select the check boxes next to the OEE Codes that you want to map to the Impact Code.

   Tip: The check boxes are automatically selected only for OEE Codes created before creating the Impact Code. You can, however, clear the check boxes to delete the mapping.

5. Select .

   The mapping is created.

Results

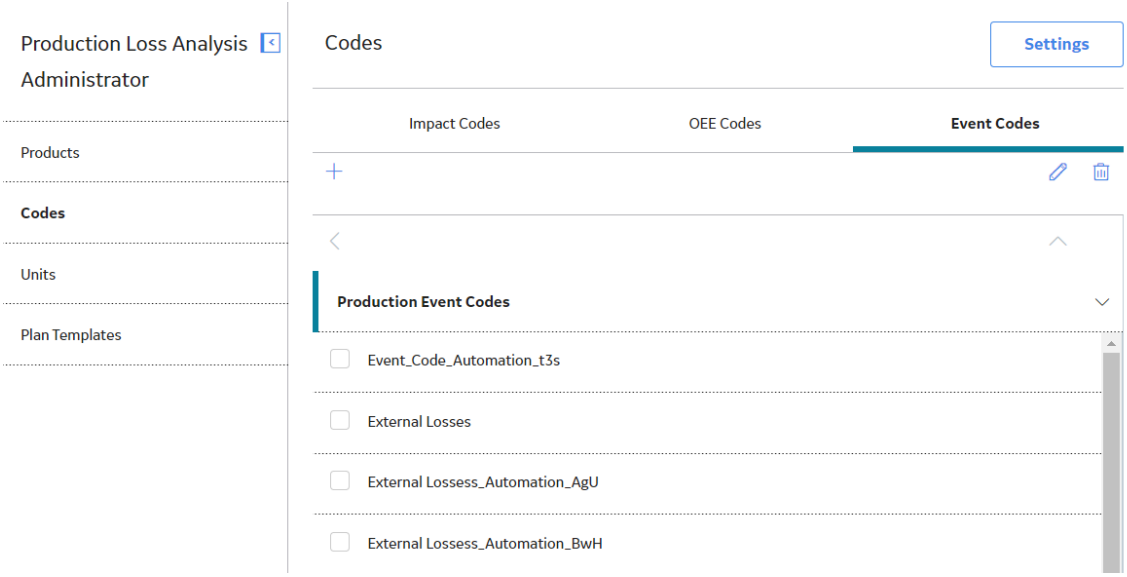
When you create a Production Loss, in the **Select OEE Code** window, only the OEE Codes that are mapped to the Impact Code in the **Impact Code** box appear.

Create a Production Event Code

Procedure

1. Access the **Codes** workspace.
2. Select the **Event Codes** tab.

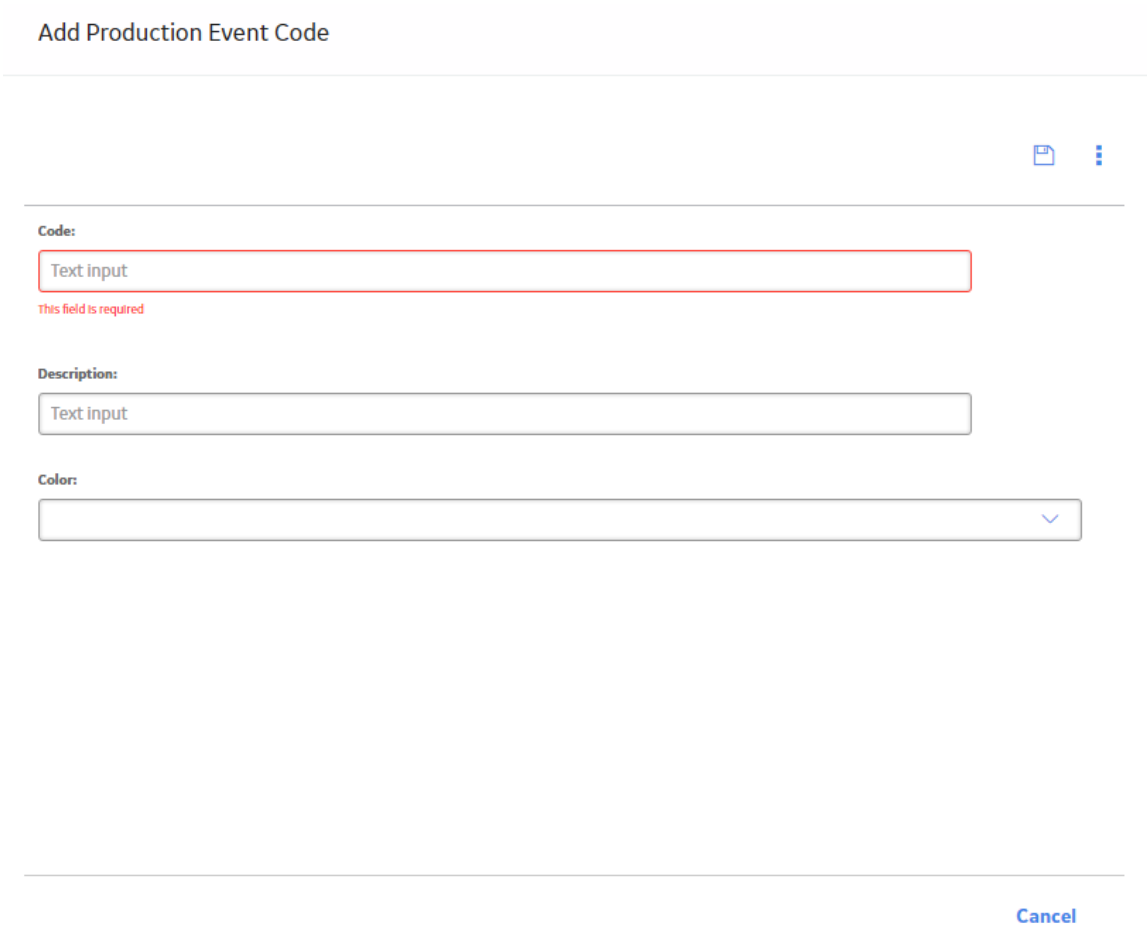
   A list of Production Event Codes appears.



3. Select +.

   Tip: To add a child Production Event Code to an existing Production Event Code, select the check box next to the Production Event Code, and then select +.

   The **Add Production Event Code** window appears.



4. As needed, enter values in the available fields.
5. Select .

   The Production Event Code is created.

Delete an Impact Code

About This Task

Note: You cannot delete an Impact Code if:

- The Impact Code has been provided in the baseline APM database.
- The Impact Code is associated with a Production Loss record. You can, however, delete it if you modify the Production Loss record such that it is not linked to the Impact Code.

that is associated with a Production Loss record unless you modify the record such that it is not linked to the Impact Code. Also, you cannot delete a baseline Impact Code.

Procedure

1. Access the **Codes** workspace.
2. In the **Impact Codes** section, in the pane, select the Impact Code that you want to delete.
3. Select .

The **Delete Impact Code(s)** window appears, asking you to confirm that you want to delete the Impact Code.

4. Select **Yes**.

   The Impact Code is deleted.

Delete OEE Codes

About This Task

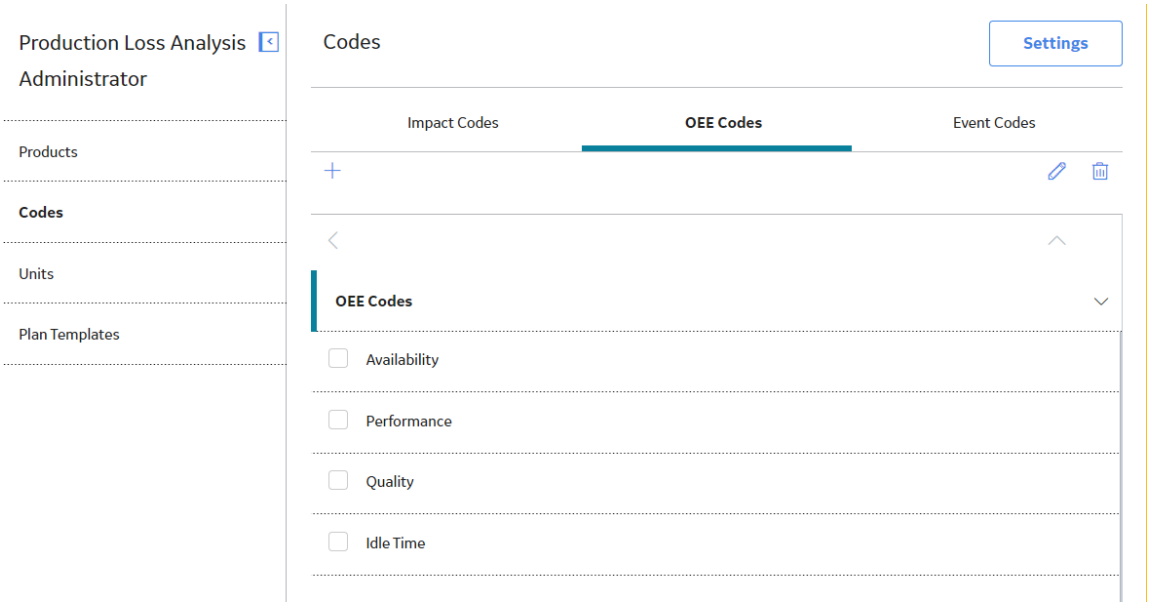
Note: You cannot delete an OEE Code if:

- The OEE Code has been provided in the baseline APM database.
- The OEE Code or its child OEE Code is associated with a Production Loss record. You can, however, delete it if you modify the Production Loss record such that it is not linked to the OEE Code.
- The OEE Code is mapped to an Impact Code. You can, however, delete the code after you delete the mapping.

Procedure

1. Access the **Codes** workspace.
2. Select the **OEE Codes** tab.

   A list of OEE Codes appears.



3. Select the check box next to each OEE Code that you want to delete.

   Tip: To delete a child OEE Code, select its parent OEE Code, and then select the check box next to the child OEE Code.

4. Select .

   The **Delete OEE Code(s)** window appears, asking you to confirm that you want to delete the OEE Codes.

5. Select **Yes**.

   The OEE Codes are deleted.

Delete Production Event Codes

About This Task

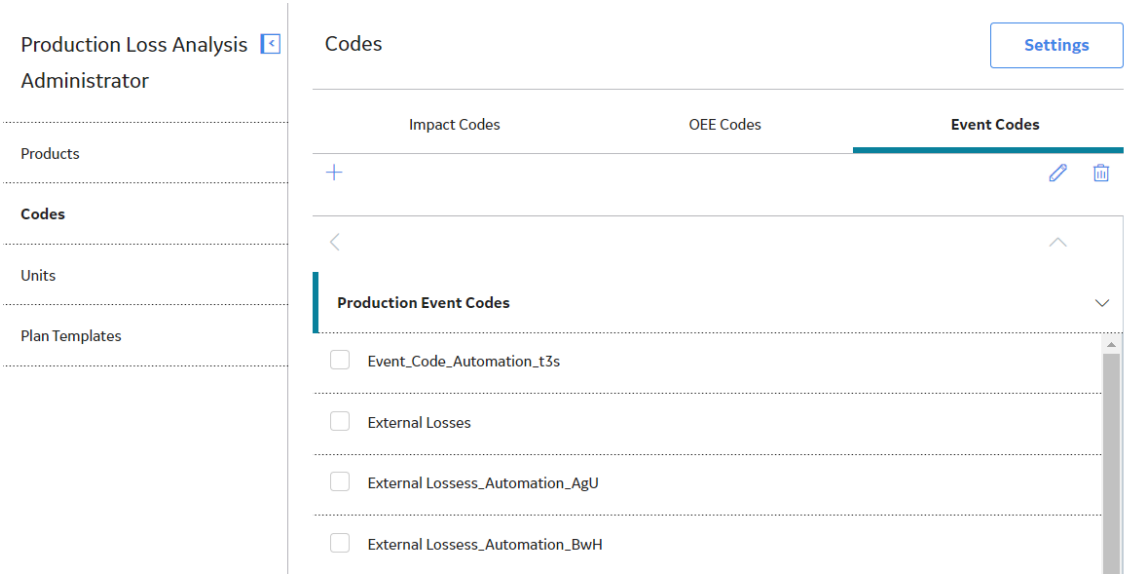
Note: You cannot delete a Production Event Code if:

- The Production Event Code has been provided in the baseline APM database.
- The Production Event Code is associated with a Production Event record or a Production Unit record. You can, however, delete it if you modify the Production Event record or the Production Unit record such that it is not linked to the Production Event Code.

Procedure

1. Access the **Codes** workspace.
2. Select the **Event Codes** tab.

   A list of Production Event Codes appears.



3. Select the check box next to each Production Event Code that you want to delete.

   Tip: To delete a child OEE Code, select its parent OEE Code, and then select the check box next to the child OEE Code.

4. Select .

   The **Delete Production Event Code(s)** window appears, asking you to confirm that you want to delete the Production Event Codes.

5. Select **Yes**.

   The Production Event Codes are deleted.

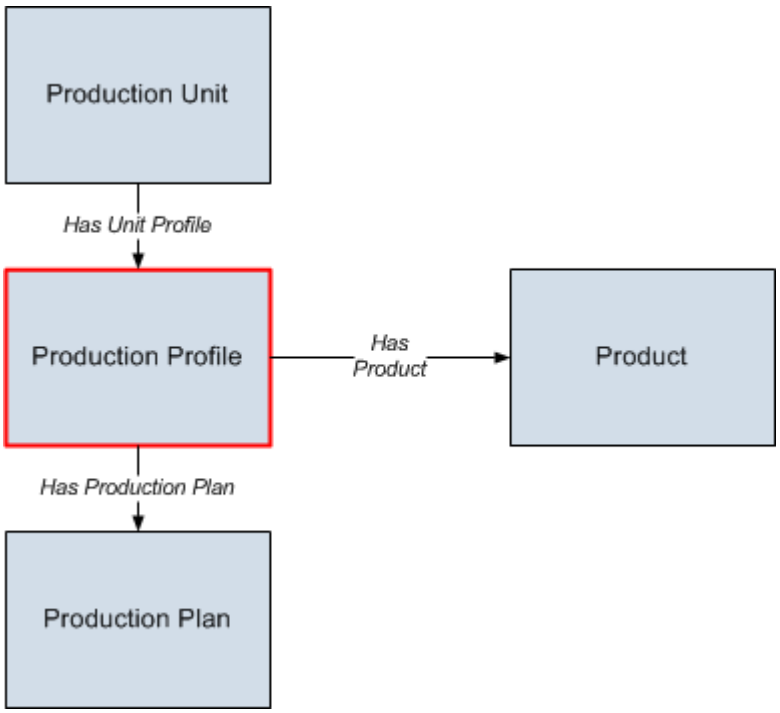
Units

About Production Profiles

For each production unit for which you have created a Production Unit, you will need to identify all the products it produces and information about those products, such as the maximum sustained rate of production and the amount of profit one of those products yields. The combination of data about a product and the corresponding production unit is the production profile for that production unit.

Details

In terms of the Production Loss Analysis data model, one Production Unit will be linked to one or more Production Profiles, as shown in the following image. Each Production Profile is linked to a single Product representing the product that the production unit produces. In addition, each Production Profile is linked to one or more Production Plans representing the planned production for that production unit and product combination. The image shows these relationships. The arrows represent relationship families, and the boxes represent entity families. The Production Profile family is outlined in red.



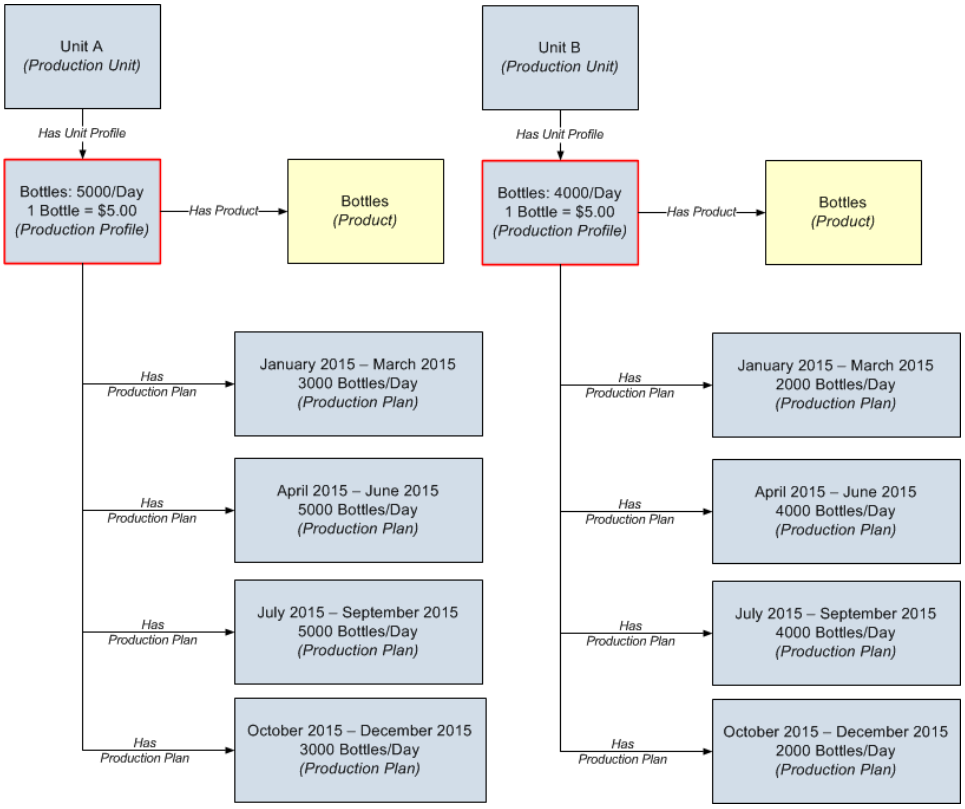
One Unit Producing Multiple Products

Each production unit can produce more than one product. For example, in a water-bottling facility, a single production unit might be responsible for producing both bottles and labels. A production unit will have one production profile for each product it produces. In other words, if a production unit produces two products, that production unit will have two production profiles.

Consider the following image, where a single production unit, Unit A, produces multiple products: Bottles and Labels. You can see that each production unit and product combination has its own production profile (outlined in red).

- For Unit A's bottle production, the production profile indicates that Unit A is capable of producing 5000 bottles per day, where each bottle yields a $5.00 profit.
- For Unit A's label production, the production profile indicates that Unit A is capable of producing 8000 labels per day, where each label yields a $2.00 profit.

You can also see that for each combination of a production unit, production profile, and product, multiple production plans exist.



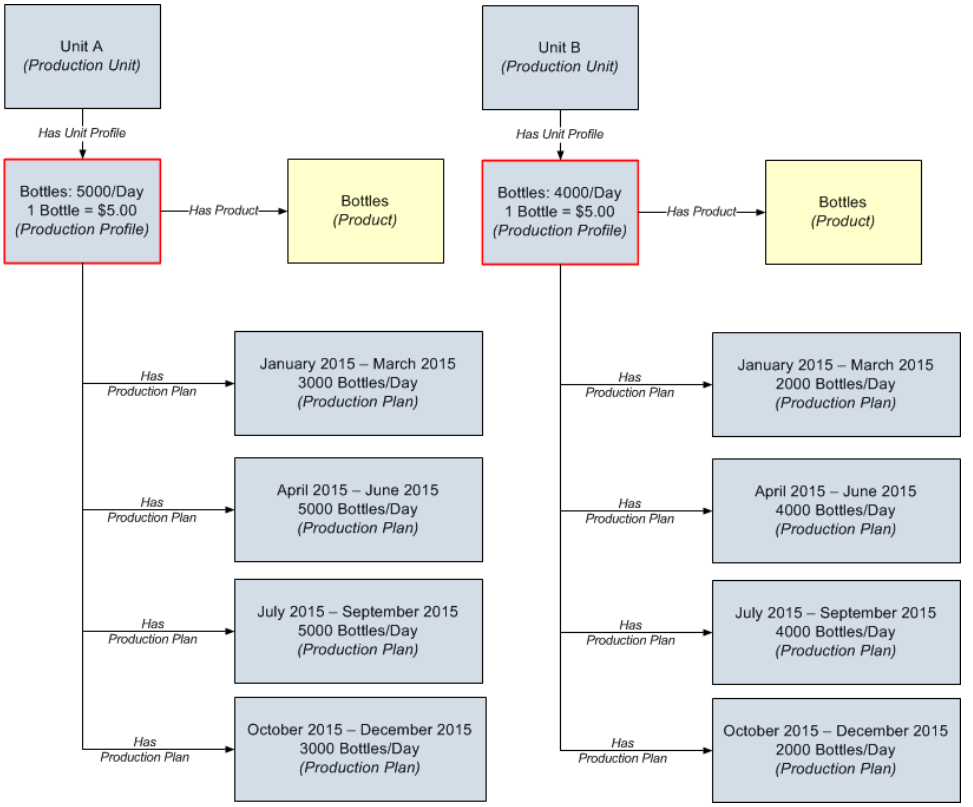
Multiple Units Producing the Same Product

Multiple production units can produce the same product. For example, in a facility that produces water bottles, bottle labels, and bottle caps, the water bottles might be produced by multiple production units. This ensures that if one production unit fails, some water bottles will continue to be produced by the other production unit.

A single product can be produced by more than one production unit. Consider the following image, which shows the product Bottles being produced by two production units, Unit A and Unit B. You can see that each production unit and product combination has its own production profile (outlined in red).

- For Unit A, the production profile indicates that Unit A is capable of producing 5000 bottles per day, where each bottle yields a $5.00 profit.
- For Unit B, the production profile indicates that Unit B is capable of producing 4000 bottles per day, where each bottle yields a $5.00 profit.

You can also see that for each combination of a production unit, production profile, and product, multiple production plans exist.



About Margin

Product margin, or the amount of profit that a product unit yields, may change over time. Suppose that a company produces bottled water. If consumers buy more bottled water versus soft drinks, the profit that a single bottle yields will increase. To represent the current margin, you might want to modify the margin value in the Production Profile that defines the production of bottled water for the particular unit.

The margin that you specify for a Production Profile is used in Production Losses of the Production Data record that is associated with the Production Profile.

How a Profile Margin affects Production Losses

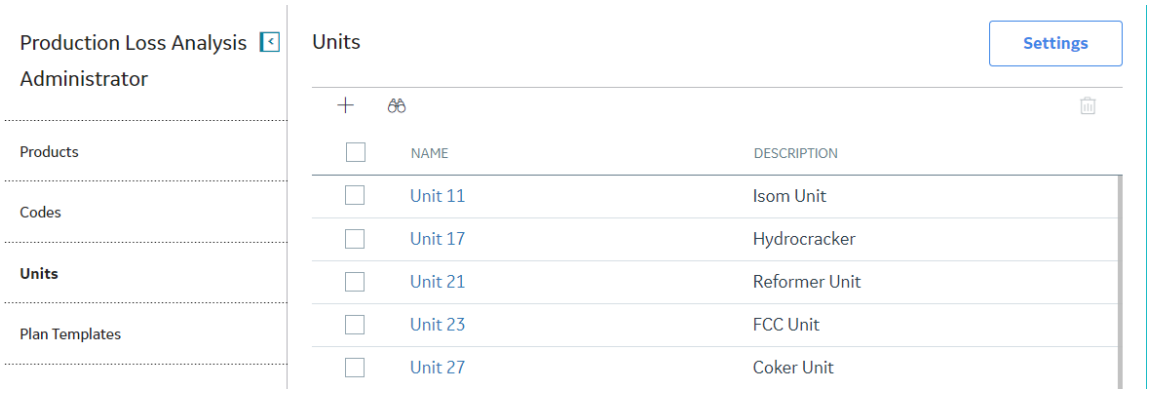
Suppose that the margin value of a margin ID defined for a Production Profile is 5.00 and that this margin ID is used in a Production Loss. If you now modify the margin value from 5.00 to 6.00, the margin value of any existing Production Losses that use this margin ID will not be updated. If, however, you now create a Production Loss that uses this margin ID, its margin value will be stored as 6.00.

Access the Units Workspace

Procedure

1. Access the **PLA Administrator** page.
2. Select the **Units** tab.

   The **Units** workspace appears, displaying a list of Production Units.

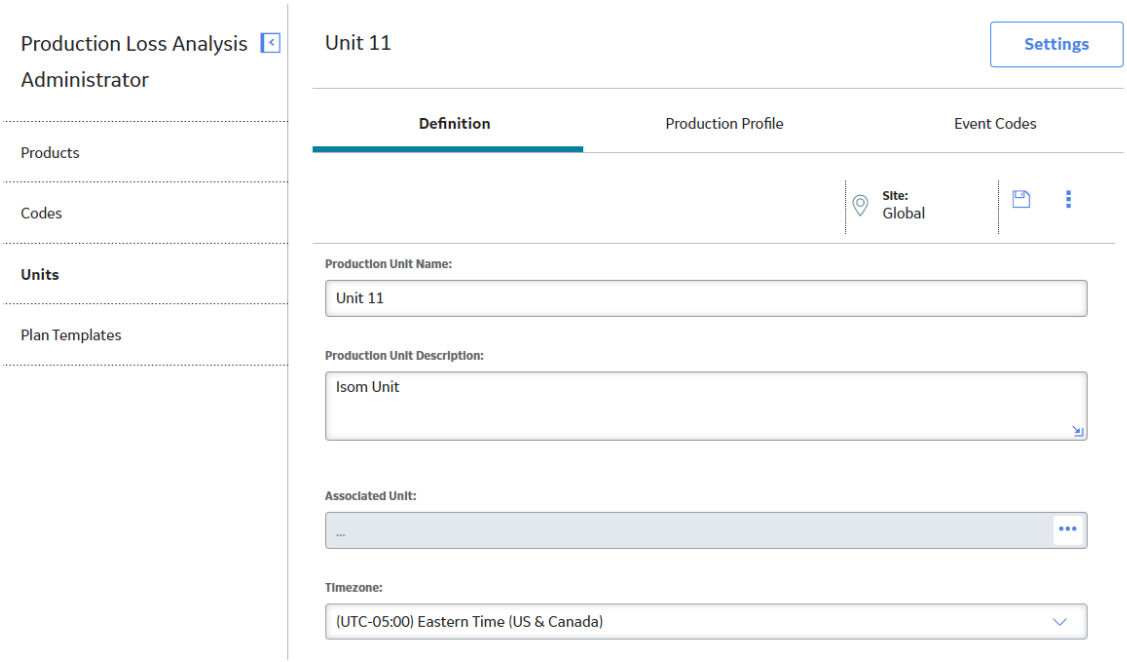


Access a Production Unit

Procedure

1. Access the **Units** workspace.
2. In the **Name** column, select the Production Unit you want to access.

   The **Definition** section appears, displaying the details of the selected Production Unit.



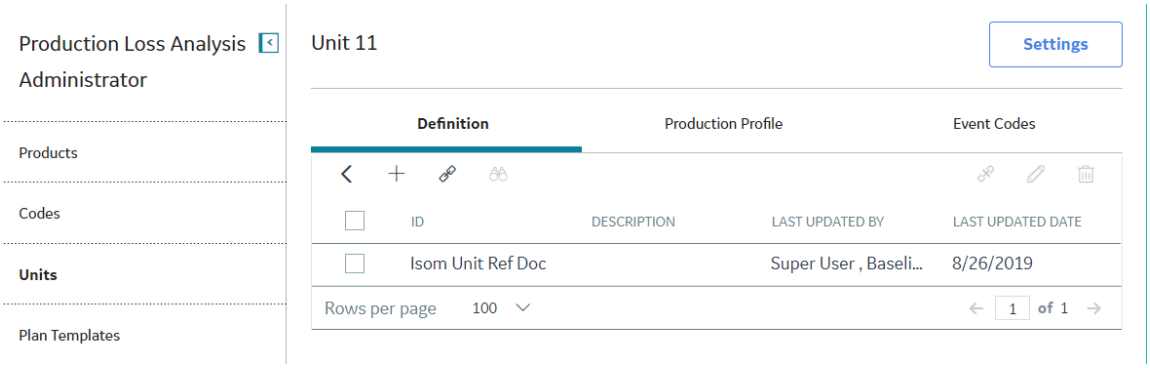
Note: As needed, you can modify the values in the available fields, and then select to save your changes.

Access the Reference Documents in a Production Unit

Procedure

1. Access the Production Unit to which you want to link a reference document.
2. In the **Definition** section, select , and then select **Reference documents**.

   The Reference Documents subsection of the **Definition** section appears, displaying a list of Reference Documents linked to the current Production Unit.



Tip: For more information, refer to the Reference Documents section of the documentation.

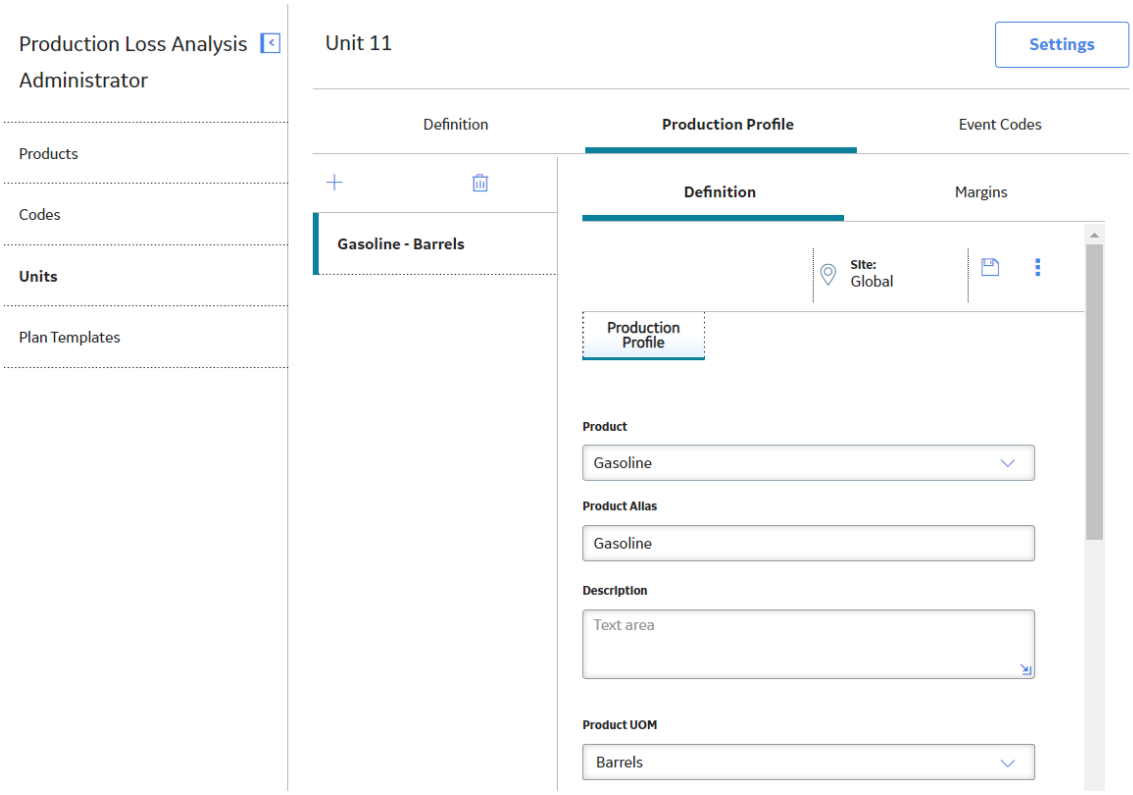
Access a Production Profile

Procedure

1. Access the Production Unit for which you want to view the details of an associated Production Profile.
2. Select the **Production Profile** tab.

   The **Production Profile** section appears.
3. In the left pane of the **Production Profile** section, select the Production Profile whose details you want to view.

   The datasheet for the selected Production Profile appears in the **Definition** subsection, displaying the details of the Production Profile.



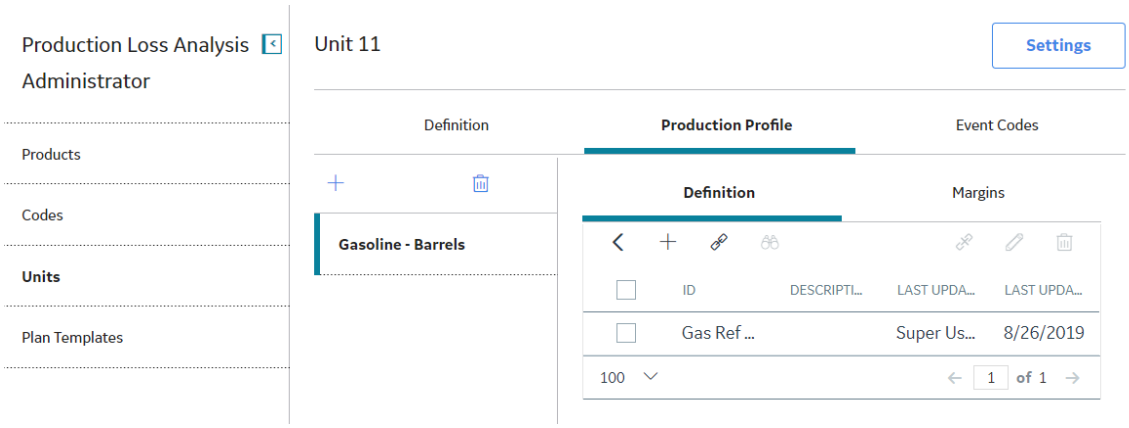
Note: As needed, you can modify the values in the available fields, and then select to save your changes.

Access the Reference Documents in a Production Profile

Procedure

1. Access the Production Profile to which you want to link a reference document.
2. In the upper right-corner of the **Definition** subsection, select , and then select **Reference documents**.

   The Reference Documents subsection of the **Definition** subsection appears, displaying a list of Reference Documents linked to the current Production Profile.



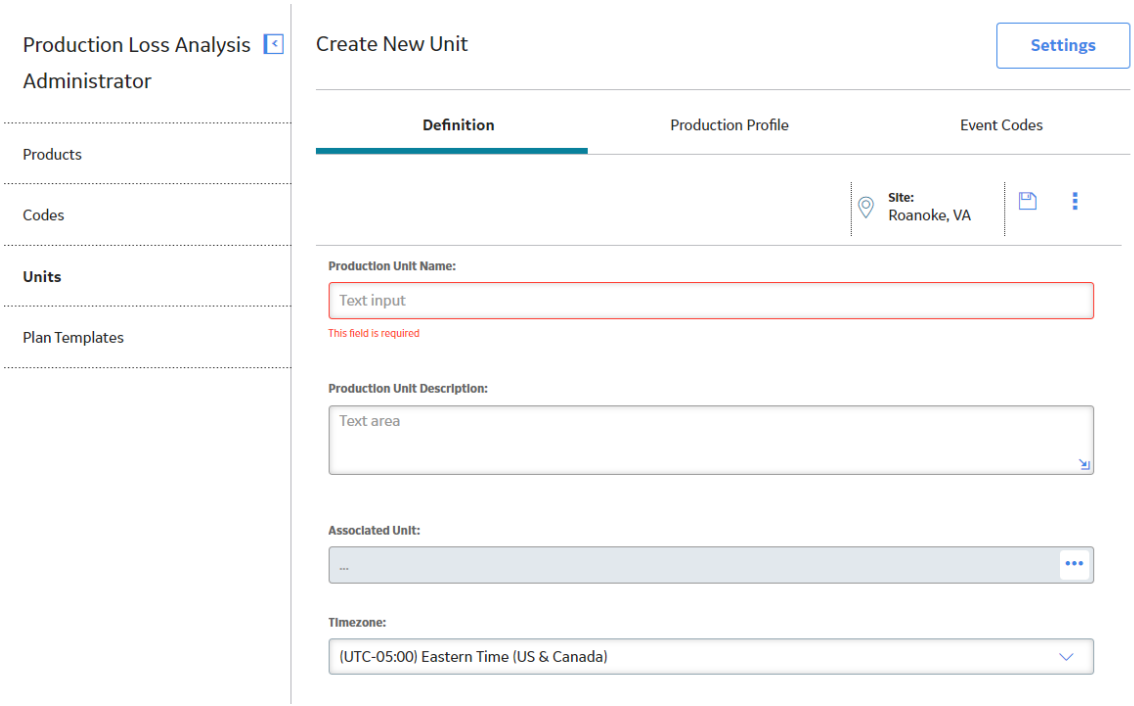
Tip: For more information, refer to the Reference Documents section of the documentation.

Add a Production Unit

Procedure

1. Access the **Units** workspace.
2. Select +.

   The **Definition** section appears.



3. In the **Definition** section, enter values in the available fields.

   Note: When linking an asset to the unit, the list of assets is limited to those with the same site assignment as the unit.
4. Select .

   The Production Unit is saved.

Add a Production Profile

Before You Begin

- Add a Product
- Add a Production Unit

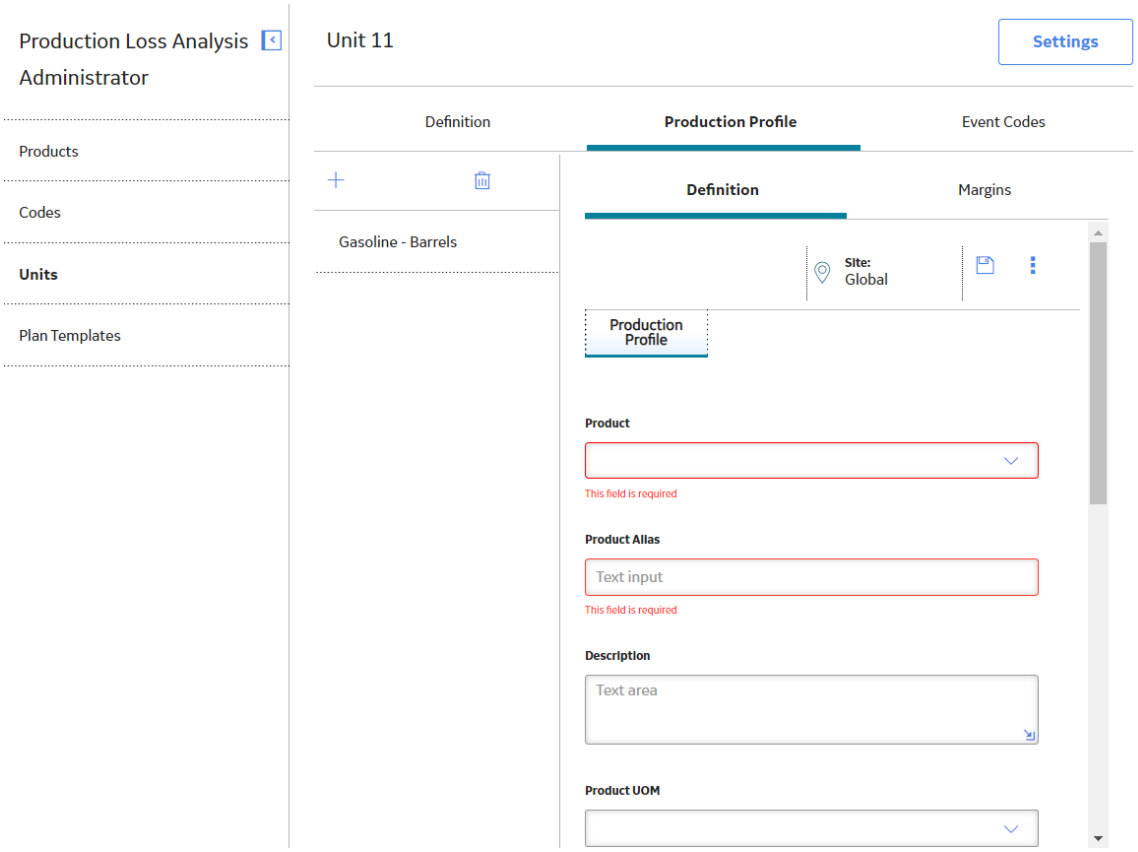
Procedure

1. Access the Production Unit to which you want to add a Production Profile.
2. Select the **Production Profile** tab.

   The **Definition** subsection appears.

3. In the **Production Profile** section, select +.

   The Production Profile datasheet appears.

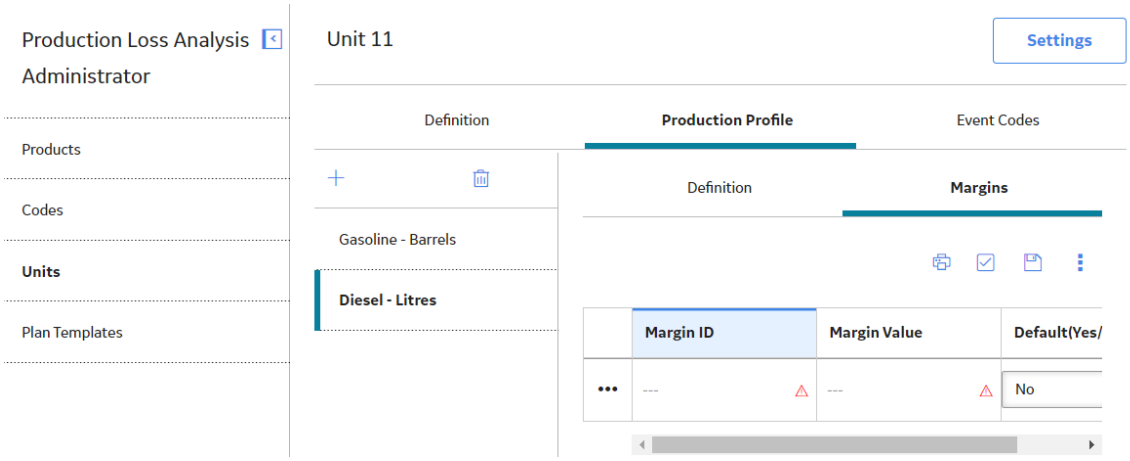


4. As needed, enter values in the available fields.
5. Select .

   The Production Profile datasheet is saved.

   The **Warning** window appears, asking you to add a margin value, which is required to calculate production losses.

   The Margins datasheet appears.



6. Enter a Margin ID and Margin Value in the corresponding columns.

7. In the **Default (Yes/No)** column, select **Yes** or **No**.

   Note: Only one Margin can be set as the default.

8. Select .

   The Production Profile is added to the Production Unit.

Results

The Production Profile is saved and linked to the:

- Production Unit that was accessed.
- Product that was selected in the Product field.
- OPC Tag that was selected in the OPC Tag ID field.

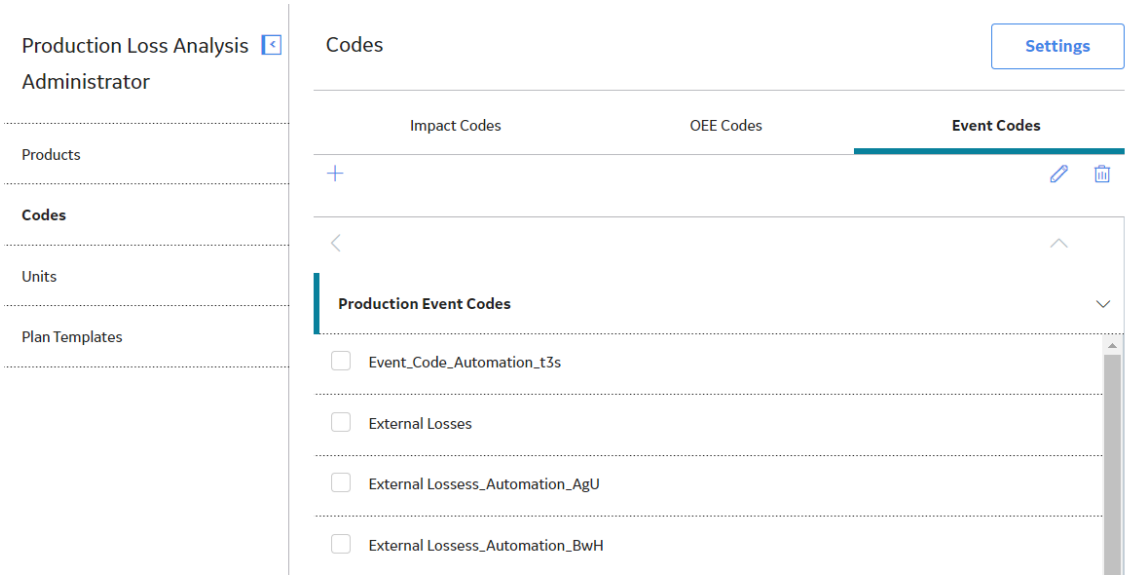
Note: A row is added to the list in the **Production Profile** section, displaying the ID of the new Production Profile.

Assign Event Codes to a Production Unit

Procedure

1. Access the Production Unit to which you want to assign Production Event Codes.
2. Select the **Event Codes** tab.

   A list of all Production Event Codes appears with check boxes.



3. Select the check boxes next to the Production Event Codes that you want to assign to the Production Unit.

   Note: For Production Units created before upgrading to V4.3.0.6.0, the check boxes are automatically selected. If you do not want to assign a Production Event Code to the Production Unit, clear the check box next to that Production Event Code. You cannot, however, clear the check box next to a Production Event Code that is used in a Production Event.

4. Select .

The Production Event Codes whose check boxes you selected are assigned to the Production Unit.

Results

When you create a Production Event for this Production Unit, in the Production Event Code field, only the Production Event Codes that are assigned to the Production Unit appear.

Delete a Production Unit

About This Task

Important: A Production Unit cannot be deleted if it is linked to a Production Profile or an Asset.

Procedure

1. Access the **Units** workspace.
2. In the **Units** workspace, select the row of the Production Unit that you want to delete.

   The row is highlighted.
3. Select  .

   The **Delete Product Unit(s)** dialog box appears, asking if you really want to delete the selected Production Units.
4. Select **Yes**.

   The selected Production Units are deleted, and the updated list of Production Units appears in the **Units** workspace.

Delete a Production Profile

Procedure

1. Access the Production Unit from which you want to delete a Production Profile.
2. Select the **Production Profile** section.

   The **Production Profile** section appears.
3. In the **Production Profile** section, select the Production Profile that you want to delete.
4. Select  .

   The **Delete Production Profile(s)** dialog box appears, asking if you really want to delete the selected Production Profile.
5. Select **Yes**.

   The selected Production Profile is deleted. The updated list of Production Profiles appears in the **Production Profile** section.

   Note: You cannot delete a Production Profile that is linked to a Production Plan.

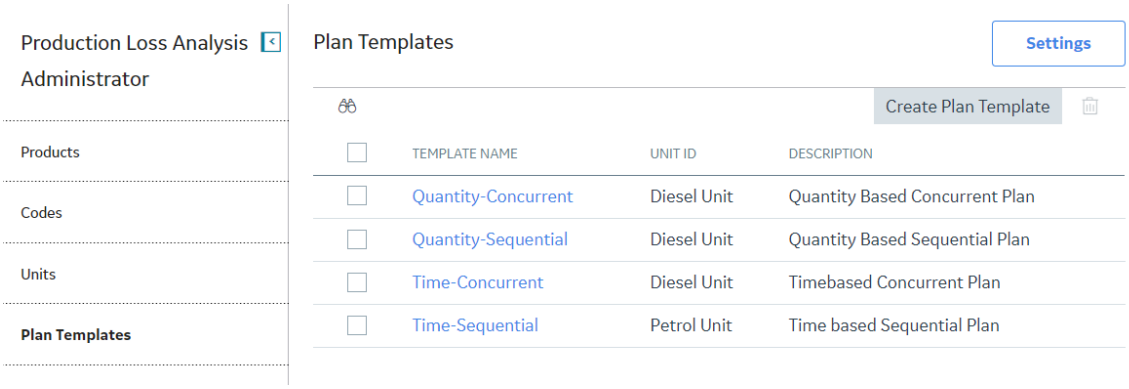
Plan Templates

Access the Plan Templates

Procedure

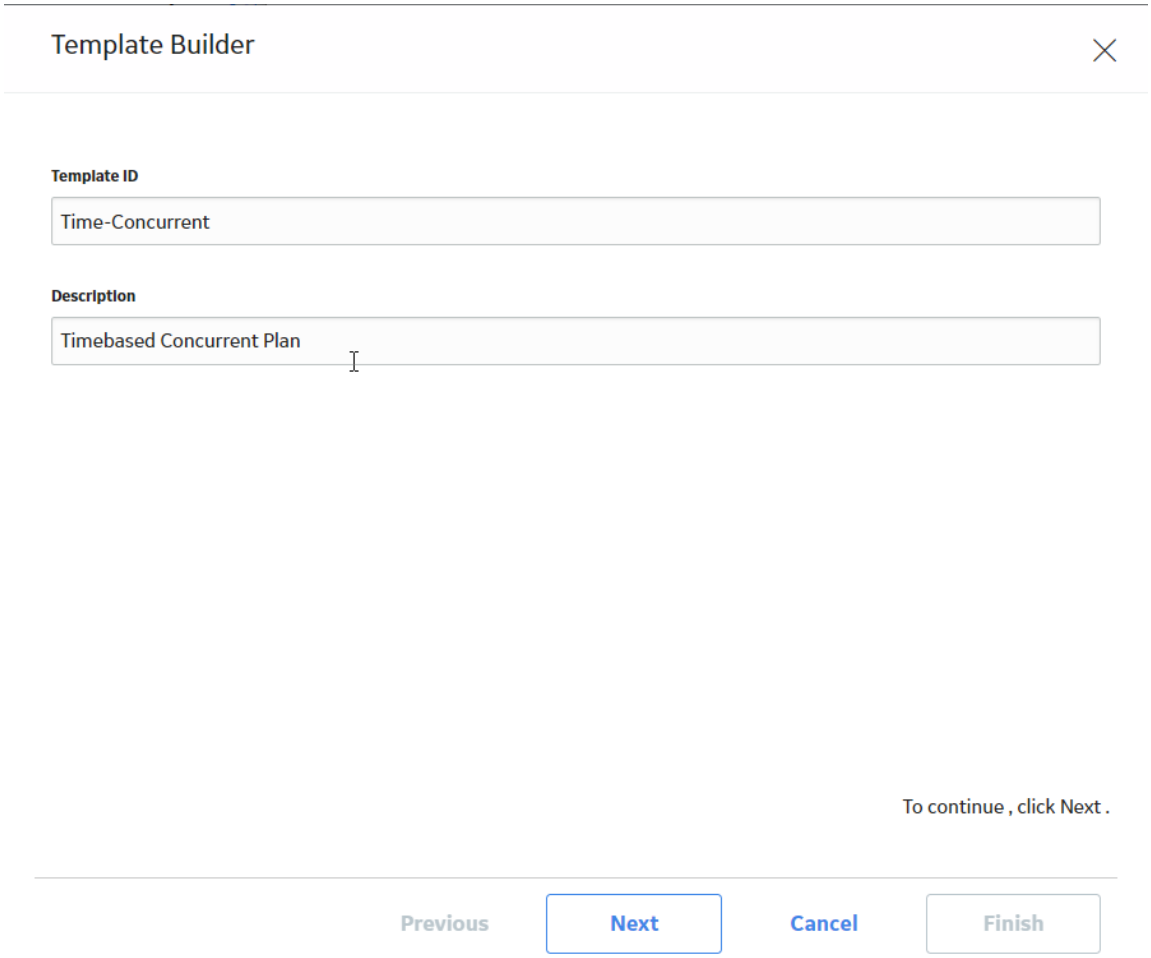
1. Access the **PLA Administrator** page.
2. Select the **Plan Templates** tab.

   The **Plan Templates** workspace appears.



3. In the **Template Name** column, select the link for the plan template that you want to access.

   The **Template Builder** window for the selected plan template appears.



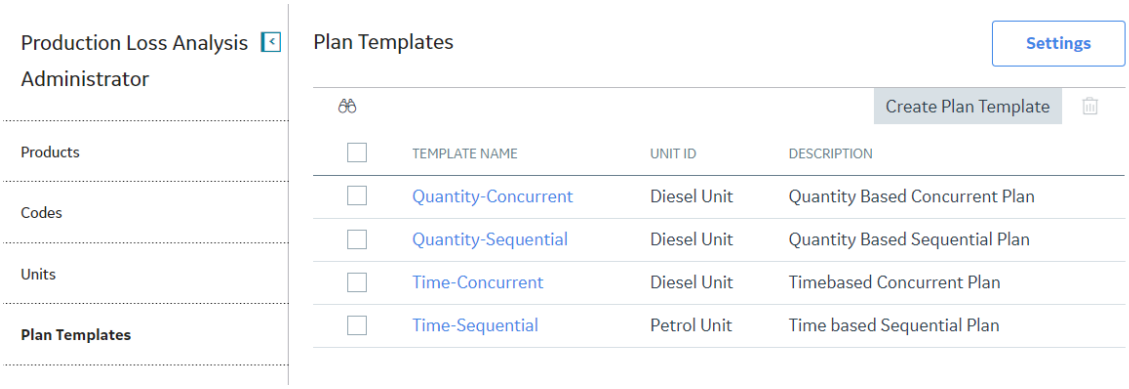
4. As needed, you can modify the values in the available fields in each section in the **Template Builder** window.:
5. Select **Finish** to save your changes and return to the **Plan Templates** workspace.

Create a Plan Template

Procedure

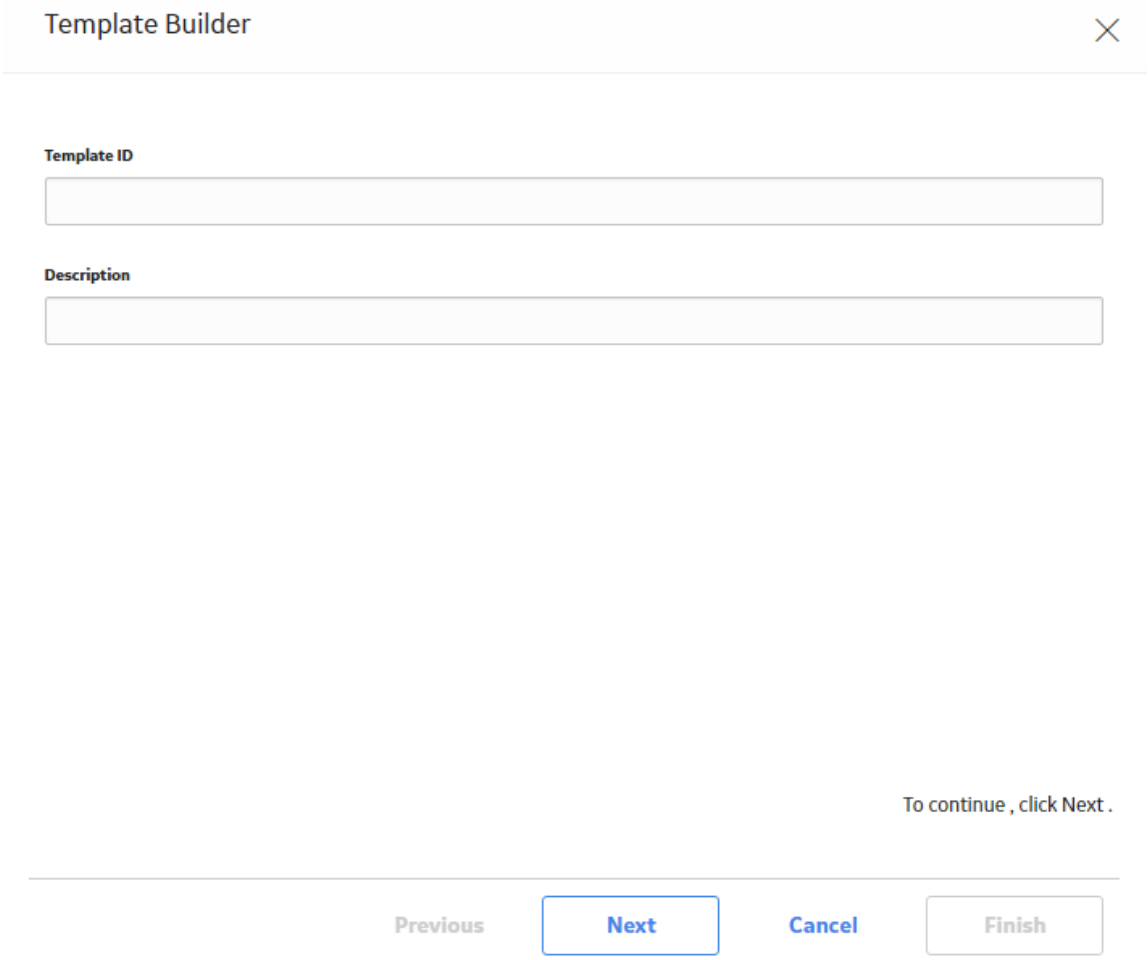
1. Access the **PLA Administrator** page.
2. Select the **Plan Templates** tab.

   The **Plan Templates** workspace appears.



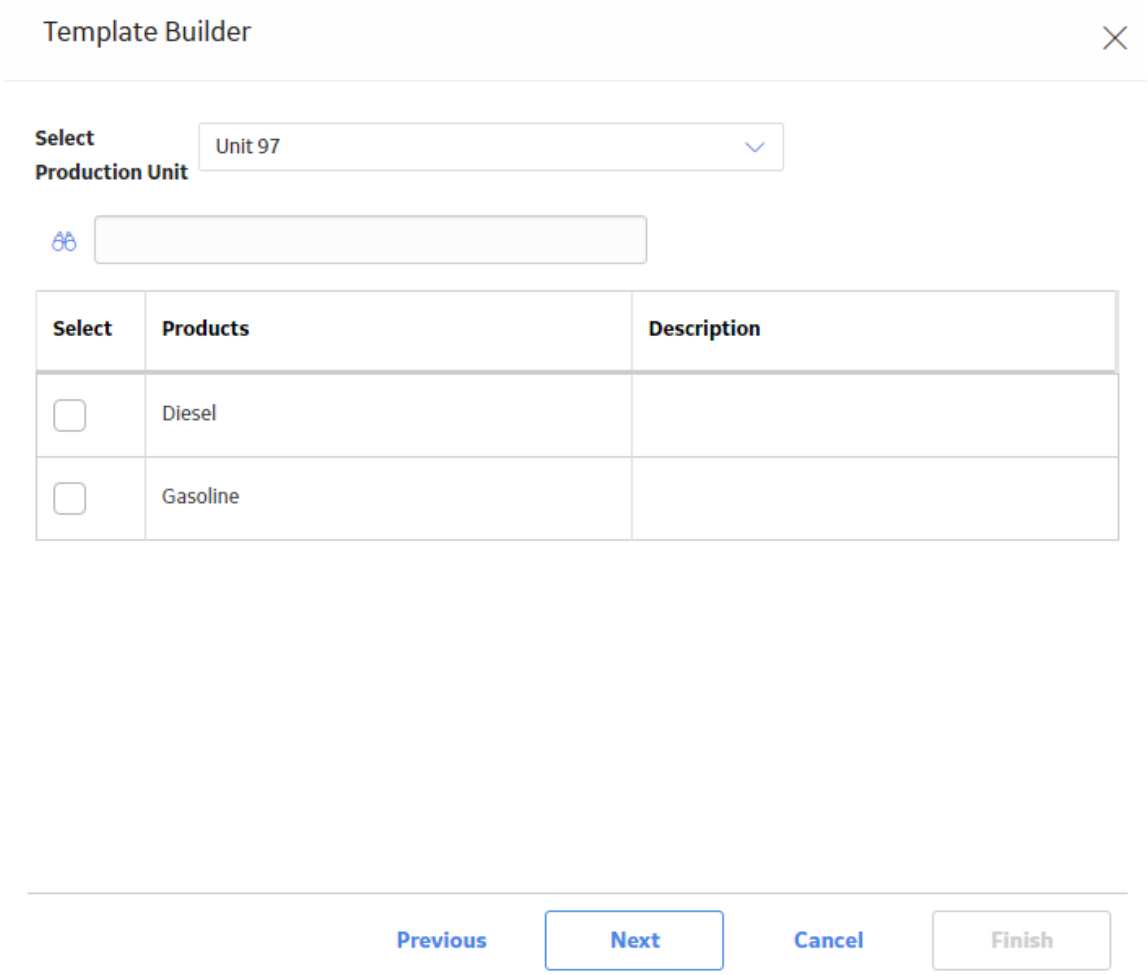
3. In the upper-right corner of the workspace, select **Create Plan Template**.

   The **Template Builder** screen appears, displaying the **Template ID** and **Description** boxes.

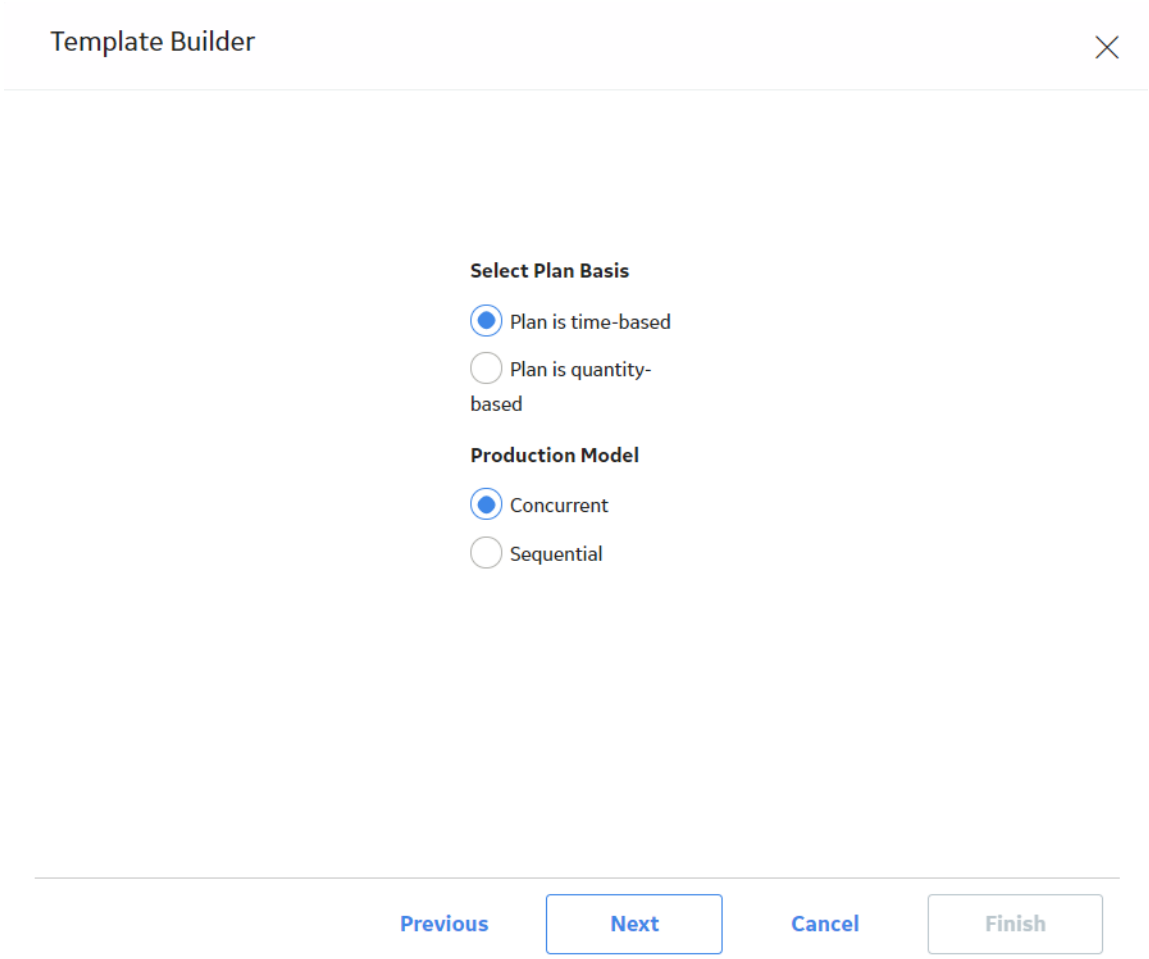


4. In the **Template ID** box, enter an ID for the plan template.
5. In the **Description** box, enter a description for the plan template.
6. Select **Next**.
7. In the **Select Production Unit** box, select a unit.

   The list of available products for the selected unit appears.

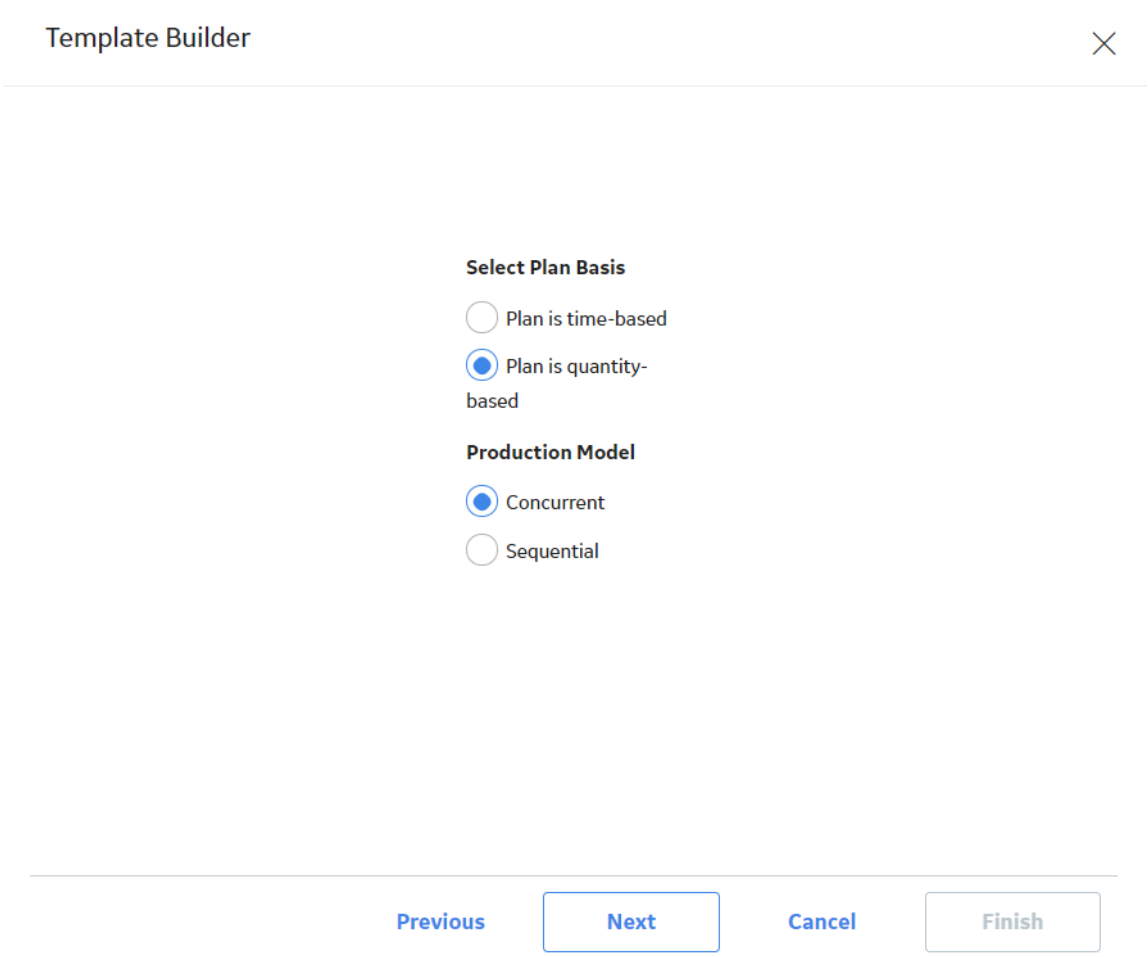


8. Next to each product that you want to add, select the check box, and then select **Next**.
9. If you want to define the period for which you want to track the production, in the **Select Plan-Basis** section, select **Plan is time-based**.

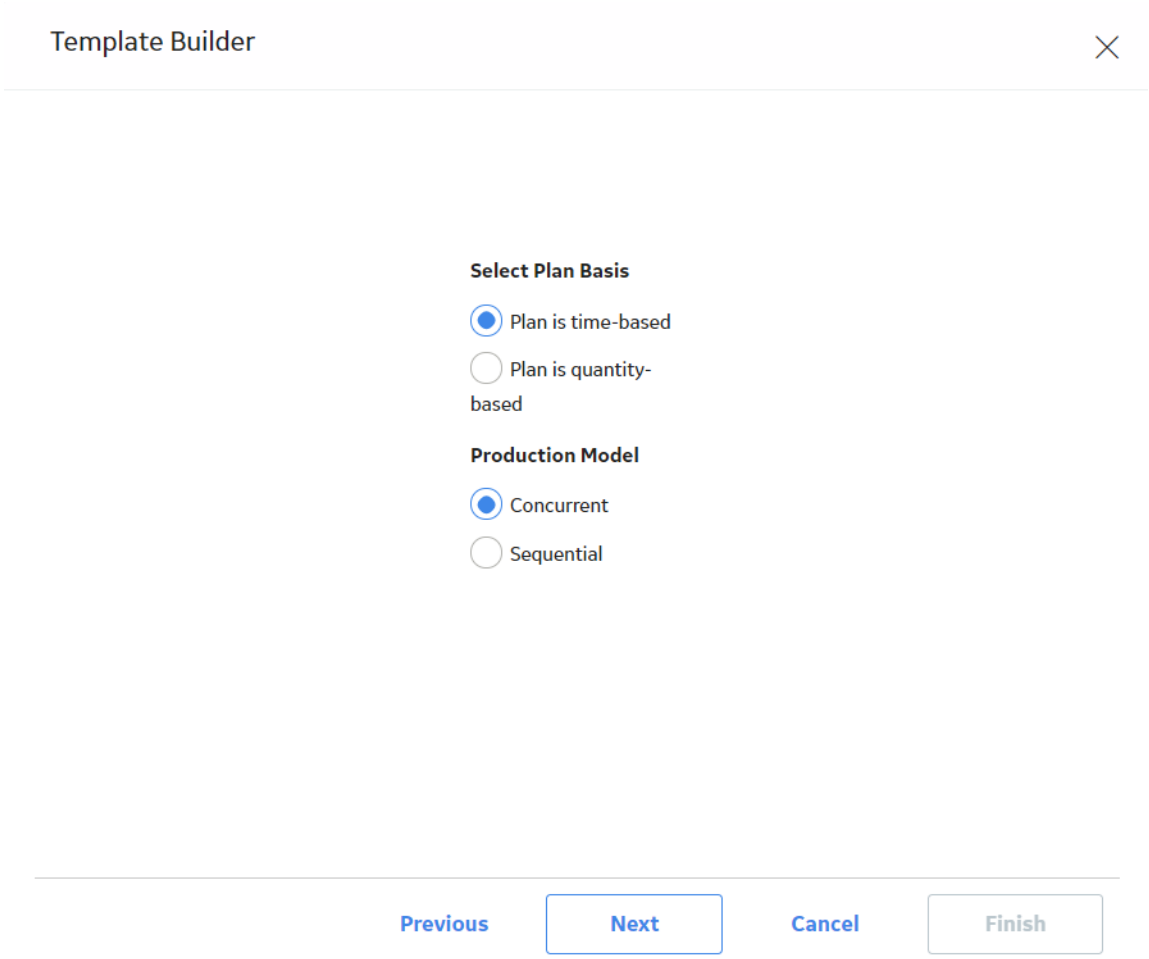


-or-

If you want to define the amount of each product that you plan to produce, in the **Select Plan-Basis** section, select **Plan is quantity-based**.

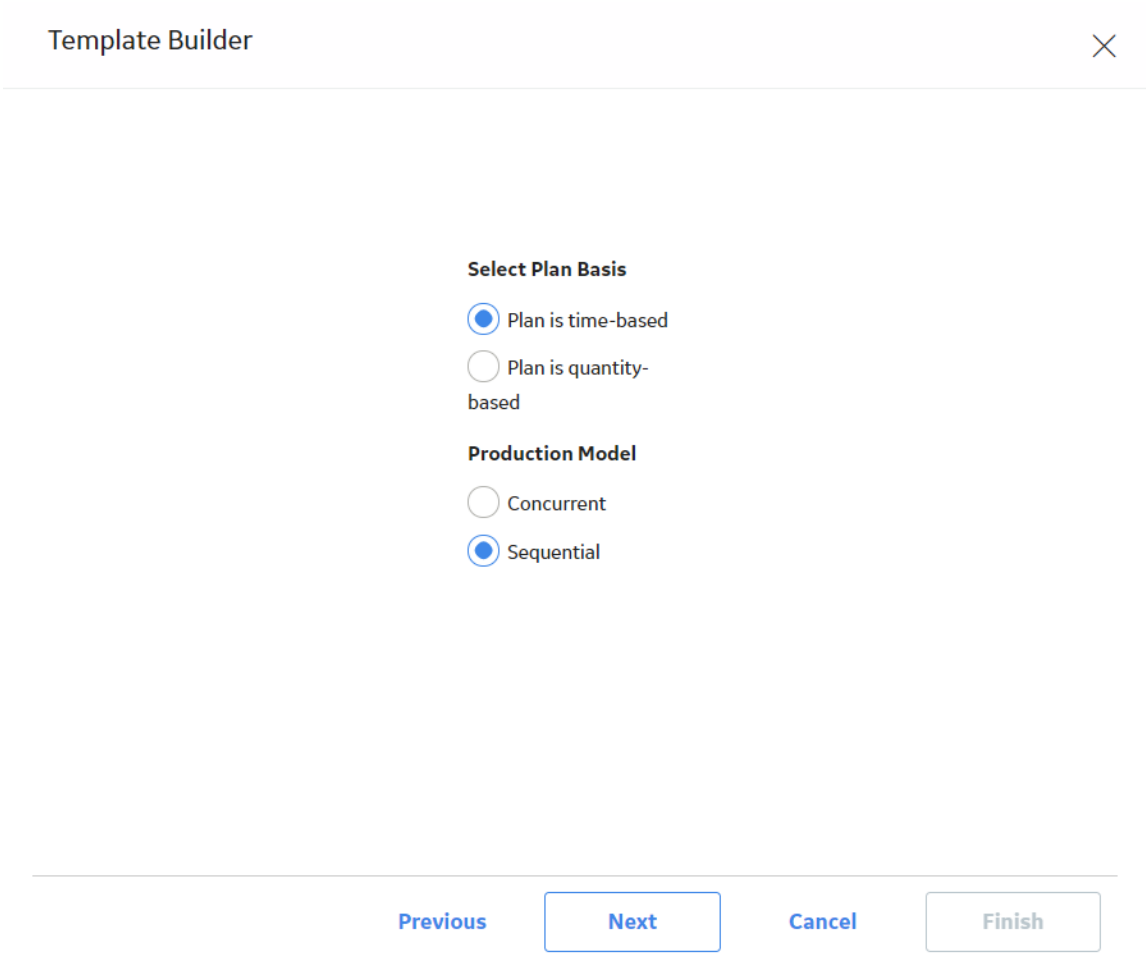


10. If the unit produces all the products at the same time, in the **Production Model** section, select **Concurrent**.



-or-

If the unit produces the first product first, and then begins producing the second product after production of the first product is complete, in the **Production Model** section, select **Sequential**.



11. Select **Next**.
12. If you are creating a time-based plan, on the **Time-based Plan** screen, enter values in the following fields:

    a. **Duration:** Select the duration of the plan template. Depending on the selection, the value in the Plan End Time field is automatically populated.
    b. **Plan Start Time:** Select the start date of the plan.
    c. **Plan End Time:** Depending on the value you select in the Duration field, this field is populated automatically.

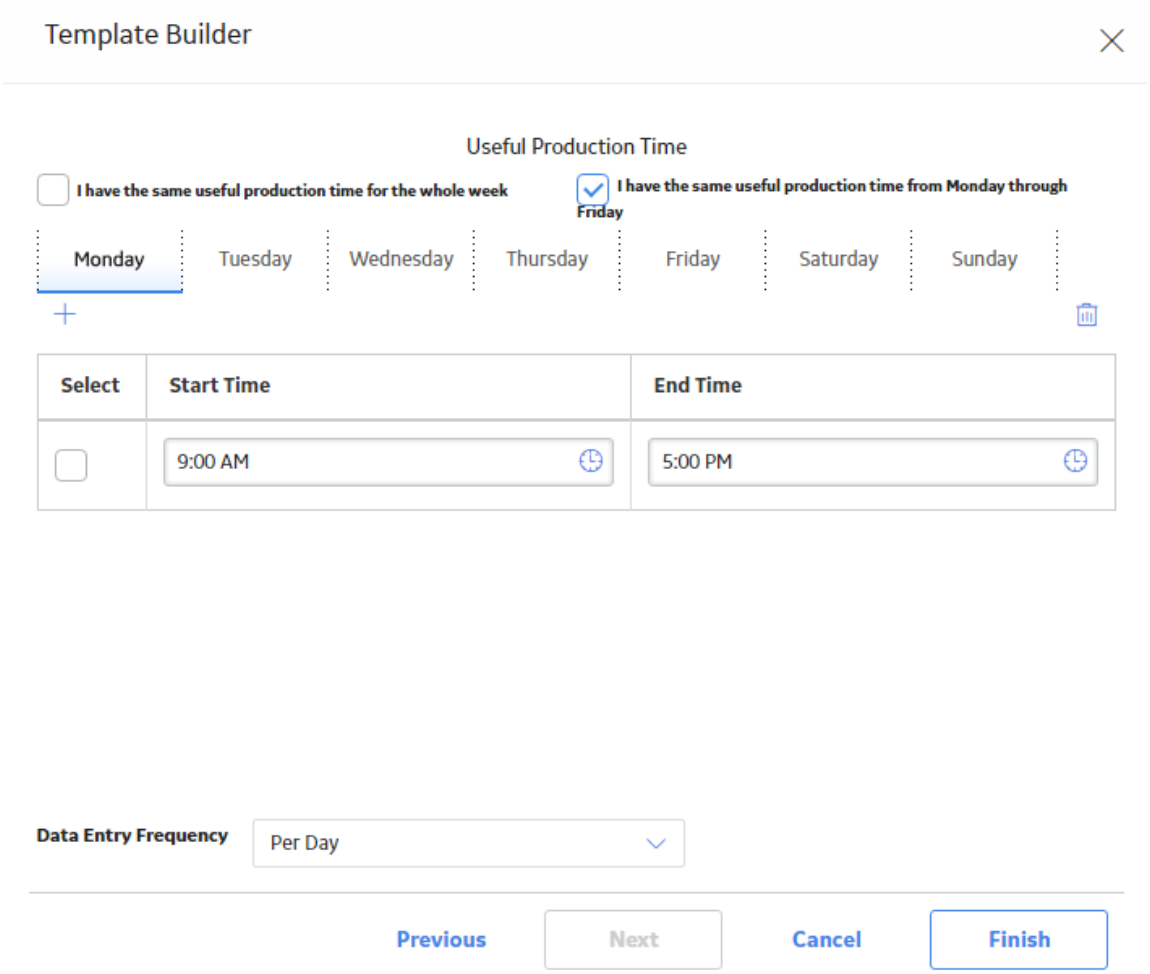
    -or-

    If you are creating a quantity-based plan, on the **Quantity-based Plan** screen, enter values in the following fields:

    a. **Plan Start Time:** Select the start date of the plan.
    b. **Quantity:** In each row, enter the number of products that you plan to produce.

    Note: If the production model is sequential, then, in the **Sequence** column, enter the sequence number of each product.
13. Select **Next**.

    The **Useful Production Time** screen appears.



14. Specify the days and times when the useful production will occur. Select or enter values in the following fields:
    a. **I have the same useful production time for the whole week:** Select this check box if you want the production shift to occur during the whole week.
    b. **I have the same useful production time from Monday through Friday:** Clear this check box if your production shifts occur on specific days.
    c. Select to add a shift, and then enter or select the start time and end time.
    d. **Data Entry Frequency:** Select how often the data is entered into APM.
15. Select **Finish**.

    The plan template is created and appears in the **Plan Templates** workspace.

Chapter 8

Data Loaders

Topics:

PLA Data Loaders

About the PLA Data Loaders

The Production Loss Analysis (PLA) Data Loaders allow you to load the production data that exists in a legacy system into APM. By loading the legacy production data, you can gain insight into the previous performance and compare it to the current and future performance. Using the data loaded by the PLA Data Loaders, you can maintain visibility and continuity in production reliability.

The PLA Data Loaders can also be used to:

- Validate solution readiness by performing functional tests on the loaded data elements.
- Enable effective training for a specific course by using the loaded data elements.

APM uses the following Data Loaders in PLA:

- Production Loss Analysis (PLA) 1-Admin
- Production Loss Analysis (PLA) 2-Event
- Production Loss Analysis (PLA) 3-Plan

Each PLA Data Loader uses an Excel workbook, which is referred to as the data loader workbook.

PLA Data Loaders Purpose

You can use the three stage PLA Data Loaders for the following purposes:

1. To upload historical records for Production Profiles, Production Events, and Production Plans.
2. To update existing Production Plans with the following criteria:
    a. Add Production Plan data for reporting period 1.
    b. Update with Production data for period 2 with period 1 data being retained in target plans.
    c. Modify previously uploaded data.
    d. Modify Loss Reconciliation data by breaking them down into multiple elements.
    e. Change Events linked to losses.
    f. Change Event content (Event codes, OEE codes, and causing asset).

Note: The above use case is conditional on the target Production Plan being found for each data load. If a target Production Plan is not found, a new Plan will be created. This will occur when the analyst performing the data upload has a different timezone setting from the target Production Plan. For example, an analyst in the USA with **MM/DD/YYYY** setting will cause a Production Plan in Europe with Plan Creation Date of **DD/MM/YYYY** to be missed by the loader. To avoid creating duplicate plans in this way, ensure that the timezone matches that of the target Production Plan before performing the upload.

PLA Admin Data Loader

About the Production Loss Analysis (PLA) 1-Admin Data Loader

Using the Production Loss Analysis (PLA) 1-Admin Data Loader, you can create the following records:

- Production Units
- Production Event Codes
- Production Profiles
- Profile Margins

About the Production Loss Analysis (PLA) 1-Admin Data Loader Requirements

Before you use the Production Loss Analysis (PLA) 1-Admin Data Loader:

- Ensure that the Production Event Codes specified in the data loader workbook exist in APM.
- If a Functional Location is specified in the data loader workbook, ensure that it exists in APM.

  Important: To use this data loader, the Functional Location family must use the baseline format of the ID Template.

Security Settings

The user who loads data must be associated with the following Security Groups and Security Roles:

- MI Data Loader User Security Role

  -or-

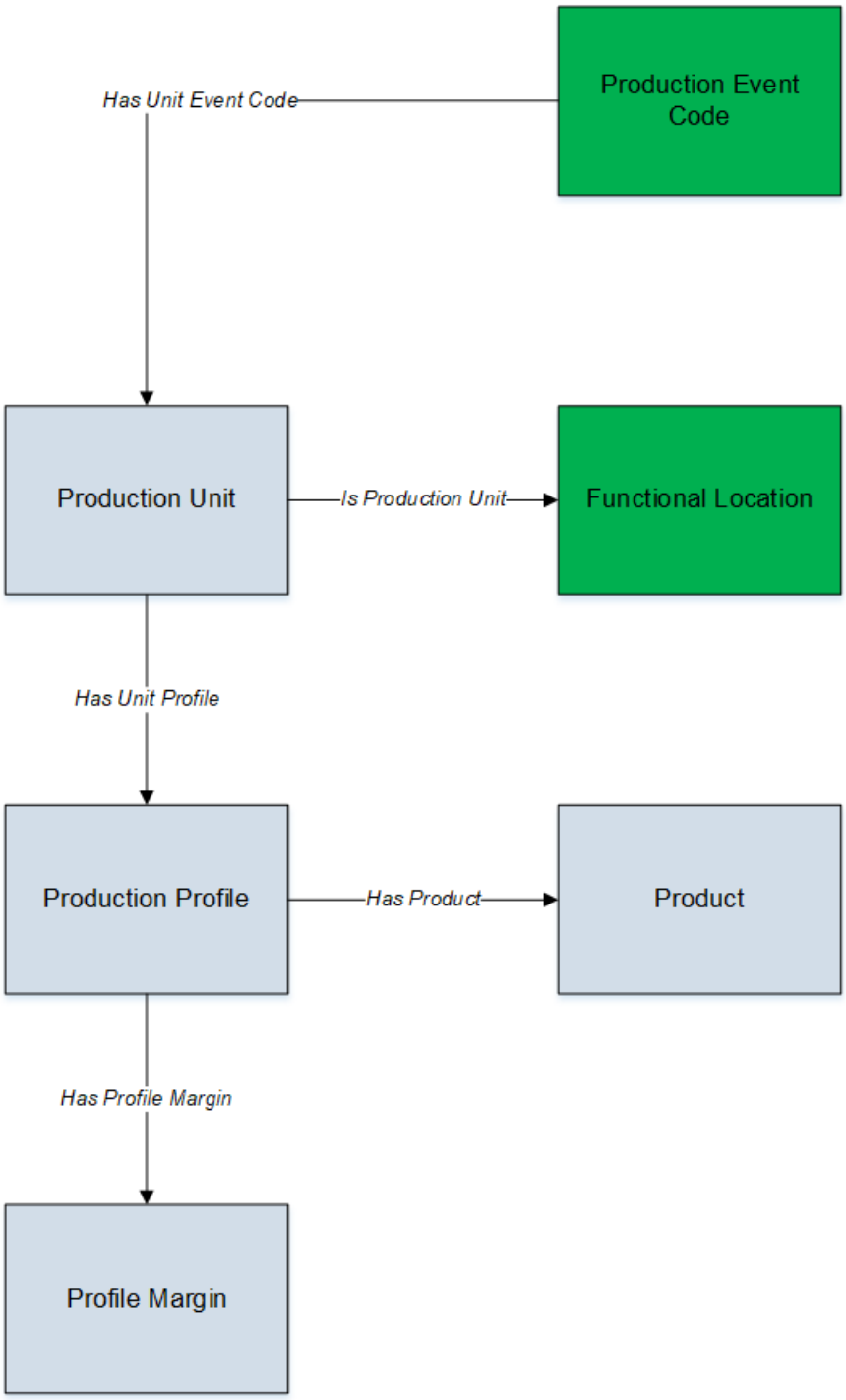
  MI Data Loader Admin Security Role
- MI Production Loss Accounting Administrator Security Group

  -or-

  A role that is associated with the MI Production Loss Accounting Administrator Security Group

About the Production Loss Analysis (PLA) 1-Admin Data Loader Data Model

The following data model illustrates which records are supported by the Production Loss Analysis (PLA) 1-Admin Data Loader:



- Elements shown in grey are imported into APM by the Production Loss Analysis (PLA) 1-Admin Data Loader.
- Elements shown in green exist in APM and may be related to the data that is being loaded.

About the Production Loss Analysis (PLA) 1-Admin Data Loader General Loading Strategy

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

Best Practices

When using the Production Loss Analysis (PLA) 1-Admin data loader workbook, ensure that:

- The ID fields (that is, row 2) in each worksheet do not include special characters or spaces.
- Columns of each worksheet, including those representing custom fields, are not formatted as Text.
- The first two rows of each worksheet are not modified.

Modification Requirements and Guidelines

To accommodate a new or an enhanced feature, APM may modify the data model from one version to the next. In this scenario, the data loaders will be modified and maintained by APM between releases.

Limitations

- If you reimport a record that currently exists in APM, the newly imported record will replace the existing one in APM. The Production Loss Analysis (PLA) 1-Admin Data Loader does not create a duplicate record.
- You must not modify the template of the data loader workbook.

Load Sequence

1. Download the Production Loss Analysis (PLA) 1-Admin data loader workbook provided by APM:
2. Identify the data requirements for exporting data from the legacy system into the data loader workbooks.
3. Extract data from the legacy system to populate the data loader workbooks.
4. Load data using the Production Loss Analysis (PLA) 1-Admin data loader workbook.
5. Monitor the status of the data load operation and report results.
6. Conduct tests in APM to ensure that the imported data is loaded properly.

About the Production Loss Analysis (PLA) 1-Admin Data Loader Workbook Layout and Use

To load data using the Production Loss Analysis (PLA) 1-Admin Data Loader, APM provides an Excel workbook, Production Loss Analysis (PLA) 1-Admin.xlsx, which supports baseline PLA in APM.

The following table provides a list of worksheets that are included in the Production Loss Analysis (PLA) 1-Admin data loader workbook:

Worksheet	Description
ProductionUnit	This worksheet is used to specify the Production Unit records.
ProductionEventCode	This worksheet is used to specify the existing Production Event Code records that have been assigned to the Production Unit records.
ProductionProfile	This worksheet is used to specify the Production Profile records.
ProfileMargin	This worksheet is used to specify the Profile Margin records.

Color Coding

Certain columns in the worksheets have different functions and requirements. To illustrate this, they are color-coded. The following table provides a list of colors and what they represent.

Color	Description	Comments
	Required Fields	Indicates columns that contain values that are required in PLA.
	Recommended Fields	Indicates columns that, according to APM Best Practice for PLA, should contain values.
	Optional	Indicates columns where you can specify custom fields.

ProductionUnit Worksheet

Production Unit records store basic information about a single Production Unit. In the ProductionUnit worksheet, you will specify the Production Unit records that you want to create.

Field Caption	Field ID	Data Type (Length)	Comments
Production Unit Key	MI_PRDNUNIT_KEY	Character (255)	This cell is required. Enter a unique value that you want to assign to each Production Unit. Other worksheets within the workbook can reference the Production Unit using this value.
Production Unit Name	MI_PRDNUNIT_UNIT_ID_C	Character (255)	This cell is required. Enter a unique value. The name of the Production Unit is case-sensitive.
Production Unit Description	MI_PRDNUNIT_DESCR_C	Character (255)	This cell is optional.
Associated Unit	MI_ PRDNUNIT_FUNC_LOC_C	Character (255)	This cell is recommended. The value you enter in this cell must match the ID of an existing Functional Location (Family ID: MI_FNCLOC00) in APM.
TimeZone	MI_PRDNUNIT_TIMEZONE_ C	Character (255)	This cell is required. Enter a valid time zone (for example, Eastern Standard Time).

ProductionEventCode Worksheet

In the ProductionEventCode worksheet, you will specify the Production Event Codes that you want to associate with your Production Unit records.

Field Caption	Field ID	Data Type (Length)	Comments
Production Unit Key	MI_PRDNUNIT_KEY	Character (255)	This cell is required. Enter the key that is assigned to the Production Unit that you want to reference. The ProductionUnit worksheet contains this value.
Event Code	MI_PRDEVNCD_CODE_C	Character (50)	This cell is required. The value you enter in this cell is mapped to the corresponding Production Unit. This value must exist in the **Codes** workspace on the **PLA Administrator** page.

ProductionProfile Worksheet

Production Profile records store information about a Product. In the Production Profile worksheet, you will specify the Production Profile records that you want to create.

Field Caption	Field ID	Data Type (Length)	Comments
Production Unit Key	MI_PRDNUNIT_KEY	Character (255)	This cell is required. Enter the key that is assigned to the Production Unit that you want to reference. The ProductionUnit worksheet contains this value.
Profile Key	MI_PRDNPROF_KEY	Character (255)	This cell is required. Enter a unique value.
Production Profile Description	MI_PRDNPROF_DESCR_C	Character (255)	This cell is optional.
Product Name	MI_PRODUCT_NAME_C	Character (50)	This cell is required. The value you enter in this cell is used to form the name of the Production Profile. If the entered Product Name does not exist in APM, the Product Name and the Product Description will be used to create the Product.

Field Caption	Field ID	Data Type (Length)	Comments
Product Alias	MI_PRDNPROF_ALTE_PROD_NAME_C	Character (50)	This cell is recommended. If a value is not entered in this cell, it will be populated with the Product Name of the Production Profile.
Product Description	MI_PRODUCT_DESCR_C	Character (255)	This cell is optional.
Max Demonstrated Rate	MI_PRDNPROF_MAX_DMNSTR_RATE_N	Numeric	This cell is recommended. Enter the maximum demonstrated production rate. Max Demonstrated Rate (MDR) defines the practical limit for Maximum Sustained Capacity Rate (MSCR). It is measured in terms of Product UOM per Production Rate UOM (e.g., 500 Barrels/Day).
Product UOM	MI_PRDNPROF_PRODUCT_UOM_C	Character (255)	This cell is required. The value you enter in this cell is used to form the name of the Production Profile. Unit is the default Product UOM. If the entered UOM does not exist in APM, it will be added to APM.
Production Rate UOM	MI_PRDNPROF_PRO_RATE_UOM_C	Character (255)	This cell is required. Enter the required Unit of Measure (UOM) which defines the unit used for batch cycle time, production planning, and reporting rates.
Standard Batch Cycle Time	MI_PRDNPROF_ST_BA_CY_TI_N	Numeric	This cell is required. Enter the cycle time that is used to calculate capacity and planning rates. It is measured in terms of Production Rate UOM (for example, 1 Day).

Field Caption	Field ID	Data Type (Length)	Comments
Standard Batch Size	MI_PRDNPROF_STAN_BAT_SIZ_N	Numeric	This cell is required. Enter the batch size that is used to calculate capacity and planning rates. It is measured in terms of Product UOM (for example, 5 Barrels).
Planning Rate	MI_PRDNPROF_PLAN_RATE_N	Numeric	This cell is required. Enter the rate associated with the useful production time. It is measured in terms of Product UOM per Production Rate UOM (for example, 300 Barrels/Day).
Profile MSHR	MI_PRDNPROF_MAX_SUS_HO_RA_MS_N	Numeric	This cell is recommended. Enter the Maximum Sustained Hourly Rate for Production. If a value is not entered in this cell, Equivalent Downtime Hours will not be calculated on Production Losses. It is measured in terms of Product UOM (for example, 50 Barrels).

ProfileMargin Worksheet

Every Production Profile must have at least one Profile Margin. In the ProfileMargin worksheet, you will specify the Profile Margin records that you want to create for a Production Profile.

Note: If there is more than one Profile Margin for a Production Profile, then one of the Profile Margins must be marked as default. If no Profile Margin is provided for a Production Profile, then the Loss value will not be calculated.

Field Caption	Field ID	Data Type (Length)	Comments
Production Unit Key	MI_PRDNUNIT_KEY	Character (255)	This cell is required. Enter the key that is assigned to the Production Unit that you want to reference. The ProductionUnit worksheet contains this value.
Profile Key	MI_PRDNPROF_KEY	Character (255)	This cell is required. Enter the key that is assigned to the Production Unit that you want to reference. The ProductionProfile worksheet contains this value.
MarginKey	MI_MARGIN_KEY	Numeric	This cell is required. Enter a unique value.
Margin ID	MI_PROFMAR_MARGI_ID_C	Character (255)	This cell is required. Enter a unique value.
Margin Value	MI_PROFMAR_MARGI_VALUE_N	Numeric	This cell is required. Enter a value for the Margin.
Default(Yes/No)	MI_PROFMAR_SELE_DEFA_N	Numeric	This cell is required. Enter one of the following values: • 0: This will not mark the corresponding Profile Margin of the selected Production Profile as the default Profile Margin. • 1: This will mark the corresponding Profile Margin of the selected Production Profile as the default Profile Margin.

About the Production Loss Analysis (PLA) 1-Admin Data Loader Load Verification

About This Task

After you load data, you can access the following records:

- Production Units
- Production Event Codes
- Production Profiles
- Profile Margins

You should perform the following steps in APM to confirm the accuracy and integrity of the data imported from the data loader workbook:

Procedure

1. Access the details of the import job. In addition to the general information regarding the records that were loaded during the data load operation, these details may include error and warning messages pertaining to the records.
2. In PLA, access the records specified in the data loader workbook, and then verify that the expected data is present or updated, as applicable.

PLA Event Data Loader

About the Production Loss Analysis (PLA) 2-Event Data Loader

Using the Production Loss Analysis (PLA) 2-Event Data Loader, you can create the Production Event record.

About the Production Loss Analysis (PLA) 2-Event Data Loader Requirements

Before you use the Production Loss Analysis (PLA) 2-Event Data Loader:

- If the following details are specified in the data loader workbook, ensure that they exist in APM:
  - Asset (Equipment or Functional Location)
  - Production Unit
  - Work History

  Tip: You can use the Production Loss Analysis (PLA) 1-Admin Data Loader to create the Production Unit records in APM.

  Important: To use this data loader, the Equipment and Functional Location families must use the baseline format of the ID Template.
- If a Production Event Code is specified in the data loader workbook for a Production Unit, ensure that it is associated with the same Production Unit in APM.

Security Settings

The user who loads data must be associated with the following Security Groups and Security Roles:

- MI Data Loader User Security Role

  -or-

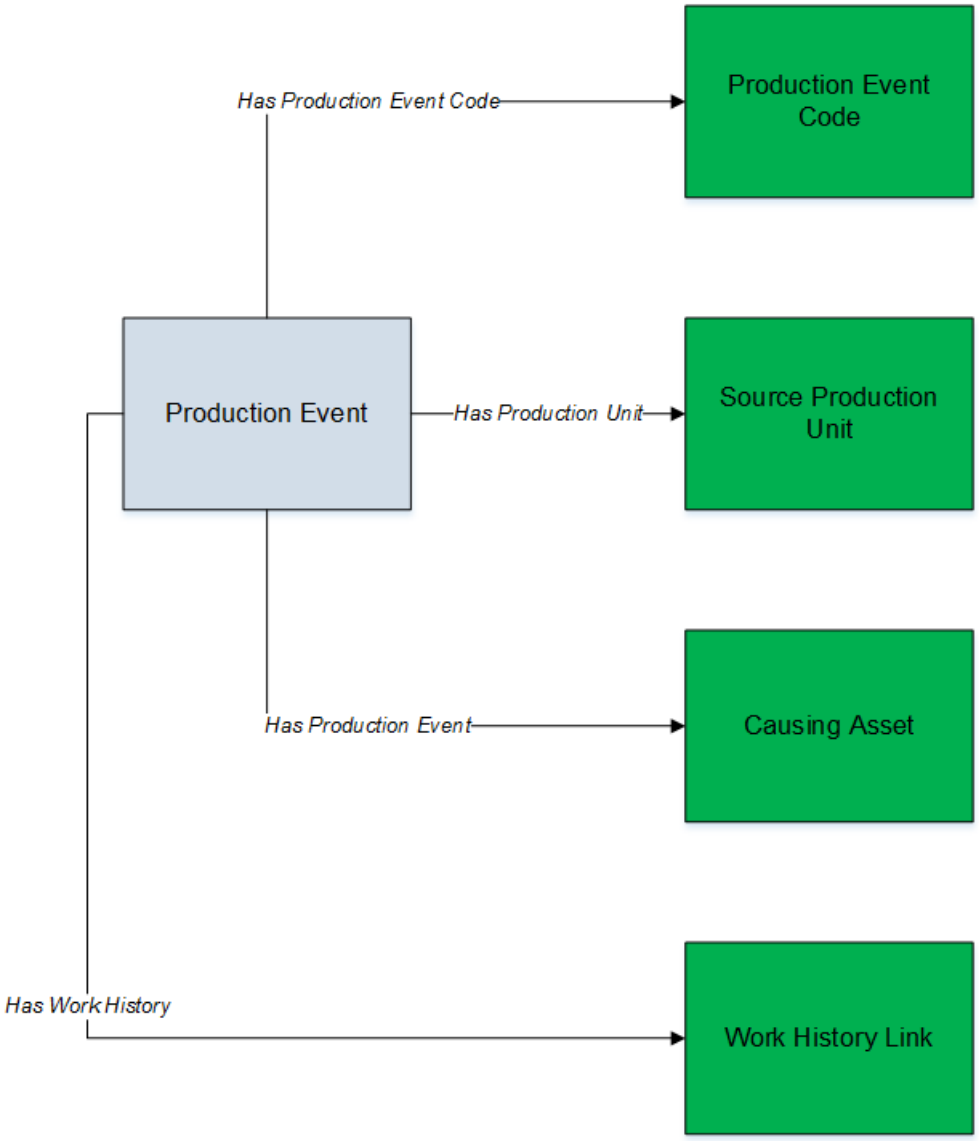
  MI Data Loader Admin Security Role
- MI Production Loss Accounting Administrator Security Group

  -or-

A role that is associated with the MI Production Loss Accounting Administrator Security Group

About the Production Loss Analysis (PLA) 2-Event Data Loader Data Model

The following data model illustrates which records are supported by the Production Loss Analysis (PLA) 2-Event Data Loader:



- The element shown in grey is imported into APM by the Production Loss Analysis (PLA) 2-Event Data Loader.
- Elements shown in green exist in APM and may be related to the data that is being loaded.

About the Production Loss Analysis (PLA) 2-Event Data Loader General Loading Strategy

Best Practices

When using the Production Loss Analysis (PLA) 2-Event data loader workbook, ensure that:

- The ID fields (that is, row 2) in each worksheet do not include special characters or spaces.
- Columns of each worksheet, including those representing custom fields, are not formatted as Text.
- The first two rows of each worksheet are not modified.

Modification Requirements and Guidelines

To accommodate a new or an enhanced feature, APM may modify the data model from one version to the next. In this scenario, the data loaders will be modified and maintained by APM between releases.

Limitations

- If you reimport a record that currently exists in APM, the newly imported record will replace the existing one in APM. The Production Loss Analysis (PLA) 1-Admin Data Loader does not create a duplicate record.
- You must not modify the template of the data loader workbook.

Load Sequence

1. Download the Production Loss Analysis (PLA) 2-Event data loader workbook provided by APM:
2. Identify the data requirements for exporting data from the legacy system into the data loader workbooks.
3. Extract data from the legacy system to populate the data loader workbooks.
4. Load data using the Production Loss Analysis (PLA) 2-Event data loader workbook.
5. Monitor the status of the data load operation and report results.
6. Conduct tests in APM to ensure that the imported data is loaded properly.

About the Production Loss Analysis (PLA) 2-Event Data Loader Workbook Layout and Use

To load data using the Production Loss Analysis (PLA) 2-Event Data Loader, APM provides an Excel workbook, **Production Loss Analysis (PLA) 2-Event.xlsx**, which supports baseline PLA in APM.

The following table provides a list of worksheets that are included in the Production Loss Analysis (PLA) 2-Event data loader workbook.

Worksheet	Description
ProductionEvent	This worksheet is used to specify the Production Event records.

Color Coding

Certain columns in the worksheets have different functions and requirements. To illustrate this, they are color-coded. The following table provides a list of colors and what they represent.

Color	Description	Comments
	Fields with Special Notes	Indicates columns that contain values that are used by the Production Loss Analysis (PLA) 2-Event Data Loader to create records. If these columns are removed from the worksheets, the data load operation will fail. While the worksheets require that these columns be present, values are not necessarily required in these columns.
	Required Fields	Indicates columns that contain values that are required in PLA.
	Recommended Fields	Indicates columns that, according to GE Vernova Best Practice for PLA, should contain values.
	Optional	Indicates columns where you can specify custom fields.

ProductionEvent Worksheet

In the ProductionEvent worksheet, you will specify the Production Event records that you want to create.

Field Caption	Field ID	Data Type (Length)	Comments
Event Id	MI_PRDNEVENT_ID_C	Character (250)	This cell is required. Enter a unique value.
RCA Needed	MI_PRDNEVNT_CREA_RCA_C	Character (50)	This cell is required. Enter one of the following values: • No Entry • No RCA Needed • RCA Needed
Site Id	MI_SITE_ID	Character (255)	This cell is recommended. Enter the site ID where the Production Event occurred.

Field Caption	Field ID	Data Type (Length)	Comments
HeadLine	MI_PRDNEVNT_HEADLINE_C	Character (50)	This cell is recommended. Enter a short description of the Production Event.
Description	MI_PRDNEVNT_DESCR_C	Text	This cell need not have a value; however, the column must exist in the worksheet. Enter a detailed description of the Production Event.
Start Date	MI_PRDNEVNT_START_DATE_D	Date	This cell is recommended. Enter the date and time when the Production Event started. The Start Date must represent the time zone of the Production Unit.
End Date	MI_PRDNEVNT_END_DATE_D	Date	This cell is recommended. Enter the date and time when the Production Event ended. The End Date must represent the time zone of the Production Unit.
Source Production Unit	MI_PRDNEVNT_SRC_UNIT_C	Character (50)	This cell is recommended. Enter the Production Unit to which the Production Loss is attributed.
Production Event Code	MI_PRDNEVNT_RLT_PRDNEVNT_CD_C	Character (50)	This cell is recommended. Enter a value that matches an existing Production Event Code in APM.
Causing Asset Category	MI_PRDNEVNT_UserSelection	Character (50)	This cell is required if you specify a Causing Asset. Select the family (that is, Equipment or Family) of the Causing Asset. This cell is case-sensitive.

Field Caption	Field ID	Data Type (Length)	Comments
Causing Asset	MI_PRDNEVNT_RLT_CAUSE_EQP_C	Character (255)	This cell is recommended. Enter the Equipment or Functional Location to which you want to attribute the cost of the Production Event.
Work History Link	MI_PRDNEVNT_WRK_HIST_LNK_C	Character (255)	This cell is recommended. Enter one or more Work Histories that you want to link to the Production Event. The cost of each linked Work History is added to the total cost of the Production Loss.
Other Event Cost	MI_PRDNEVNT_OTHR_EVNT_COST_N	Numeric	This cell need not have a value; however, the column must exist in the worksheet. Enter a value for the additional costs, in dollars.
Comment	MI_PRDNEVNT_COMMENT_C	Text	This cell need not have a value; however, the column must exist in the worksheet. Enter a description of the event.

About the Production Loss Analysis (PLA) 2-Event Data Loader Load Verification

About This Task

After you load data, you can access the Production Event records.

You should perform the following steps in APM to confirm the accuracy and integrity of the data imported from the data loader workbook:

Procedure

1. Access the details of the import job. In addition to the general information regarding the records that were loaded during the data load operation, these details may include error and warning messages pertaining to the records.
2. In PLA, access the records specified in the data loader workbook, and then verify that the expected data is present or updated, as applicable.

PLA Plan Data Loader

About the Production Loss Analysis (PLA) 3-Plan Data Loader

Using the Production Loss Analysis (PLA) 3-Plan Data Loader, you can create the following records:

- Production Plans
- Production Data
- Production Losses

About the Production Loss Analysis (PLA) 3-Plan Data Loader Requirements

If the following details are specified in the data loader workbook, ensure that they exist in APM:

- Impact Code
- OEE Code
- Production Event
- Production Profile
- Production Unit

Tip:

You can use the Production Loss Analysis (PLA) 1-Admin and Production Loss Analysis (PLA) 2-Event Data Loaders to create the Production Event, Production Profile, and Production Unit records. You must, however, load them in the following sequence:

- Production Loss Analysis (PLA) 1-Admin
- Production Loss Analysis (PLA) 2-Event

Security Settings

The user who loads data must be associated with the following Security Groups and Security Roles:

- MI Data Loader User Security Role

  -or-

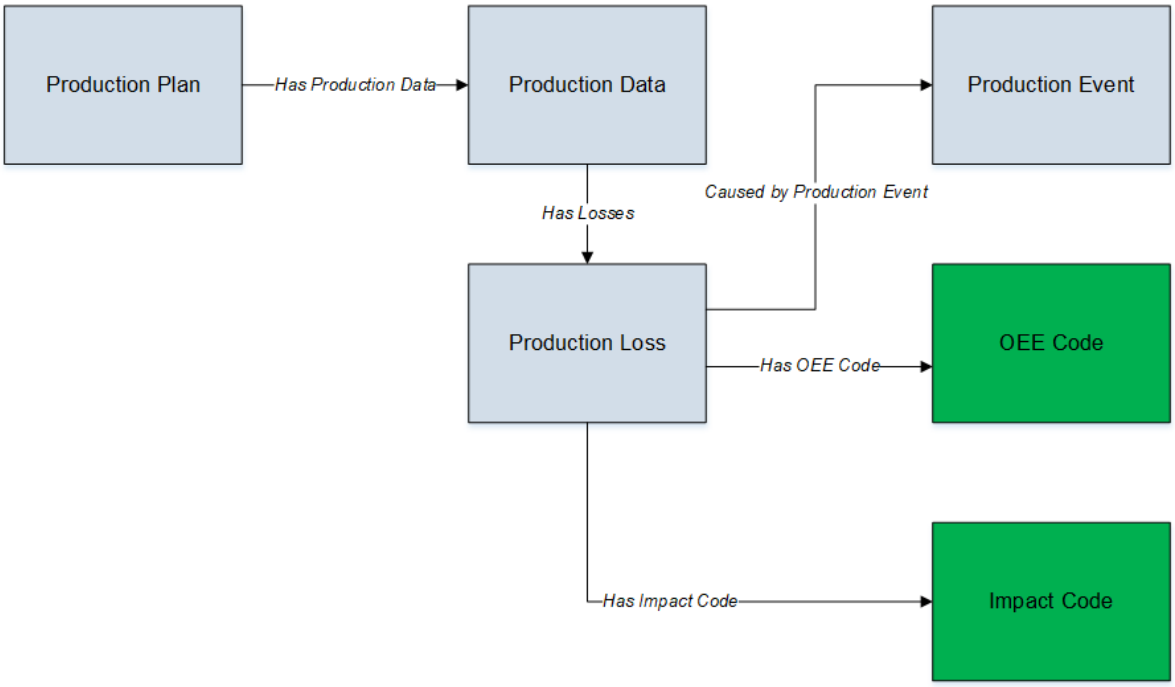
  MI Data Loader Admin Security Role
- MI Production Loss Accounting Administrator Security Group

  -or-

  A Security Role that is associated with the MI Production Loss Accounting Administrator Security Group

About the Production Loss Analysis (PLA) 3-Plan Data Loader Data Model

The following data model illustrates which records are supported by the Production Loss Analysis (PLA) 3-Plan Data Loader:



- Elements shown in grey are imported into APM by the Production Loss Analysis (PLA) 3-Plan Data Loader.
- Elements shown in green exist in APM and may be related to the data that is being loaded.

About the Production Loss Analysis (PLA) 3-Plan Data Loader General Loading Strategy

Best Practices

When using the Production Loss Analysis (PLA) 3-Plan data loader workbook, ensure that:

- The ID fields (that is, row 2) in each worksheet do not include special characters or spaces.
- Columns of each worksheet, including those representing custom fields, are not formatted as Text.
- The first two rows of each worksheet are not modified.

Modification Requirements and Guidelines

To accommodate a new or an enhanced feature, APM may modify the data model from one version to the next. In this scenario, the data loaders will be modified and maintained by APM between releases.

Limitations

- If you reimport a record that currently exists in APM, the newly imported record will replace the existing one in APM. The Production Loss Analysis (PLA) 1-Admin Data Loader does not create a duplicate record.
- You must not modify the template of the data loader workbook.

Load Sequence

1. Download the Production Loss Analysis (PLA) 3-Plan data loader workbook provided by APM:
2. Identify the data requirements for exporting data from the legacy system into the data loader workbooks.
3. Extract data from the legacy system to populate the data loader workbooks.
4. Load data using the Production Loss Analysis (PLA) 3-Plan data loader workbook.
5. Monitor the status of the data load operation and report results.
6. Conduct tests in APM to ensure that the imported data is loaded properly.

About the Production Loss Analysis (PLA) 3-Plan Data Loader Workbook Layout and Use

To load data using the Production Loss Analysis (PLA) 3-Plan Data Loader, APM provides an Excel workbook, Production Loss Analysis (PLA) 3-Plan.xlsx, which supports baseline PLA in APM.

The following table provides a list of worksheets that are included in the Production Loss Analysis (PLA) 3-Plan data loader workbook.

Worksheet	Description
ProductionPlan	This worksheet is used to specify the Production Plan records.
PlanDetails	This worksheet is used to specify the Production Plan and Production Data records.
ProductionLoss	This worksheet is used to specify the Production Loss records.

Color Coding

Certain columns in the worksheets have different functions and requirements. To illustrate this, they are color-coded. The following table provides a list of colors and what they represent.

Color	Description	Comments
	Fields with Special Notes	Indicates columns that contain values that are used by the Production Loss Analysis (PLA) 3-Plan Data Loader to create records. If these columns are removed from the worksheets, the data load operation will fail. While the worksheets require that these columns be present, values are not necessarily required in these columns.
	Required Fields	Indicates columns that contain values that are required in PLA.
	Recommended Fields	Indicates columns that, according to GE Vernova Best Practice for PLA, should contain values.
	Optional	Indicates columns where you can specify custom fields.

ProductionPlan Worksheet

Production Plan records store information about the quantity of Product you plan to produce within a certain period. In the ProductionPlan worksheet, you will specify the Production Plan records that you want to create.

Field Caption	Field ID	Data Type (Length)	Comments
Plan Key	MI_PRDNPLAN_KEY	Character (255)	This cell is required. Enter a unique value.
Production Unit ID	MI_PRDNUNIT_Id	Character (255)	This cell is required. The name of the Production Unit is case-sensitive. Other worksheets within the workbook can reference the Production Unit using this value.

Field Caption	Field ID	Data Type (Length)	Comments
Profile IDs	MI_PRDNPROF_IDs	Character (255)	This cell is required. Based on the type of Production Plan, enter a value in one of the following formats: • For a quantity-based concurrent or sequential plan: <Value of Profile ID>~<Quantity of Product to be produced sequentially> (for example, Diesel~100, Kerosene~200, Petrol~300) • For a time-based sequential plan: <Value of Profile ID>~<The date and time when the production of the Product ends> (for example, Diesel~2015-04-28 00:00:00, Kerosene~ 2015-08-29 00:00:00, Petrol~2016-01-30 00:00:00) • For a manual plan or a time-based concurrent plan: <Value of Profile ID> (for example, Diesel, Kerosene, Petrol) To specify multiple Profile IDs, separate them using commas.
Plan Basis (TimeOr QuantityOrManual)	MI_PRDNPLAN_PLAN_BASIS_C	Character (255)	This cell is required. Enter one of the following values: • T: To specify a time-based plan. • Q: To specify a quantity-based plan. • M: To specify a manual plan.

Field Caption	Field ID	Data Type (Length)	Comments
Data Entry Frequency	MI_PRDNPLAN_DATA_ENTR_FREQ_C	Character (255)	This cell is required. Enter one of the following values: • Hour • Shift • Day • Week • Month • Quarter • Year • Campaign
Start Date	MI_PRDNPLAN_START_DATE_D	Date	This cell is required. Enter a value in the following format: YYYY-DD-MM hh:mm:ss.
End Date	MI_PRDNPLAN_END_D	Date	This cell is required. Enter a value in the following format: YYYY-DD-MM hh:mm:ss This value must be greater than the Start Date.
Production Model (SequentialOr Concurrent)	MI_PRDNPLAN_PRODU_MODEL_C	Character (255)	This cell is required. Enter one of the following values: • S: To specify a sequential plan. • C: To specify a concurrent or manual plan.

Field Caption	Field ID	Data Type (Length)	Comments
Shift Details (shift for one of the days is required)	Monday	Character (255)	This cell is recommended. • Enter a value in the following format: hh:mm~hh:mm. For example, if the shift starts from 9:00 A.M. and ends at 5:00 P.M., enter the following value: 09:00~17:00. • To specify multiple Shift Details, separate them using commas. For example, to specify two shifts from 9:00 A.M. to 1:00 A.M., you can enter 09:00~17:00, 17:00~01:00. • Provide the Shift Details for at least one of the days in the week.
	Tuesday		
	Wednesday		
	Thursday		
	Friday		
	Saturday		
	Sunday		

PlanDetails Worksheet

In the PlanDetails worksheet, you will specify the plan details for the Production Plan and Production Data.

Field Caption	Field ID	Data Type (Length)	Comments
Plan Key	MI_PRDNPLAN_KEY	Character (255)	This cell is required. Enter the key that is assigned to the Production Plan that you want to reference. The ProductionPlan worksheet contains this value.
Production Unit ID	MI_PRDNUNIT_Id	Character (255)	This cell is required. Enter the ID that is assigned to the Production Unit that you want to reference. The ProductionPlan worksheet contains this value.
Production Profile ID	MI_PRDNPROF_ID	Character (50)	This cell is required. Enter the Product Alias Name.

Field Caption	Field ID	Data Type (Length)	Comments
Line Number	MI_PRDNDATA_PLAN_DETAIL_ID_N	Numeric	This cell is required. Enter a value that is unique within a Production Plan Key, Production Unit ID, and Production Profile ID.
Shift Start Date Time	MI_PRDNDATA_PERIOD_D	Date	This cell is required. Enter a value in the following format: YYYY-MM-DD hh:mm:ss.
Shift End Date Time	MI_PRDNDATA_END_TIME_D	Date	This cell is required. Enter a value in the following format: YYYY-MM-DD hh:mm:ss.
Planned Production	MI_PRDNDATA_USEF_PROD_TIME_N	Numeric	This cell is optional. Enter the quantity of the product that is planned to be produced in the defined period. It is measured in terms of Product UOM (for example, 50 Barrels).
Short Range Plan	MI_PRDNDATA_SHTRNG_PLAN_N	Numeric	This cell is optional. Enter a short-range planning value if it is to be used as a baseline for losses. It is measured in terms of Product UOM (for example, 50 Barrels).
Actual	MI_PRDNDATA_ACTUAL_N	Numeric	This cell is optional. Enter the actual production recorded in the defined period. It is measured in terms of Product UOM (for example, 50 Barrels).

Field Caption	Field ID	Data Type (Length)	Comments
MSCR	MI_PRDNDATA_RATED_N	Numeric	This cell is required. Enter the maximum sustained capacity rate. It is measured in terms of Product UOM per Production Rate UOM (for example, 50 Barrels/Day).
MSHR	MI_PRDNDATA_MSHR_N	Numeric	This cell is recommended. Enter the Maximum Sustained Hourly Rate (MSHR) to be applied to losses to calculate Estimated Downtime Hours (EDT). If a value is not entered, the EDT field will appear blank in the corresponding Production Plan. It is measured in terms of Product UOM (for example, 50 Barrels).

ProductionLoss Worksheet

Production Loss records store information about the loss of production caused by an event. In the ProductionLoss worksheet, you will specify the Production Loss records that you want to create.

Field Caption	Field ID	Data Type (Length)	Comments
Plan Key	MI_PRDNPLAN_KEY	Character (255)	This cell is required. Enter the key that is assigned to the Production Plan that you want to reference. The ProductionPlan worksheet contains this value.
Production Unit ID	MI_PRDNUNIT_Id	Character (255)	This cell is required. Enter the ID that is assigned to the Production Unit that you want to reference. The ProductionPlan worksheet contains this value.
Production Profile ID	MI_PRDNPROF_ID	Character (50)	This cell is required. Enter the Product Alias Name.

Field Caption	Field ID	Data Type (Length)	Comments
Line Number	MI_PRDNDATA_PLAN_DETAIL_ID_N	Numeric	This cell is required. Enter a value that is unique within a Production Plan Key, Production Unit ID, and Production Profile ID.
Impact Code	MI_PRDNLOSS_IMPACT_CODE_C	Character (255)	This cell is optional. Enter a value that matches an existing Impact Code in APM.
Loss Amount	MI_PRDNLOSS_LOSS_AMOUNT_N	Numeric	This cell is optional. Enter the amount of losses incurred. It is measured in terms of dollars.
OEE Code	MI_PRDNLOSS_OEE_CODE_C	Character (255)	This cell is optional. Enter a value that matches an existing OEE Code in APM.
Comment	MI_PRDNLOSS_COMMENT_C	Character (255)	This cell is optional. Enter a value to describe the loss.
Event Id	MI_PRDNLOSS_PRDN_EVENT_C	Character (250)	This cell need not have a value; however, the column must exist in the worksheet. Enter the Event ID of the Production Event.
Margin Id	MI_MARGIN_ID	Character (50)	This cell is optional. Enter the Margin ID of the Profile Margin.
EDT	MI_PRDNLOSS_EDT_N	Numeric	This cell is recommended. Enter the estimated downtime. It is measured in hours.

About the Production Loss Analysis (PLA) 3-Plan Data Loader Load Verification

About This Task

After you load data, you can access the Production Event records. In a successful import, all the calculations that are based on the imported data must be correct to the degree of accuracy specified in the **Settings** window in the **PLA Administrator** page.

You should perform the following steps in APM to confirm the accuracy and integrity of the data imported from the data loader workbook:

Procedure

1. Access the details of the import job. In addition to the general information regarding the records that were loaded during the data load operation, these details may include error and warning messages pertaining to the records.
2. In PLA, access the records specified in the data loader workbook, and then verify that the expected data is present or updated, as applicable.

Chapter 9

Deployment

Topics:

Deployment and Upgrade

Deployment and Upgrade content for various APM modules has been consolidated into a single document. For more information, refer to the module-specific information in the APM Module Deployment and Upgrade document.

Chapter 10

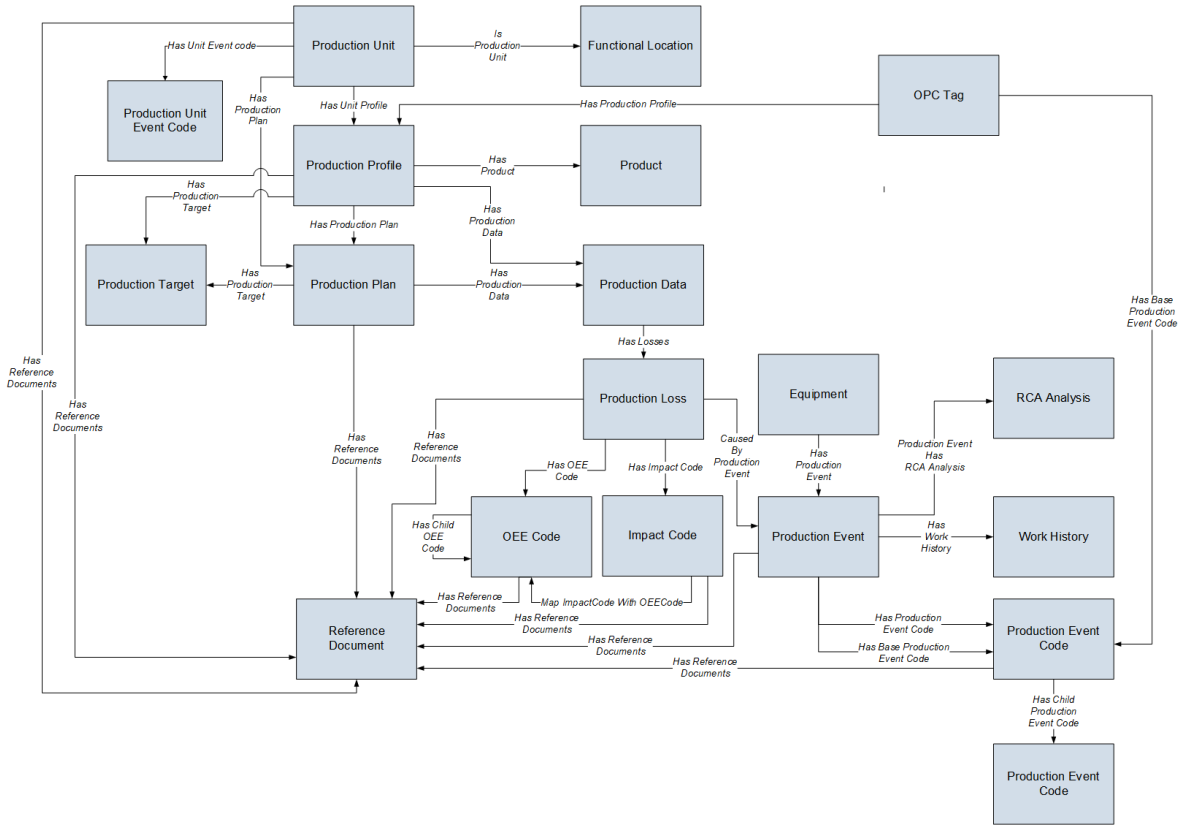
Reference

Topics:

General Reference

PLA Data Model

The following diagram shows how the families used in a Production Loss Analysis are related to one another.



Note: In the diagram, boxes represent entity families and arrows represent relationship families that are configured in the baseline database. You can determine the direction of each relationship definition from the direction of the arrow head: the box from which the arrow originates is the predecessor, and the box to which the arrow head points is the successor.

PLA Security Groups

The following table lists the baseline Security Groups available for users within this module, as well as the baseline Roles to which those Security Groups are assigned.

Important: Assigning a Security User to a Role grants that user the privileges associated with all of the Security Groups that are assigned to that Role. To avoid granting a Security User unintended privileges, before assigning a Security User to a Role, be sure to review all of the privileges associated with the Security Groups assigned to that Role. Also, be aware that additional Roles, as well as Security Groups assigned to existing Roles, can be added via Security Manager.

Security Group	Roles
MI Production Loss Accounting Administrator	MI FE Administrator Production Loss Accounting Administrator
MI Production Loss Accounting Manager	MI APM Viewer MI FE Administrator MI FE PowerUser Production Loss Accounting Viewer
MI Production Loss Accounting Service	MI FE Administrator Production Loss Accounting Service
MI Production Loss Accounting User	MI FE Administrator MI FE PowerUser MI FE User Production Loss Accounting User

The baseline family-level privileges that exist for these Security Groups are summarized in the following table.

Family	MI Production Loss Accounting Administrator	MI Production Loss Accounting Manager	MI Production Loss Accounting Service	MI Production Loss Accounting User
Entity Families				
Equipment	View, Update, Insert, Delete	View	View	View
Functional Location	View	View	View	View
Impact Code	View, Update, Insert, Delete	View	View	View
Interface Log	View, Update, Insert, Delete	View	View	View
OEE Code	View, Update, Insert, Delete	View	View	View
Product	View, Update, Insert, Delete	View	View	View
Production Analysis	View, Update, Insert, Delete	View	View	View, Update, Insert, Delete
Production Data	View, Update, Insert, Delete	View	View, Update, Insert, Delete	View, Update, Insert
Production Event	View, Update, Insert, Delete	View	View, Update, Insert, Delete	View, Update, Insert, Delete
Production Event Code	View, Update, Insert, Delete	View	View	View

Family	MI Production Loss Accounting Administrator	MI Production Loss Accounting Manager	MI Production Loss Accounting Service	MI Production Loss Accounting User
Production Event Template	View, Update, Insert, Delete	View	View	View, Update, Insert, Delete
Production Long Range Plan	View, Update, Insert, Delete	View	View, Update, Insert, Delete	View, Update, Insert, Delete
Production Loss	View, Update, Insert, Delete	View	View, Update, Insert, Delete	View, Update, Insert, Delete
Production Losses	View, Update, Insert, Delete	None	View, Update, Insert, Delete	View, Update, Insert, Delete
Production Plan	View, Update, Insert, Delete	View	View	View, Update, Insert, Delete
Production Target	View, Update, Insert, Delete	View	View	View, Update, Insert, Delete
Xi Reading	None	None	View	None
Xi Tag	View	None	View	None
Relationship Families				
Analysis Link	View, Update, Insert, Delete	View	View	View, Update, Insert, Delete
Caused by Production Event	View, Update, Insert, Delete	View	View, Update, Insert, Delete	View, Update, Insert, Delete
Has Base Production Event Code	View, Update, Insert, Delete	View	View, Update, Insert, Delete	View, Update, Insert, Delete
Has Child Production Event Code	View, Update, Insert, Delete	View	View	View
Has Impact Code	View, Update, Insert, Delete	View	View	View, Update, Insert, Delete
Has Losses	View, Update, Insert, Delete	View	View, Update, Insert, Delete	View, Update, Insert, Delete
Has OEE Code	View, Update, Insert, Delete	View	View, Update, Insert, Delete	View, Update, Insert, Delete
Has Product	View, Update, Insert, Delete	View	View	View
Has Production Data	View, Update, Insert, Delete	View	View, Update, Insert, Delete	View, Update, Insert, Delete
Has Production Event	View, Update, Insert, Delete	View	View, Update, Insert, Delete	View, Update, Insert, Delete
Has Production Event Code	View, Update, Insert, Delete	View	View, Update, Insert, Delete	View, Update, Insert, Delete

Family	MI Production Loss Accounting Administrator	MI Production Loss Accounting Manager	MI Production Loss Accounting Service	MI Production Loss Accounting User
Has Production Event Template	View, Update, Insert, Delete	View	View	View, Update, Insert, Delete
Has Production Long Range Plan	View, Update, Insert, Delete	View	View	View, Update, Insert, Delete
Has Production Plan	View, Update, Insert, Delete	View	View	View, Update, Insert, Delete
Has Production Profile	View, Update, Insert, Delete	View	View	View, Update, Insert, Delete
Has Production Target	View, Update, Insert, Delete	View	View	View, Update, Insert, Delete
Has Production Unit	View, Update, Insert, Delete	View	View, Update, Insert, Delete	View, Update, Insert, Delete
Has Reference Documents	View, Update, Insert, Delete	View	View	View, Update, Insert, Delete
Has Reliability	View, Update, Insert, Delete	View	View	View, Update, Insert, Delete
Has Unit Profile	View, Update, Insert, Delete	View	View	View
Has Work History	View, Update, Insert, Delete	View	View, Update, Insert, Delete	View, Update, Insert, Delete
Map ImpactCode With OEECode	View, Update, Insert, Delete	View	View	View
Production Event Has RCA Analysis	View, Update, Insert, Delete	View	View	View, Update, Insert, Delete
Is Production Unit	View, Update, Insert, Delete	View	View	View
Xi Tag Has Production Event Template	View, Update, Insert, Delete	View	View	View

PLA URLs

There is one URL route associated with Production Loss Analysis: failure-elimination/pla. The following table describes the various paths that build on the route, and the values that you can specify for each element in the path.

Element	Description	Accepted Value(s)	Notes
failure-elimination/pla/dashboard/0: Displays the **PLA Overview** page.			
failure-elimination/pla/<EntityKey>/<WorkspaceName>/0: Displays a new or existing Production Data in the **Production Data** workspace.			

Element	Description	Accepted Value(s)	Notes
Production Data			
[ENTY KEY] Displays specified Production Data in the **Production Data** workspace		Any numeric Entity Key that corresponds to an existing Production Data.	Opens the specified Production Data in the **Production Data** workspace. This value is required to open an existing Production Data from a URL.
		0	Opens a new Production Data in the **Details** workspace.
<WorkspaceName>	Specifies the workspace in which you want to open the Production Data.	data	The specified Production Data will appear in the **Production Data** workspace.
Production Plans			
failure-elimination/pla/<EntityKey>/<WorkspaceName>: Displays an existing Production Plan in the **Plan Details** workspace.			
<WorkspaceName>	Specifies the workspace in which you want to open the Production Plan.	plan	The specified Production Plan will appear in the **Plan Details** workspace.
Production Events			
failure-elimination/pla/0/<WorkspaceName>/<EntityKey>: Displays a new or existing Production Event datasheet in the **Production Events** workspace.			
<WorkspaceName>	Specifies the workspace in which you want to open the Production Event.	eventdatasheet	The specified Production Event datasheet will appear in the **Production Events** workspace.
Production Analyses			
reliability/production/<EntityKey>/<WorkspaceName>: Displays an existing Production Analysis in the **Production Analysis** workspace of Reliability Analytics.			
<WorkspaceName>	Specifies the workspace in which you want to open the Production Analysis.	overview	The specified Production Analysis will appear in the **Production Analysis** workspace of Reliability Analytics.

URLs

Element	Destination
failure-elimination/pla/64253173383/data/64251996077	**Production Data** workspace for the Production Data with the Entity Key 64251996077.
failure-elimination/pla/64253173383/plan	**Plan Details** workspace for the Production Plan with the Entity Key 64253173383.
failure-elimination/pla/0/eventdatasheet/0 -or- failure-elimination/pla/0/eventdatasheet/64253172211	**Production Events** workspace for a new Production Event. **Production Events** workspace for the Production Event with the Entity Key 64253172211.
reliability/production/64253172209/summary	**Production Analysis** workspace for the Production Analysis with the Entity Key 64253172209 that is displayed in the **Analysis Summary** section.

PLA System Code Tables

The following table provides a list of the System Code Tables that are used by PLA:

Table ID	Table Description	Function
MI_IMPACT_CODE_COLOR	Impact Code Color	Populates the **Color** list in Impact Code records.
MI_PLA_DATA_FREQ	PLA Data Entry Frequency	Populates the **Data Entry Frequency** list in Production Plan records.
MI_PLA_PLAN_BASIS	PLA Plan Basis	Populates the **Plan Basis** list in Production Plan records.
MI_PLA_PRODUCTION_MODEL	PLA Production Model	Populates the **Production Model** list in Production Plan records.
MI_PLA_RATE_UOM	PLA Production Rate UOM	Populates the **Production Rate UOM** list in Production Profile records.
MI_RCA_Needed	Options to indicate whether an RCA is required for the Production Event	Populates the **RCA Needed** list in Production Event records.
PEST	Production Event Status	Populates the **Status** list in Production Event records.

PLA State Management

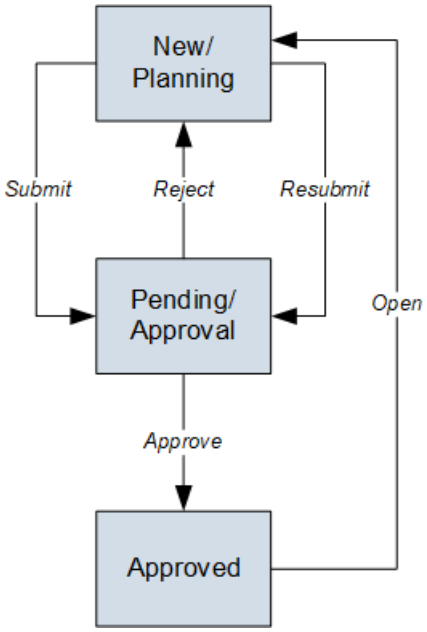
PLA uses the standard State Management functionality to manage Production Events and Production Plans. The following baseline states are configured for records in the Production Event and Production Plan family:

- New/Planning: State of a Production Event and Production Plan that is new, rejected, or reopened.
- Pending/Approval: State of a Production Event and Production Plan that is submitted for review or resubmitted for review. You cannot modify such a Production Event and Production Plan.
- Approved: State of a Production Event and Production Plan that is approved. You cannot modify such a Production Event and Production Plan.
- Complete: State of a Production Plan that is closed. You cannot modify such a Production Plan.

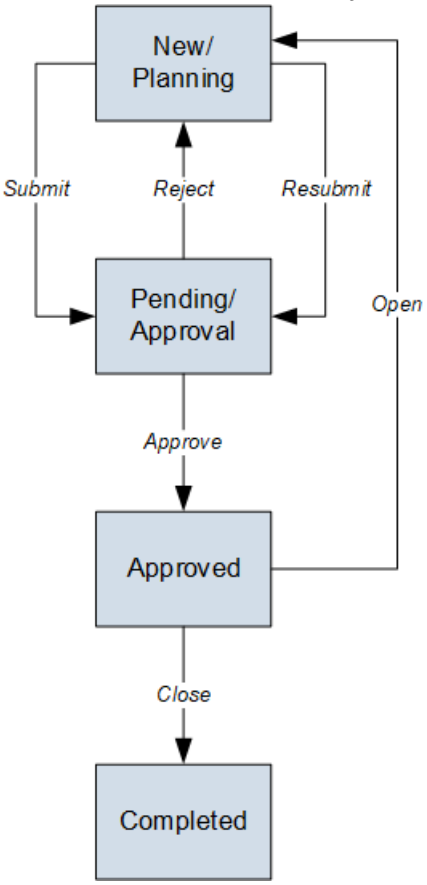
Important:

- Only a user who is assigned to the following Security Roles can change the status of a Production Event and Production Plan from New/Planning to Pending/Approval:
  - Production Loss Accounting Administrator
  - Production Loss Accounting Service
  - Production Loss Accounting User
- Only a user who is assigned to the following Security Roles can change the status of a Production Event and Production Plan from Pending/Approval to Approved or New/Planning:
  - Production Loss Accounting Administrator
  - Production Loss Accounting Service
- Only a user who is assigned to the Production Loss Accounting Administrator Security Role can change the status of a Production Event and Production Plan from Approved to New/Planning.
- Only a user who is assigned to the Production Loss Accounting Administrator Security Role can change the status of a Production Plan from Approved to Complete.

The following diagram shows the workflow of the baseline PLA State Management process for the Production Event family.



The following diagram shows the workflow of the baseline PLA State Management process for the Production Plan family.



PLA Site Filtering

In PLA, the site for the production data is assigned at the unit level (that is, the Production Unit family) and then spread to all related records, such as Production Plan records, Production Loss records, and Production Event records.

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

In PLA, users will see only production data that is assigned to their site(s) or production data that is designated as a global record.

Note:

Site filtering is not enabled for the following families:

- Product (MI_PRODUCT)
- Production Event Code
- OEE Code
- Impact OEE Codes

Consider an organization that has three sites, Site X, Site Y, and Site Z. The following Production Unit records exist:

- Production Unit A: Assigned to Site X
- Production Unit B: Assigned to Site Y
- Production Unit C: Assigned to Site Z
- Production Unit D: No site assigned (global record)

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

Scenario 1: User assigned to only Site X

This user will see Production Unit A and Production Unit D.

Scenario 2: User assigned to both Site X and Site Y

This user will see Production Units A, B, and D.

Scenario 3: Super User

This user will see Production Units A, B, C, and D.

Important: If a multi-site user, or a Super User, links child records from multiple sites to a parent record designated as **Global**, another user who does not have access to all sites may only see a portion of the data associated with that record. In the example above, if a child record assigned to Site X and a child record assigned to Site Y are linked to Production Unit D, the Site X user will not be able to see all the records related to Production Unit D.

Family Field Descriptions

Impact Code Records

Impact Code records store information about the impact of a production loss. This topic provides an alphabetical list and description of the fields that exist for the Impact Code family and appear on the Impact Code datasheet by default.

Field	Data Type	Description	Behavior and Usage
Code	Character	A short code that represents the impact of the production loss.	This is a required field. A list of baseline Impact Codes can be found here.
Color	Character	The color that is used to represent the impact code on the Production Data Summary graph.	This field contains a list, which displays all colors that you can assign to the impact code. In the baseline database, colors are not assigned to the baseline Impact Codes. You will need to assign the required colors manually.
Description	Character	A description of the impact.	You can define this field manually.

OEE Code Records

OEE Code records store information about the overall effectiveness of a piece of equipment that causes a production loss. The following topics provides an alphabetical list and description of the fields that exist for the OEE Code family and appear on the OEE Code datasheet by default. The information in the table reflects the baseline state and behavior of these fields.

Field	Data Type	Description	Behavior and Usage
Description	Character	A description of the OEE code.	You can enter a description into this field to define this value manually.
Is Inactive	Logical	Indicates whether the OEE code is enabled or disabled.	This field does not appear on the datasheet. If this field contains the value True, the code is disabled in the **Codes** workspace. If the code is disabled, you will not be able to add a child code under it. Also, you will not be able to assign a disabled code to a production loss. If this field contains the value False, the code is enabled and you will be able to use the code throughout PLA.
OEE Code	Character	A short code that identifies a reason for a loss in equipment efficiency that caused a production loss.	This is a required field.
Root Code	Character	The parent code of the OEE code.	This field does not appear on the datasheet. The OEE Metric View uses the value in this field to determine whether an OEE code is an Availability, Performance, or Quality code in the OEE (%) calculation. This field contains the following values, depending on the type of OEE code: • For child OEE codes, this field contains the parent OEE code. • For parent OEE codes, this field contains the same value as the OEE code field.

Product Records

Product records store basic information about fields that are defined for the Product family in the baseline APM database. This topic provides an alphabetical list and description of fields that exist for the Product family and appear in the Product datasheet. The information in the table reflects the baseline state and behavior of these fields.

This family is not enabled for site filtering, which means that records in this family can be accessed by any user with 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	Text	A description of the Product.	You can enter a value in this field.
Name	Character	The name of the Product.	This field is required. You can enter a value in this field. The value must be unique.
Status	Boolean	The status of the Product.	This field appears as a column in the **Products** workspace. By default, the value in the column is Active. You can, however, change the status to Inactive.

Production Data Records

Production Data records store information about fields that are defined for the Production Data family in the baseline GE Vernova database. The following table provides an alphabetical list and description of fields that exist for the Production Data family and appear as columns in the table in the **Production Data** workspace. 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
Actual	Number	The amount of Product that you produced during the period (that is, the value in the Period field).	You can enter a value in this field.
Losses	Number	The amount of Product that you did not produce during the period (that is, the value in the Period field).	This field is disabled. When a Production Data record is created, this field is populated with the value 0. After Production Losses are created for the record, the field is populated with the sum of the values in the Loss Amount field in the associated Production Losses.

Field	Data Type	Description	Behavior and Usage
Max Sustained Capacity	Number	The value with which the value in the Actual field is compared to determine if a loss occurred.	This field is disabled. It is populated with the value in the Maximum Sustained Capacity Rate field in the Production Profile that is associated with the Production Plan to which the Production Data record is linked.
Period	Date	The period of the Production Data record.	This field is disabled. It is populated with the start date and time and the end date and time that corresponds to the Production Plan period, which is based on the data entry type.
Short Range Plan	Number	The planned production output that is adjusted due to a circumstance that could not have been predicted when the Production Plan was created (for example, a natural disaster).	By default, this field is populated with the planned production amount, which is the value that appears in the <Product> (<UOM>) column for the respective Product and period in the **Plan Details** workspace. You can modify the value in the field. **Note:** If you modify the planned production amount for a Product and period after you access its Production Data record, the value in this field will not be updated.
Unaccounted Loss	Number	The loss amount that has not been reconciled.	This field is disabled. It is populated with a value that is calculated using the Unaccounted Loss equation.

Production Event Code Records

Production Event Code Records store details that represent a type of Production Event. This topic provides an alphabetical list and description of the fields that exist for the Production Event Code family and appear on the baseline Production Event Code datasheet. The information in the table reflects the baseline state and behavior of these fields.

Field	Data Type	Description	Behavior and Usage
Code	Character	A short code that represents the type of event.	This is a required field.
Color	Character	The color that is used to represent the production event code on the Production Data Summary graph.	This field contains a list, which displays all colors that you can assign to the impact code. In the baseline database, colors are not assigned to the baseline Production Event Codes. You will need to assign the required colors manually.
Description	Character	A description of the type of event.	You can define this field manually.

Production Event Records

Production Event records store details about an event that results in a reduced production output. This topic provides an alphabetical list and description of fields that exist for the Production Event family and appear in the baseline Production Event datasheet, unless otherwise specified. The information in the table reflects the baseline state and behavior of these fields.

This family is not enabled for site filtering, which means that records in this family can be accessed by any user with the appropriate license and family privileges. For more information, refer to the Sites section of the documentation.

Field	Data Type	Description	Behavior and Usage
Causing Asset	Character	The equipment or functional location that caused the Production Event.	You can select a value in this field.
Comment	Text	Additional comments about the Production Event.	You can enter a value in this field.
Created By	Character	The user name of the Security User who created the Production Event.	This field is disabled.
Created Date	Date	The date and time when the Production Event was created.	This field is disabled.
Description	Text	A detailed description of the Production Event.	You can enter a value in this field.

Field	Data Type	Description	Behavior and Usage
Display Event Code	Character	The full path to the event code stored in the Production Event Code field.	This field stores the value that appears in the **Production Event Code** box in the datasheet. The field does not appear in the datasheet.
End Date	Date	The date when the Production Event ended.	The values in the Start Date and End Date fields of a Production Event determine whether the Production Event appears in the **Production Event** drop-down list box when creating or modifying a loss. A Production Event that does not have a value in the End Date field will appear in the **Production Event** drop-down list box for losses that are associated with any day after the start date of the Production Event. You can enter a value in the field. **Note:** The value must represent the time zone of the Production Unit.
Event ID	Character	Identifies the Production Event.	This field is automatically populated when you create a Production Event. You can enter a value in the field. The value must be unique.
Headline	Character	A short description of the Production Event.	You can enter a value in this field.
Other Event Costs	Numeric	Costs that are associated with the Production Event and are not recorded in the selected Work History.	You can enter a value in this field. The value is preceded with a currency symbol that is specified in the **Currency** box in the **Settings** window for PLA.

Field	Data Type	Description	Behavior and Usage
Production Event Code	Character	Identifies the type of the Production Event.	This field contains a list of Production Event Codes that are assigned to the Production Unit you select in the Source Production Unit field. **Note:** If the Production Unit field is blank, this field will contain a list of all Production Event Codes. You can select a value in this field. The full path to the selected event code appears in the **Production Event Code** box in the datasheet. This includes all the categories under which that event code is grouped. For example, if you select Equipment Malfunction, which is grouped under Operational Losses, the **Production Event Code** box will display the value Operational Losses \Equipment Malfunction. However, the Production Event Code field stores only the selected event code (that is, Equipment Malfunction).

<table>
<tr><th>Field</th><th>Data Type</th><th>Description</th><th>Behavior and Usage</th></tr>
<tr><td>RCA Needed</td><td>Character</td><td>Indicates whether the Production Event needs a Root Cause Analysis (RCA).</td><td>This field is populated by the MI_RCA_Needed System Code Table.

The field is required and automatically populated with the value RCA Needed. You can, however, modify the value in the field.

Note: For records created before upgrading to V4.3.0.6.0, the default value in this field is No Entry.

The value, when it appears in the RCA Needed column, is accompanied by a color-coded symbol whose meaning is provided in the following table:

<table><tr><th>Color</th><th>Meaning</th></tr><tr><td>Red</td><td>The value is RCA Needed and you have not associated the Production Event with an RCA.</td></tr><tr><td>Green</td><td>The value is RCA Needed and you have associated the Production Event with an RCA.

or

The value is No RCA Needed.</td></tr><tr><td>Gray</td><td>The value is No Entry.</td></tr></table>
Note: The RCA Needed column appears in the Production Events table in the PLA Overview page and the Production Events workspace.</td></tr>
</table>

Field	Data Type	Description	Behavior and Usage
Source Production Unit	Character	Identifies the Production Unit associated with the Production Event.	This field contains a list of IDs of all available Production Units. The field, however, stores the key of the Production Unit. When you create a Production Event via the **Production Data** workspace, the field is automatically populated with the Production Unit for which the Production Plan was created. You can, however, modify the value in the field.
Start Date	Date	The date when the Production Event started.	A Production Event that does not have a value in the Start Date field will appear in the **Production Event** drop-down list box for losses that are associated with any day before the end date of the Production Event. The field is automatically populated with the current date and time 00:00:00. You can, however, enter a value in the field. **Note:** The value must represent the time zone of the Production Unit.
Updated By	Character	The user name of the Security User who last modified the Production Event.	This field is disabled. It is populated with a value only if you modify the record.
Updated Date	Date	The date and time when the Production Event was last modified.	This field is disabled. It is populated with a value only if you modify the record.
Work History	Character	A reference to the work that was performed as a result of the Production Event.	This field appears in the datasheet as the **Work History Link** box. You can enter or select a value in the field.

Production Loss Records

Production Loss records store information about the loss of production caused by an event. The following table provides an alphabetical list and description of fields that exist for the Production Loss family and appear in the Production Loss 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
Comment	Character	Additional comments about the loss.	You can enter a value in this field.
Equivalent Downtime Hours	Numeric	The amount of time that a Production Unit would need to operate at maximum sustained capacity to equal the loss.	This field is disabled. If the Loss Amount field in the Production Loss and the Maximum Sustained Hourly Rate field in the related Production Profile contain values, this field is automatically populated using the following formula: Equivalent Downtime Hours = Loss Amount / Maximum Sustained Hourly Rate
Impact Code	Character	The impact of the loss.	This field contains a list of all Impact Codes that are returned by the ImpactCodeList query. Each item in the list appears in the following format: Code - Description where Code and Description are values in the Code and Description fields respectively in the Impact Code. When you select an item from the list, while the Code and Description are displayed in the datasheet, only the Code is stored in the field.

Field	Data Type	Description	Behavior and Usage
Loss Amount	Numeric	The amount of production that was lost.	When you create a Production Loss, this field is automatically populated with the value in the Unaccounted Loss field in the Production Loss. You can, however, enter a value in the field. If the Equivalent Downtime Hours field in the Production Loss and the Maximum Sustained Hourly Rate field in the related Production Profile contain values, this field will be automatically populated using the following formula: Loss Amount = Equivalent Downtime Hours x Maximum Sustained Hourly Rate If the Equivalent Downtime Hours field is blank, and if you enter a value in the Loss Amount field, the Equivalent Downtime Hours field will be automatically populated based on the formula.
Margin ID	Character	The margin defined for the related Production Profile.	This field is used to calculate the cost of losses. It contains a list of all margins that are defined for the related Production Profile. It is automatically populated with the default margin of the Production Profile.

Field	Data Type	Description	Behavior and Usage
OEE Code	Character	A value that is used to categorize the loss based on the effectiveness of the production process.	Selecting this field displays the **Select OEE Code** window, which contains a hierarchical tree of OEE Codes that are mapped to the selected Impact Code. These OEE Codes are returned by the GetOEECodeByImpactKey query.
Production Event	Character	The event that caused the loss.	This field contains a list of Event IDs of all Production Events that are returned by the EventList query. The field, however, stores the key of the Production Event. The Production Events are sorted chronologically in descending order based on Start Date.

Production Plan Records

Production Plan records store information about the quantity of product that you plan to produce within a certain time period. This topic provides an alphabetical list and description of the fields that exist for the Production Plan family and appear on the Production Plan datasheet. The information in the table reflects the baseline state and behavior of these fields.

Note: All fields on the Production Plan datasheet are disabled and populated automatically based on your selections in the Production Plan Builder or the Template Builder.

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
Data Entry Frequency	Character	A value representing how often you plan to enter production data and losses.	This field contains the following values: • Per Hour • Per Shift • Per Day • Per Week • Per Month • Per Quarter • Per Year Campaign
End Time	Date	The date and time on which the plan ends.	For a Time-based plan, depending on the value you selected in the Template Frequency field, the end time is populated automatically. For a Quantity-based plan, the value is determined automatically based on the product quantity and start time that you specified.
Plan Basis	Character	The type of production plan.	This field contains the following options: • Plan is time-based • Plan is quantity-based The Quantity field is displayed when you select a quantity-based plan. You can enter a numeric value in this field.
Plan ID	Character	A value that identifies the production plan.	You can select the link for a plan ID to view its details.
Plan Type	Character	A value indicating the type of plan.	The value in this field will be AP (Actual Plan) if you have created a Production Plan: • Via the Production Plan Builder • From a Plan Template • Manually The value in this field will be PT (Plan Template) if you created a Plan Template.

Field	Data Type	Description	Behavior and Usage
Production Model	Character	The order in which the products will be produced.	This field contains the following values: • **Concurrent**: The unit produces the products at the same time. • **Sequential**: The unit produces the first product, and it begins producing the second product after production of the first product is complete. When you select **Sequential**, the following fields are displayed: ◦ **Sequence**: The order in which the products should be produced. You can enter a numeric value in this field. ◦ **End Time**: The date and time on which the production of the product ends is based on the value that you specified in the Sequence field.
Start Time	Date	The date and time on which the plan begins.	This field is populated automatically with the current date.
Template Description	Character	A description of the production plan template.	You can enter a description for the Production Plan Template that you are creating or modifying.

Field	Data Type	Description	Behavior and Usage
Template Frequency	Character	A value representing the end date of the production plan template.	On the datasheet, this field appears as a list labeled Duration. You can select one of the following values: • **Custom:** You can manually set the end date and time. • **Week:** The end date and time is automatically set to one week from the value in the Start Time field. • **Month:** The end date and time is automatically set to one month from the value in the Start Time field. • **Quarter**: The end date and time is automatically set to three months from the value in the Start Time field. • **Year**: The end date and time is automatically set to one year from the value in the Start Time field.
Template Name	Character	The name of the production plan template.	You can enter a value in this field manually.

Production Profile Records

Production Profile records store information about a Product and its Production Unit. This topic provides an alphabetical list and description of fields that exist for the Production Profile family and appear in the Production Profile 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
Alternate Product Name	Character	The name of the product that is associated with the Production Profile.	This field appears as the **Product Alias** box in the datasheet. By default, it is populated with the value that is in the Product field. The value in this field is used to populate the Product Name field that appears in Production Plans and Production Plan Templates. You can enter a value in the field. You cannot, however, modify the value in the field if the Production Profile is associated with a Production Plan.
Description	Text	A description of the Production Profile.	You can enter a value in this field.
Max Demonstrated Rate	Numeric	The highest number of products that the Production Unit produced, disregarding the impact it may have on the assets involved in the process or on the quality of the product.	You can enter a value in this field. The value is appended with <Product UOM>/<Production Rate UOM>, where: • Product UOM is the value in the Product UOM field. • Production Rate UOM is the value in the Production Rate UOM field. For example, if the values in the Product UOM field and the Production Rate UOM field are Tons and Hour, respectively, the value in this field will be appended with Tons/Hour.

Field	Data Type	Description	Behavior and Usage
Max Sustained Capacity Rate	Numeric	The number of products that the Production Unit can produce consistently without having any adverse effects on the assets involved in the process or on the quality of the product.	This field is disabled. By default, it is populated with a value that is based on the values in the following fields: • Product UOM • Production Rate UOM • Standard Batch Size • Standard Batch Cycle Time The numeric part of the value in the field is calculated as follows: Standard Batch Size / Standard Batch Cycle Time where: • Standard Batch Size is the value in the Standard Batch Size field. • Standard Batch Cycle Time is the value in the Standard Batch Cycle Time field. The numeric value is then appended with <Product UOM> / <Production Rate UOM>, where: • <Product UOM> is the value in the Product UOM field. • <Production Rate UOM> is the value in the Production Rate UOM field. For example, if the value in the Standard Batch Size field is 5000 Barrels and that in the Standard Batch Cycle Time field is 2 Day, the numeric value in this field is 2500 (that is, 5000 / 2). If the value in the Product UOM field is Barrels and that in the Production Rate UOM field is Day, the entire value in this field is 2500 Barrels/Day.

<table>
<tr><th>Field</th><th>Data Type</th><th>Description</th><th>Behavior and Usage</th></tr>
<tr><td>Max Sustained Hourly Rate (MSHR)</td><td>Numeric</td><td>The rate associated with the hourly rate of Equivalent Downtime Hours.</td><td>This field is used to calculate Equivalent Downtime Hours. This field is optional; however, if left blank, Equivalent Downtime Hours will not be used when reconciling losses.

The field is automatically populated only if the MSHR Auto Calculate check box in the Settings window is selected. You can, however, modify the value in the field.

The value in the field is calculated as follows:

Standard Batch Size / Production Rate UOM (hours)

where:

• Standard Batch Size is the value in the Standard Batch Size field.
• Production Rate UOM is the value in the Production Rate UOM field, in hours, as specified in the following table:

<table><tr><th>If the value in the Production Rate UOM field is</th><th>Production Rate UOM in hours is</th></tr><tr><td>Hour</td><td>1</td></tr><tr><td>Day</td><td>24</td></tr><tr><td>Week</td><td>24 × 7</td></tr><tr><td>Month</td><td>24× 30</td></tr><tr><td>Quarter</td><td>24 × 90</td></tr><tr><td>Year</td><td>24 × 365</td></tr></table>
For example, if the value in the Standard Batch Size field is 3600 and that in the Production Rate UOM field is Month, the value in this field is 5, which is calculated as follows:

3600 / (24 × 30)

Important: Because this formula assumes 30 days for a month, the calculated value would be inaccurate if a month does not have 30 days.</td></tr>
<tr><td>Policy Instance Id</td><td>Character</td><td>The tag whose readings you want to automatically use to create Production Data records.</td><td>This field is required if you want to use the process historian to populate the value in the Actual field of the associated Production Data record.

It contains the  button, which enables you to select the required value.</td></tr>
</table>

Field	Data Type	Description	Behavior and Usage
Planning Rate	Numeric	The rate that is associated with the useful production time.	By default, this field is populated with the value in the Max Sustained Capacity Rate field. You can, however, modify the value. The value is used to populate the Short Range Plan field of the associated Production Data record, based on the following calculation: Planning Rate × Useful Production Time, where: • Planning Rate is the value in this field. • Useful Production Time is the shift duration that is selected when creating a Production Plan for the Production Profile.
Product UOM	Character	The unit that is associated with the product (for example, Barrels).	This field contains a list of values that exist in the Product UOM field of all the existing Production Profiles. You must select a value from the list or enter a new value.
Production Rate UOM	Character	The rate at which you measure the production (for example, day).	This field contains a list of values that are populated by the MI_PLA_RATE_UOM System Code Table. By default, the field is populated with the value Day.
Related Product Name	Character	The product that is associated with the Production Profile.	This field appears as the **Product** box in the datasheet. It contains a list of values that exist in the Name field of all the existing Products. You must select a value in the field. When you save the Production Profile, it is linked to the selected Product. After the two records are linked, if you change the value in the Name field in the associated Product, the value in this field is automatically updated to reflect the change. You cannot modify the value in the field if the Production Profile is associated with a Production Plan.
Related Production Unit	Character	The unit that is associated with the Production Profile.	This field does not appear in the datasheet.
Standard Batch Cycle Time	Numeric	The amount of time that you would take to produce one batch of the product.	You must enter a value in this field. The value that you enter is appended with the value in the Production Rate UOM field.
Standard Batch Size	Numeric	The amount of product that you can produce in one batch.	You must enter a value in this field. The value that you enter is appended with the value in the Product UOM field.

Production Unit Records

Production Unit records store basic information about a single production unit. This topic provides an alphabetical list and description of the fields that exist for the Production Unit family and appear on the Production Unit datasheet. The information in the table reflects the baseline state and behavior of these fields.

Field	Data Type	Description	Behavior and Usage
Associated Unit	Character	A reference to a separate that contains more information about the Production Unit.	Using this field, you can associate production loss to the asset hierarchy and information about all the losses will available at the asset hierarchy level of the associated unit. This field contains the button, which you can use to select the Functional Location that contains more information about the production unit. When you save the Production Unit, it will be linked automatically to the selected Functional Location.
Production Unit Description	Text	A description of the Production Unit.	You can define this field manually.
Production Unit Name	Character	The name of the Production Unit.	This field is required.
Timezone	Character	The time zone that is associated with the Production Unit.	By default, this field is set to (UTC - 05:00) Eastern Time (US & Canada). **Important:** If you create a plan with one time zone and later modify the time zone, the dates are updated in the UI based on the new time zone when you view the Production Data. The Production Data, however, will be corrupted if you add new data, modify the existing data, or delete the existing data.

Profile Margin Records

Profile Margin records store information about the Margins in Production Profiles. This topic provides an alphabetical list and description of the fields that exist for the Profile Margin family and appear in the Margins subsection. The information in the table reflects the baseline state and behavior of these fields.

Field	Data Type	Description	Behavior and Usage
Default (Yes/No)	Numeric	The Production Profile default Margin.	You will select yes or no from a list to determine which Margin will be the default for the selected Production Profile.
Margin ID	Character	The ID given to a Margin.	You will enter an ID for a Margin.
Margin Value	Numeric	The value given to a Margin.	You will enter the value of a Margin.

Catalog Items

PLA Folder

The Catalog folder **\\Public\Meridium\Modules\PLA** contains the following items.

Item Name	Item Type	Behavior and Usage
PLA Dashboard	Dashboard	Displays the **PLA Overview** page.
PLAEventSummary	Graph	Displays the count of Production Events filtered by the Event Code percentage for a given time period. This graph is displayed on the **PLA Overview** page (**Event Summary** graph).
PlannedProductionvsLosses	Graph	Plots the planned production, actual production, and losses for given time period.
Top10BadActors	Graph	Displays the total cost of losses that were contributed by the top 10 bad actors within a selected hierarchy level for a given time period. The losses represented in the graph are the total amount of production lost for the affected plans, products, and units. This graph is displayed on the **PLA Overview** page (**Top 10 Bad Actors** graph).

Queries Folder

The folder `\\Public\Meridium\Modules\PLA\Queries` contains the following queries:

Query Name	Behavior and Usage
EventList	Returns Production Events whose date range includes the date in the Period field of a given Production Data record. This query is used to display values in the **Production Event** list when creating or modifying a loss.
EventList for the given unit	Returns Production Events for a specific Production Unit.
GetOEECodeByImpactcode	Returns results in the **Map OEE Codes** subsection for an Impact Code.
GetOEECodeByImpactKey	Returns OEE Codes that are mapped to an Impact Code. This query is used to display values in the **Select OEE Code** window for the selected Impact Code when creating or modifying a loss.
GetProductionLossesForPlan	Returns results in the **Production Losses** workspace.
GetProductionLossesForProfile	Returns results in the **Existing Losses** window in the **Production Data** workspace.
ImpactCodeList	Returns all Impact Codes. This query is used to display values in the **Impact Code** list when creating or modifying a loss.
OEECodeList	Returns all OEE Codes. This query is used to display values in the **Codes** workspace in the **PLA Administrator** page.
PLAEventSummary	Returns results in the **EVENT SUMMARY** section in the **PLA Overview** page.
PlannedProductionvsLosses	Returns results in the **PLANNED PRODUCTION VS LOSSES** section in the **PLA Overview** page.
PlanTemplateQuery	Returns the column configuration in the **Plan Templates** section in PLA Application Settings.
PLAPlanBasis	Returns Plan Basis in the **Production Plan Builder** window.
PLAPlanStatus	Returns statuses of Production Plans in the **Production Plans** section in the **PLA Overview** page.
Production Data Grid Query	Returns the Production Data records in the **Production Data** workspace.
ProductionEventWithoutRCAAnalysis	Returns results in the **Production Events** workspace before you associate a Production Event with an RCA.
ProductionEventWithRCAAnalysis	Returns results in the **Production Events** workspace after you associate a Production Event with an RCA.
Production Summary Grid Query	Returns results in the **Production Summary** workspace.
Production Summary Grid Query Cost	Returns results in the **Cost** column in the **Production Summary** workspace.

Query Name	Behavior and Usage
ProductionLossGridQuery	Returns Production Losses in the **Production Data** workspace.
TileListOfProductionEvent	Returns results in the **Production Events** section in the **PLA Overview** page for a user who does not have access to the Root Cause Analysis (RCA) module.
TileListOfProductionEventWithRCA	Returns results in the **Production Events** section in the **PLA Overview** page for a user who has access to the Root Cause Analysis (RCA) module.
TileListOfProductionPlan	Returns results in the **Production Plans** section in the **PLA Overview** page.
Top10BadActors	Returns results in the **TOP 10 BAD ACTORS** graph in the **PLA Overview** page. This query calculates results using the following formula: (Loss Amount x Margin applied to the loss) + Other Event Costs + Work History costs for the asset associated with the Production Event

Production Summary Plot

Production Summary Plot

The Production Summary plot displays a graphical representation of the data that exists in the **Production Data** workspace. The graph is built dynamically and is not stored in the APM Catalog.

By default, the plot is configured as a columnar graph.

You can see different Production Data details on the plot using the following categories from the list:

- Production Event Code: Displays information about the production events that are selected in the **Production Data** workspace.
- Impact Code: Displays information about the impact codes that are selected in the **Production Data** workspace.
- OEE Code: Displays information about all OEE codes that are selected in the **Production Data** workspace.
- OEE Code (Availability): Displays information about the availability OEE codes that are selected in the **Production Data** workspace.
- OEE Code (Performance): Displays information about the performance OEE codes that are selected in the **Production Data** workspace.
- OEE Code (Quality): Displays information about the quality OEE codes that are selected in the **Production Data** workspace.

Production Data Details

The following table provides details about the categories (options in list) and subcategories (legend below the plot) that appear on the Production Summary plots. The calculations used in each subcategory are listed in the Calculation column.

Subcategory	Main Category	Question	Calculation	Example
Good Production	Production Event Code Impact Code OEE Code	What percentage of periods contains an Actual value that is greater than or equal to the Planned Production value?	**Good Production** = (Σ All Actual Values / Σ All MSC Values) x 100	The sum of all Actual values is 45,000. The sum of all MSC values is 65,000. Therefore: • Good Production = (45,000 / 65,000) x 100 • Good Production = .6923 x 100 • Good Production = 69.23%
Unaccounted Loss	Production Event Code Impact Code OEE Code	What percentage of available time was the production unit not scheduled for production?	Unaccounted Loss = [(Σ All Short Range Values - Σ All Actual Values - Σ All Losses) / Σ All MSC Values] x 100	The sum of all MSC values is 80,000. The sum of all Short Range Plan values is 65,000. The sum of all Actual values is 45,000. The sum of all Loss values is 16,000. Therefore: • Unaccounted Losses = [(65,000 - 45,000 - 16,000) / 80,000] x 100 • Unaccounted Losses = (4000 / 80,000) x 100 • Unaccounted Losses = .05 x 100 • Unaccounted Losses = 5%

Subcategory	Main Category	Question	Calculation	Example
No Planned Production	Production Event Code Impact Code OEE Code	In what percentage of periods did I reduce the Short Range Value?	**No Planned Production** = [(Σ All MSC Values - Σ All Short Range Values) / Σ All MSC Values] x 100	The sum of all MSC values is 150,000. One day, the MSC value is 5,000, and the Short Range Plan value is 4,000. So, the No Planned Production Value is 1,000 (5,000 - 4,000). Another day, the MSC value is 5,000, and the Short Range Plan value is 3,000. So, the No Planned Production Value is 2,000 (5,000 - 3,000). Therefore: • No Planned Production = [(1,000 + 2,000) / 150,000] x 100 • No Planned Production = (3,000 / 150,000) x 100 • No Planned Production = .02 x 100 • No Planned Production = 2%
No Production Event Defined	Production Event Code	What percentage of losses are missing a Production Event?	**NPED** = (Σ Losses where the Production Event value is null / Σ All MSC Values) x 100	The sum of losses in all Production Loss records where the Production Event value is null is 31,220. NPED = 31,220

Subcategory	Main Category	Question	Calculation	Example
No Production Event Code Defined	Production Event Code	What percentage of losses contain a value in the Production Event field but the corresponding Production Event does not have a value in the Production Event Code field?	**NPECD** = (Σ Losses where the Production Event value is populated but the associated Production Event contains no Production Event Code / Σ All MSC Values) x 100	The sum of losses where the Production Event comes from a Production Event whose Production Event Code field is null is 31,220. The sum of all MSC values is 483,910. Therefore: • NPED = (31,220 / 483,910) x 100 • NPED = .00546 x 100 • NPED = 0.55%
<Production Event Code Name>	Production Event Code	What percentage of loss is not associated with a given <Production Event Code>?	**<Production Event Code Name>** = (Σ All Losses where the Production Event Code value is <Production Event Code Name> / Σ All MSC Values) x 100 **Note:** The colors that are used to represent the Production Event Codes come from the Color field in Production Event Codes.	The sum of losses where the Production Event comes from a Production Event whose Production Event Code field is null is 31,220. The sum of all MSC values is 483,910. Therefore: • NPECD = (31,220 / 483,910) x 100 • NPECD = .0645 x 100 • NPECD = 6.45%
<Impact Code Name>	Impact Code	What percentage of loss is associated with a given <Impact Code>?	**<Impact Code Name>** = (Σ All Losses where the Impact Code value is <Impact Code Name> / Σ All MSC Values) x 100 **Note:** The colors that are used to represent the Impact Codes come from the Color field in Impact Codes.	The sum of losses where the Impact Code value is TADD is 10,000. The sum of all MSC values is 65,000. Therefore: • TADD = (10,000 / 65,000) x 100 • TADD = .1538 x 100 • TADD = 15.38%

Subcategory	Main Category	Question	Calculation	Example
No Impact Code Defined	Impact Code	What percentage of losses are missing an Impact Code?	**NICD** = (Σ Losses where the Impact Code value is null / Σ All MSC Values) x 100	The sum of losses where the Impact Code value is null is 2,000. The sum of all MSC values is 65,000. Therefore: • NICD = (2,000 / 65,000) x 100 • NICD = .0308 x 100 • NICD = 3.08%
<OEE Code Name>	OEE Code		**<OEE Code Name>** = (Σ All Losses where the OEE Code value is <OEE Code Name> x Σ All MSC Values) x 100	The sum of losses where the OEE Code is Unscheduled Downtime is 10,000. The sum of all MSC values is 65,000. Therefore: • Unscheduled Downtime = (10,000 / 65,000) x 100 • Unscheduled Downtime = .1538 x 100 • Unscheduled Downtime = 15.38%
No OEE Code Defined	OEE Code	What percentage of losses are missing an OEE Code?	**NOCD** = (Σ Losses where the OEE Code value is null / Σ All MSC Values) x 100	The sum of losses where the OEE Code value is null is 4,000. The sum of all MSC values is 65,000. Therefore: • NOCD = (4,000 / 65,000) x 100 • NOCD = .0615 x 100 • NOCD = 6.15%

Subcategory	Main Category	Question	Calculation	Example
Idle Time Loss	OEE Code	What the percentage of time is the production unit Idle?	**Idle Time Loss** = (Σ All Losses where the OEE Code value is under Idle Time / Σ All MSC Values) x 100	The sum of losses where the OEE Code value is under Idle Time is 4,000. The sum of all MSC values is 65,000. Therefore: • Idle Time Loss = (4,000 / 65,000) x 100 • Idle Time Loss = .0615 x 100 • Idle Time Loss = 6.15%
Availability Loss	OEE Code	What percentage of scheduled production time is the production unit mechanically available?	**Availability Loss** = (Σ All Losses where the OEE Code value is under Availability / Σ All MSC Values) x 100	The sum of losses where the OEE Code value is under Availability is 4,000. The sum of all MSC values is 65,000. Therefore: • Availability Loss = (4,000 / 65,000) x 100 • Availability Loss = .0615 x 100 • Availability Loss = 6.15%
Performance Loss	OEE Code	What is the efficiency of the production unit?	**Performance Loss** = (Σ All Losses where the OEE Code value is under Performance / Σ All MSC Values) x 100	The sum of losses where the OEE Code value is under Performance is 4,000. The sum of all MSC values is 65,000. Therefore: • Performance Loss = (4,000 / 65,000) x 100 • Performance Loss = .0615 x 100 • Performance Loss = 6.15%

Subcategory	Main Category	Question	Calculation	Example
Quality Loss	OEE Code	What percentage of scheduled production time is the production unit producing products that met 1st run quality requirements?	**Quality Loss** = (Σ All Losses where the OEE Code value is under Quality / Σ All MSC Values) x 100	The sum of losses where the OEE Code value is under Quality is 4,000. The sum of all MSC values is 65,000. Therefore: • Quality Loss = (4,000 / 65,000) x 100 • Quality Loss = .0615 x 100 • Quality Loss = 6.15%
<Availability OEE Code Name>	OEE Code (Availability)	What percentage of loss is associated with a given <Availability OEE Code>?	**<Availability OEE Code Name>** = [Σ All Losses where the OEE Code value is <Availability OEE Code Name> / (Σ All Actual Values + Σ All Losses where the OEE Code value is under Availability + Σ All Losses where the OEE Code value is under Performance + Σ All Losses where the OEE Code value is under Quality)] x 100	The sum of losses where the OEE Code is Unscheduled Downtime is 10,000. The sum of (All Actual Values + All Losses where the OEE Code value is under Availability + All Losses where the OEE Code value is under Performance + All Losses where the OEE Code value is under Quality is 65,000. Therefore: • Unscheduled Downtime = (10,000 / 65,000) x 100 • Unscheduled Downtime = .1538 x 100 • Unscheduled Downtime = 15.38%

Subcategory	Main Category	Question	Calculation	Example
<Performance OEE Code Name>	OEE Code (Performance)	What percentage of loss is associated with a given <Performance OEE Code>?	**<Performance OEE Code Name>** = [Σ All Losses where the OEE Code value is <Performance OEE Code Name>)/(Σ All Actual Values + Σ All Losses where OEE Code value is under Performance + Σ All Losses where OEE Code value is under Quality)] x 100	The sum of losses where the OEE Code is Minor Stops is 10,000. The sum of all (All Actual Values + All Losses where OEE Code value is under Performance + All Losses where OEE code value is under Quality) is 65,000. Therefore: • Minor Stops = (10,000 / 65,000) x 100 • Minor Stops = .1538 x 100 • Minor Stops = 15.38%
<Quality OEE Code Name>	OEE Code (Quality)	What percentage of loss is associated with a given <Quality OEE Code>?	**<Quality OEE Code Name>** = [Σ All Losses where the OEE code value is <Quality OEE Code Name>/(Σ All Actual Values + Σ All Losses where the OEE Code value is under Quality)] x 100	The sum of losses where the OEE Code is Startup Rejects is 10,000. The sum of all (Actual Values + Losses where the OEE Code value is under Quality) is 65,000. Therefore: • Startup Rejects = (10,000 / 65,000) x 100 • Startup Rejects = .1538 x 100 • Startup Rejects = 15.38%

Subcategory	Main Category	Question	Calculation	Example
OEE - Availability	OEE Code (Availability)	What percentage of time was the production unit Mechanically Available to produce products?	**OEE Code - Availability** = [(Σ All Actual Values + Σ All Losses where OEE Code value is under Performance + Σ All Losses where OEE Code value is under Quality)/(Σ All Actual Values + Σ All Losses where OEE Code value is under Availability + Σ All Losses where OEE Code value is under Performance + Σ All Losses where OEE Code value is under Quality)] x 100	The sum of all Actual values is 10,000. The sum of all losses where the OEE Code is under Performance is 2,000. The sum of all losses where the OEE Code is under Quality is 1,000. The sum of all losses where the OEE Code is under Availability is 3,000. Therefore: • OEE Code - Availability = [(10,000 + 2,000 + 1,000) / (10,000 + 3,000 + 2,000 + 1,000)] x 100 • OEE Code - Availability = (13,000 / 16,000) x 100 • OEE Code - Availability = 81.25%

Subcategory	Main Category	Question	Calculation	Example
OEE - Performance	OEE Code (Performance)	What is the efficiency of the production unit for the time that production was scheduled?	**OEE Code - Performance** = [(Σ All Actual Values + Σ All Losses where OEE Code value is under Quality)/(Σ All Actual Values + Σ All Losses where OEE Code value is under Performance + Σ All Losses where OEE Code value is under Quality)] x 100	The sum of all Actual values is 10,000. The sum of all losses where the OEE Code is under Performance is 2,000. The sum of all losses where the OEE Code is under Quality is 1,000. Therefore: • OEE Code - Availability = [(10,000 + 1,000) / (10,000 + 2,000 + 1,000)] x 100 • OEE Code - Availability = (11,000 / 13,000) x 100 • OEE Code - Availability = 84.61%
OEE - Quality	OEE Code (Quality)	What percentage of 1st run quality products were produced?	**OEE Code - Quality** = [Σ All Actual Values / (Σ All Actual Values + Σ All Losses where OEE Code value is under Quality)] x 100	The sum of all Actual values is 10,000. The sum of all losses where the OEE Code is under Quality is 1,000. Therefore: • OEE Code - Availability = [10,000 / (10,000 + 1,000)] x 100 • OEE Code - Availability = (10,000 / 11,000) x 100 • OEE Code - Availability = 90.9%

Baseline Codes

Baseline Impact Codes

The following Impact Codes are provided in the baseline APM database.

Code	Description
OTSD	Other Slowdown Days
OTDD	Other Down Days
RMDD	Routine Maintenance Down Days
RMSD	Routine Maintenance Slowdown Days
RPDD	Regulatory-Process Down Days
RPSD	Regulatory-Process Slowdown Days
TADD	Turnaround Down Days

Baseline OEE Codes

The baseline APM database contains a set of baseline OEE Codes that define basic OEE Codes. Each OEE code is either a parent code or a child code. In general, parent codes are used to categorize high-level losses, and child codes further divide those categories into more specific areas. Both parent codes and child codes are stored in OEE Codes.

You can also create custom OEE codes. Only the baseline codes and their children, however, will be used to calculate the OEE percentage in the OEE Metric View. Therefore, in order for custom OEE codes to be included in the OEE percentage calculation, they must be children of the baseline parent OEE codes.

The following OEE Codes are provided in the baseline APM database.

Important: OEE codes are based on the definitions listed in the 4th edition of SMRP Best Practices Standard. Editing of OEE codes should be coupled with testing of the accuracy of the associated calculations.

Parent Code	Child Codes	Description
Availability	Scheduled Downtime Unscheduled Downtime	Indicates that a production loss is due to resources that are unavailable for use (e.g., scheduled maintenance).
Idle Time	No Demand No Feedstock or Raw Material Not scheduled for production	Indicates that a production loss is due to available resources that are currently not in use (e.g., a piece of equipment is available for use, but there are not enough employees to operate it). Losses associated with the Idle Time OEE code are included in the calculations for other categories (availability, performance, and quality). Idle Time does not represent its own OEE category.
Performance	Minor Stops Reduced Rate	Indicates that a production loss is due to resources that are not performing at 100% capacity.
Quality	Production Rejects Startup Rejects	Indicates that a production loss is due to poor quality product that could not be used.

Examples

Example of a Concurrent Quantity-Based Plan

This topic includes an example of a concurrent quantity-based Production Plan.

Note: The information contained in these topics assumes that you are the user who will be performing the associated step in creating a Production Plan and that all PLA administrative tasks have been completed.

The data used in each of the sections is listed in tables. In the tables, we list only the fields that contain a value. The information in these tables is provided for your reference.

Production Profile Data

The example assumes that the PLA Administrator has added the following two Production Profiles to the Production Unit for which you want to create a concurrent quantity-based Production Plan:

Field	Value
Product 1	
Product	Diesel
Product UOM	Barrels
Production Rate UOM	Day

Field	Value
Standard Batch Size	23,000
Standard Batch Cycle Time	1
Max Sustained Capacity Rate	23,000
Product 2	
Product	Gasoline
Product UOM	Barrels
Production Rate UOM	Day
Standard Batch Size	103,700
Standard Batch Cycle Time	1
Max Sustained Capacity Rate	103,700

Production Summary

The example of a concurrent quantity-based Production Plan assumes that your Production Plan meets the following criteria:

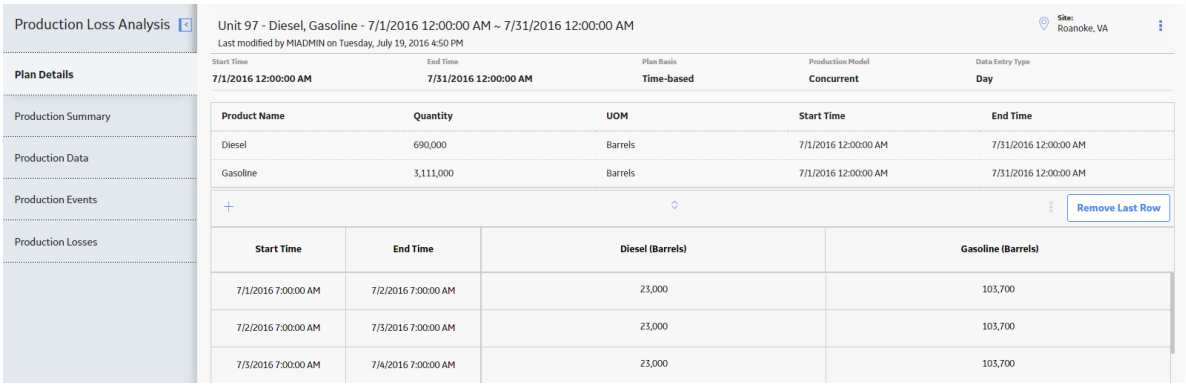
Criteria	Data Used in This Example
How Much	Two Products: • Diesel - 380,708 Barrels • Gasoline - 1,696,946 Barrels
When	April 1, 2017 through April 18, 20167
During Which Hours	Monday through Friday, 24 hours per day, two shifts: • 7:00 A.M. to 7:00 P.M. • 7:00 P.M. to 7:00 A.M.
How Often You Enter Data	Per Day
Production Model	Concurrent

Example of a Concurrent Time-Based Plan

This topic includes an example of a concurrent time-based Production Plan.

Note: The information contained in these topics assumes that you are the user who will be performing the associated step in creating a Production Plan and that all PLA administrative tasks have been completed.

The following image shows a sequential time-based Production Plan.



The data used in this example is listed in tables. In the tables, we list only the fields that contain a value. The information in tables is provided for your reference.

Production Profile Data

The example assumes that the PLA Administrator has added the following two Production Profiles to the Production Unit for which you want to create a concurrent time-based Production Plan:

Field	Value
Product 1	
Product	Diesel
Product UOM	Barrels
Production Rate UOM	Day
Standard Batch Size	23,000
Standard Batch Cycle Time	1
Max Sustained Capacity Rate	23,000
Product 2	
Product	Gasoline
Product UOM	Barrels
Production Rate UOM	Day
Standard Batch Size	103,700
Standard Batch Cycle Time	1
Max Sustained Capacity Rate	103,700

Production Summary

The example of a concurrent time-based Production Plan assumes that your Production Plan meets the following criteria:

Criteria	Data Used in This Example
How Much	Two Products: • Diesel • Gasoline
When	July 1, 2016 through July 31, 2016
During Which Hours	Monday through Friday, 24 hours per day, two shifts: • 7:00 A.M. to 7:00 P.M. • 7:00 P.M. to 7:00 A.M.
How Often You Enter Data	Per Day
Production Model	Concurrent

Example of a Sequential Time-Based Plan

This topic includes an example of a sequential time-based Production Plan.

Note: The information contained in these topics assumes that you are the user who will be performing the associated step in creating a Production Plan and that all PLA administrative tasks have been completed.

Production Profile Data

The example assumes that the PLA Administrator has added the following two Production Profiles to the Production Unit for which you want to create a sequential time-based Production Plan:

Field	Value
Product 1	
Product	Diesel
Product UOM	Barrels
Production Rate UOM	Day
Standard Batch Size	23,000
Standard Batch Cycle Time	1
Max Sustained Capacity Rate	23,000
Product 2	
Product	Gasoline
Product UOM	Barrels
Production Rate UOM	Day
Standard Batch Size	103,700
Standard Batch Cycle Time	1
Max Sustained Capacity Rate	103,700

Plan Summary

The example of a sequential time-based Production Plan assumes that your Production Plan meets the following criteria:

Criteria	Data Used in This Example
How Much	Two Products: • Diesel • Gasoline
When	• Diesel - April 25, 2017 through May 17, 2017 • Gasoline - May 17, 2017 through May 25, 2017
During Which Hours	Monday through Friday, 24 hours per day, two shifts: • 7:00 A.M. to 7:00 P.M. • 7:00 P.M. to 7:00 A.M.
How Often You Enter Data	Per Day
Production Model	Sequential

Calculations

Calculate Unaccounted Loss

The value in the **Unaccounted Loss** column is not stored in the Production Data and is for display purposes only. The number that appears in each cell in this column is calculated using the following equation:

Unaccounted Loss = Short Range Plan - Losses - Actual

Where **Short Range Plan**, **Losses**, and **Actual** are displayed in the same row as the Unaccounted Loss value.

Note: The calculated unaccounted loss is displayed using the number of decimal places defined for the Display Precision setting, regardless of the number of decimal places in the underlying Short Range, Losses, and Actual values.

Calculate Unaccounted Loss

Assume that the following values appear in a single row on the **Production Data** workspace:

- Short Range Plan = 5,000
- Losses = 0
- Actual = 3,000

In this case, the value in the **Unaccounted Loss** column in that row will be calculated using the following equation:

Unaccounted Loss = 5,000 - 0 - 3,000

Unaccounted Loss = 2,000

Calculate Over Accounted Loss

The Over Accounted Loss value, which appears in the **Production Data** workspace for Production Losses, indicates the additional reconciled Production Losses when the Unaccounted Loss is 0. It is not stored in the Production Data and is used solely for the purpose of display. This value is calculated using the following formulas:

- When the planned production is more than the actual production:

  Over Accounted Loss = Total Loss – (Planned Production – Actual Production)

  Note: The difference between Planned Production and Actual Production (Planned Production – Actual Production) is the production gap for a Production Data record.
- When the actual production is more than the planned production:

  Over Accounted Loss = Total Loss

  where:

  - Total Loss is the value that is stored in the Losses field. It indicates the total reconciled Production Losses for a Production Data record.
  - Planned Production is the value that is stored in either the Maximum Sustained Capacity field or the Short Range Plan field, as applicable. It indicates the planned production for a Production Data record.
  - Actual Production is the initial value that is stored in the Actual field. It indicates the actual production for a Production Data record.

Calculate Over Accounted Loss when the planned production is more than the actual production

Suppose that a Production Data record contains the following field values, where Short Range Plan is the basis for loss calculation:

- Short Range Plan = 50
- Actual = 40
- Losses = 15

Because the actual production gap, which is 10, has been reconciled, the Unaccounted Loss is 0. Therefore, the Over Accounted Loss is 5.

Calculate Over Accounted Loss when the actual production is more than the planned production

Suppose that a Production Data record contains the following field values, where Short Range Plan is the basis for loss calculation:

- Short Range Plan = 40
- Actual = 50
- Losses = 15

Because there is no actual production gap, the Unaccounted Loss is 0. Therefore, the Over Accounted Loss is 15, which is the total loss.

Calculate Cost of Losses

Cost of Losses Per Production Period = Losses x Margin

In the **Production Summary** workspace, in the grid, the Cost value is the sum of the cost of losses for all production periods in the plan.

In the **Production Summary** workspace, the Cost of Losses value is the sum of the cost of losses for all products in the plan.

Note: The calculated Cost of Losses value is displayed using the number of decimal places defined for the Display Precision setting regardless of the number of decimal places in the underlying Losses and Margin values.

The Cost of Losses value for a product is calculated using the values in the following fields in the Production Data that are displayed in the corresponding **Production Data** workspace:

- Losses

  Note: The Losses value is displayed in the **Losses** column in the **Production Data** workspace.
- Margin

  Note: The Margin value is not displayed in the **Production Data** workspace.

Cost of Losses for a Product

The following example explains the calculation of Cost of Losses for a two products, Bottles and Caps. This value will appear in the **Cost** column in **Production Summary** workspace.

Consider the following table, which indicates the values that exist in the Period, Losses, and Margin fields in Production Data records for one product, Bottles. You can see that all of the records contain the same value in the Losses field and in the Margin field. Based on the formula to calculate Cost of Losses per day, the cost of losses per day for each is shown in the Cost of Losses column. In the last row, you can see the Total Cost for all days in the plan for Bottles. This value is displayed in the **Cost** column in the **Production Summary** workspace.

Period	Losses	Margin	Cost of Losses Equation	Cost of Losses
7/1/2016	10	5	(10 x 5)	50
7/2/2016	10	5	(10 x 5)	50
7/3/2016	10	5	(10 x 5)	50

Period	Losses	Margin	Cost of Losses Equation	Cost of Losses
7/4/2016	10	5	(10 x 5)	50
7/5/2016	10	5	(10 x 5)	50
7/6/2016	10	5	(10 x 5)	50
7/7/2016	10	5	(10 x 5)	50
7/8/2016	10	5	(10 x 5)	50
7/9/2016	10	5	(10 x 5)	50
Total Cost				**450**

Now, consider the following table, which indicates the values that exist in the Period, Losses, and Margin Value fields in Production Data record for second product, Caps. You can see that all of the records contain the same value in the Losses field and in the Margin field Based on the formula to calculate Cost of Losses per day, the cost of losses per day for each is shown in the Cost of Losses column. In the last row, you can see the Total Cost for all days in the plan for Caps. This value is displayed in the **Cost** column in the **Production Summary** workspace.

Period	Losses	Margin	Cost of Losses Equation	Cost of Losses
7/1/2015	10	4	(10 x 4)	40
7/2/2015	10	4	(10 x 4)	40
7/3/2015	10	4	(10 x 4)	40
7/4/2015	10	4	(10 x 4)	40
7/5/2015	10	4	(10 x 4)	40
7/6/2015	10	4	(10 x 4)	40
7/7/2015	10	4	(10 x 4)	40
7/8/2015	10	4	(10 x 4)	40
7/9/2015	10	4	(10 x 4)	40
Total Cost				**360**

Cost of Losses for the Plan

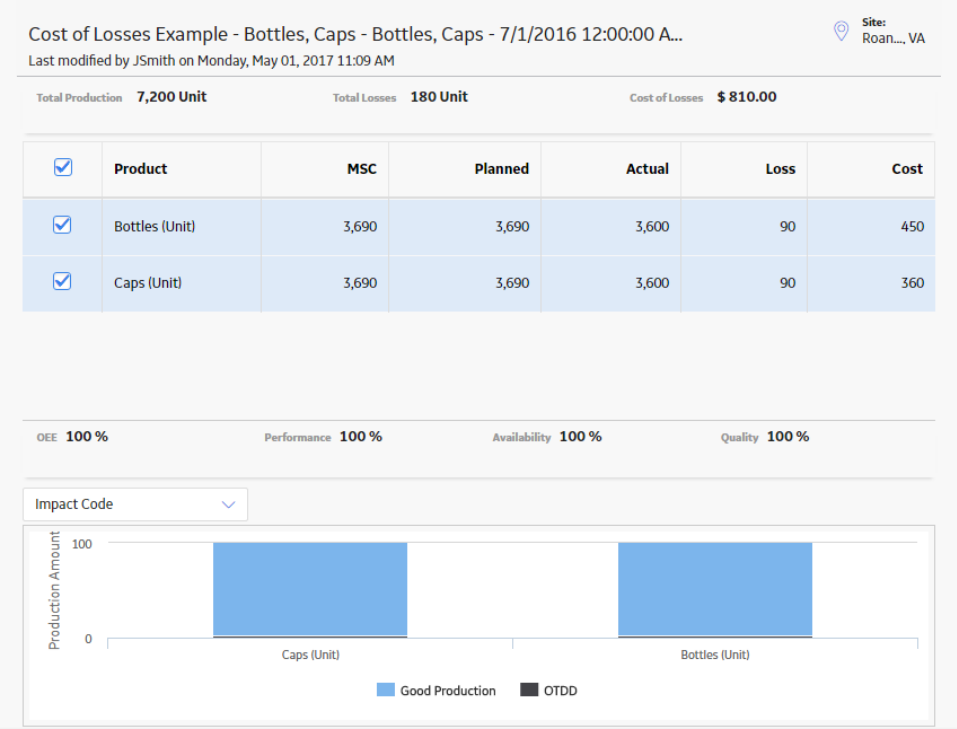
Continuing with the previous example, the Cost Of Losses in the **Production Summary** workspace is the sum of all the values in the **Cost** column in the grid. Based on the calculations for both products, bottles and caps, the Cost Of Losses is calculated using the following equation:

Cost Of Losses = Cost of Losses (Bottles) + Cost of Losses (Caps)

Cost Of Losses = $450 + $360

Cost Of Losses = $810

Based on this data, you would see $810 next to the **Cost Of Losses** label in the **Production Summary** workspace, as shown in the following image.



Mappings

Values Mapped from PLA to a Production Analysis

When you create a Production Analysis from Production Profile and Production Data records, several fields in the Production Analysis are populated automatically, as shown in the following table.

Important: You can create a Production Analysis from PLA only if the license for Reliability Analytics is active

Note: The All Production Data query determines which values from records in the PLA module are mapped to the Production Data field in Production Analysis records. If you want to map values from custom fields to the Production Data field, you will need to modify the All Production Data query

Production Analysis Field	Default Value
Analysis ID	A value that is constructed using the following format: **<Production Profile ID> ~ <Start Date> ~ <End Date>** Where: • **<Production Profile ID>** is the ID of the Production Profile that you selected in the Production Analysis Builder. • **<Start Time>** is the start time that you selected in the Production Analysis Builder. • **<End Time>** is the end time that you selected in the Production Analysis Builder.
Start Time	The start time that you selected in the Production Analysis Builder.
End Time	The end time that you selected in the Production Analysis Builder.
Unit of Measure	The value in the Product UOM field in the Production Profile that you selected in the Production Analysis Builder.
Margin Value	The value in the Default Margin field in the Production Profile that you selected in the Production Analysis Builder.
Analysis Type	The value Production Analysis.
Ignored Points	The value 0.
Min Production	The value 0.0001.

Production Analysis Field	Default Value
Production Data	Contains code representing a combination of values that make up the Production Data that is displayed on the Production Analysis plot. This combination of values is mapped from the following fields in PLA: Production Data records: • Actual • Period • Short Range Plan Production Loss records: • OEE Code • Event Code • Impact Code
Total Points	The number of Production Data records that meet the following criteria: • They are associated with the Production Profile that you selected in the Production Analysis Builder. -and- • The date in their Period field is on or after the Start Date and on or before the End Date that you selected in the Production Analysis Builder.

Values Mapped to the Production Data Field in a Production Analysis

When you create a Production Analysis from records in the Production Loss Analysis module, several field values are passed from those records to the Production Data field in the Production Analysis. The Production Data field stores code representing the production data that is used to create the Production Analysis plot. You can view the underlying production data on the **Production Data** window in the Production Analysis module.

Important: You can create a Production Analysis from PLA only if the license for Reliability Analytics is active.

Details

The All Production Data query, which is located in the Catalog folder `\\Public\Meridium\Modules\Reliability Manager\Analyses`, determines which values from PLA are mapped to the Production Data field.

The following table lists the PLA fields whose values are mapped to the Production Data field by default, along with the columns in the **Production Data** window in which you can see those values.

PLA Family	PLA Field	Edit Production Data Window Column
Production Data	Actual	Production Output
Production Data	Period	Date

PLA Family	PLA Field	Edit Production Data Window Column
Production Data	Short Range Plan	Short Range Plan
Production Loss	OEE Code	OEE
Production Loss	Event Code	Event Code
Production Loss	Impact Code	Impact Code

In the **Analysis Summary** workspace of a Production Analysis, you can use the group data feature to display production data according to the values (e.g., impact codes) that are mapped from PLA.

Important: You can access the Analysis Summary workspace of a Production Analysis only if the Reliability Analytics license is active.

Note: An administrative user can map values in different fields by modifying the All Production Data query, which is located in the Catalog folder `\\Public\Meridium\Modules\Reliability Manager\Analyses`.

Mapping OEE, Event, and Impact Code Values

To determine which OEE codes, event codes, and impact codes associated with losses for a given date get mapped from PLA to the Production Data field in a Production Analysis, the APM system looks at all Production Loss records that are associated with the Production Data for that date. Those Production Loss records are then grouped by event code, impact code, and OEE code to determine which event code is associated with the highest loss, which impact code is associated with the highest loss, and which OEE code is associated with the highest loss.

For each item (event code, impact code, and OEE code) values from the ones that are associated with the highest loss are mapped to the Production Data field in the Production Analysis.

Note: If there is no value (e.g., impact code) defined for the highest loss, the value No <Field> Defined will be mapped to the Production Analysis dataset.

Values Mapped from a Production Event to an RCA

Important: You can view the list of RCAs created from PLA only if the license for Root Cause Analysis is active.

When you create an RCA from a Production Event, several fields in the RCA are populated automatically with the corresponding value in the Production Event. The field mappings are listed in the following table:

Production Event Field	Root Cause Analysis Field
Headline	Analysis Name
Description	Analysis Description
Start Date	Start Date
Comments	Comments
Causing Asset	Linked Asset

Note: Each RCA must have a unique value in the Analysis Name field. If there are multiple Production Events that have the same value in the Headline field, in the first RCA that is created from one of these Production Events, the value in the Analysis Name field will be populated automatically as <Production Event Headline>. In the second RCA that is created, the value in the Analysis Name will be field populated automatically as <Production Event Headline> - 1, and so on.

In addition, if the Production Event is linked to an Equipment record and the necessary Equipment and Location queries have been configured in the Root Cause Analysis module, the RCA will be linked to that Equipment record. The ID of the Equipment will appear in the **Asset** or **Location** box, whichever appears, on the **Select an Asset** window.

When you access the Logic Tree in an RCA that you created from a Production Event, several fields in the RCA Event will be populated automatically with the corresponding value in the Production Event. You can modify these fields manually. The field mappings are listed in the following table:

Production Event Field	RCA Event Field
Headline	Label
Description	Long Description
Start Date	Event Start Date
End Date	Event End Date

Valid Time Zones

Valid Time Zones

The following table provides a list of time zones that are used in the ProductionUnit worksheet of the Production Loss Analysis (PLA) 1-Admin Data Loader workbook and their equivalent values, which appear in the Timezone field of the corresponding Production Unit record.

TimeZone (ProductionUnit worksheet)	Timezone (Production Unit record)
Afghanistan Standard Time	(UTC+04:30) Kabul
Alaskan Standard Time	(UTC-09:00) Alaska
Arab Standard Time	(UTC+03:00) Kuwait, Riyadh
Arabian Standard Time	(UTC+04:00) Abu Dhabi, Muscat
Arabic Standard Time	(UTC+03:00) Baghdad
Argentina Standard Time	(UTC-03:00) Buenos Aires
Atlantic Standard Time	(UTC-04:00) Atlantic Time (Canada)
AUS Central Standard Time	(UTC+09:30) Darwin
AUS Eastern Standard Time	(UTC+10:00) Canberra, Melbourne, Sydney

TimeZone (ProductionUnit worksheet)	Timezone (Production Unit record)
Azerbaijan Standard Time	(UTC+04:00) Baku
Azores Standard Time	(UTC-01:00) Azores
Bahia Standard Time	(UTC-03:00) Salvador
Bangladesh Standard Time	(UTC+06:00) Dhaka
Belarus Standard Time	(UTC+03:00) Minsk
Cabo Verde Standard Time	(UTC-01:00) Cabo Verde Is.
Canada Central Standard Time	(UTC-06:00) Saskatchewan
Caucasus Standard Time	(UTC+04:00) Yerevan
Cen. Australia Standard Time	(UTC+09:30) Adelaide
Central America Standard Time	(UTC-06:00) Central America
Central Asia Standard Time	(UTC+06:00) Astana
Central Brazilian Standard Time	(UTC-04:00) Cuiaba
Central Europe Standard Time	(UTC+01:00) Belgrade, Bratislava, Budapest, Ljubljana, Prague
Central European Standard Time	(UTC+01:00) Sarajevo, Skopje, Warsaw, Zagreb
Central Pacific Standard Time	(UTC+11:00) Solomon Is., New Caledonia
Central Standard Time	(UTC-06:00) Central Time (US & Canada)
Central Standard Time (Mexico)	(UTC-06:00) Guadalajara, Mexico City, Monterrey
China Standard Time	(UTC+08:00) Beijing, Chongqing, Hong Kong, Urumqi
Coordinated Universal Time	(UTC) Coordinated Universal Time
Dateline Standard Time	(UTC-12:00) International Date Line West
E. Africa Standard Time	(UTC+03:00) Nairobi
E. Australia Standard Time	(UTC+10:00) Brisbane
E. Europe Standard Time	(UTC+02:00) E. Europe
E. South America Standard Time	(UTC-03:00) Brasilia
Eastern Standard Time	(UTC-05:00) Eastern Time (US & Canada)
Egypt Standard Time	(UTC+02:00) Cairo
Fiji Standard Time	(UTC+12:00) Fiji
FLE Standard Time	(UTC+02:00) Helsinki, Kyiv, Riga, Sofia, Tallinn, Vilnius
Georgian Standard Time	(UTC+04:00) Tbilisi

TimeZone (ProductionUnit worksheet)	Timezone (Production Unit record)
GMT Standard Time	(UTC) Dublin, Edinburgh, Lisbon, London
Greenland Standard Time	(UTC-03:00) Greenland
Greenwich Standard Time	(UTC) Monrovia, Reykjavik
GTB Standard Time	(UTC+02:00) Athens, Bucharest
Hawaiian Standard Time	(UTC-10:00) Hawaii
India Standard Time	(UTC+05:30) Chennai, Kolkata, Mumbai, New Delhi
Iran Standard Time	(UTC+03:30) Tehran
Jerusalem Standard Time	(UTC+02:00) Jerusalem
Jordan Standard Time	(UTC+02:00) Amman
Kamchatka Standard Time	(UTC+12:00) Petropavlovsk-Kamchatsky - Old
Korea Standard Time	(UTC+09:00) Seoul
Libya Standard Time	(UTC+02:00) Tripoli
Line Islands Standard Time	(UTC+14:00) Kiritimati Island
Magadan Standard Time	(UTC+10:00) Magadan
Malay Peninsula Standard Time	(UTC+08:00) Kuala Lumpur, Singapore
Mauritius Standard Time	(UTC+04:00) Port Louis
Mid-Atlantic Standard Time	(UTC-02:00) Mid-Atlantic - Old
Middle East Standard Time	(UTC+02:00) Beirut
Montevideo Standard Time	(UTC-03:00) Montevideo
Morocco Standard Time	(UTC) Casablanca
Mountain Standard Time	(UTC-07:00) Mountain Time (US & Canada)
Mountain Standard Time (Mexico)	(UTC-07:00) Chihuahua, La Paz, Mazatlan
Myanmar Standard Time	(UTC+06:30) Yangon (Rangoon)
Namibia Standard Time	(UTC+01:00) Windhoek
Nepal Standard Time	(UTC+05:45) Kathmandu
New Zealand Standard Time	(UTC+12:00) Auckland, Wellington
Newfoundland Standard Time	(UTC-03:30) Newfoundland
Pacific SA Standard Time	(UTC-04:00) Santiago
Pacific Standard Time	(UTC-08:00) Pacific Time (US & Canada)
Pacific Standard Time (Mexico)	(UTC-08:00) Baja California

TimeZone (ProductionUnit worksheet)	Timezone (Production Unit record)
Pakistan Standard Time	(UTC+05:00) Islamabad, Karachi
Paraguay Standard Time	(UTC-04:00) Asuncion
Romance Standard Time	(UTC+01:00) Brussels, Copenhagen, Madrid, Paris
Russia TZ 1 Standard Time	(UTC+02:00) Kaliningrad (RTZ 1)
Russia TZ 10 Standard Time	(UTC+11:00) Chokurdakh (RTZ 10)
Russia TZ 11 Standard Time	(UTC+12:00) Anadyr, Petropavlovsk-Kamchatsky (RTZ 11)
Russia TZ 2 Standard Time	(UTC+03:00) Moscow, St. Petersburg, Volgograd (RTZ 2)
Russia TZ 3 Standard Time	(UTC+04:00) Izhevsk, Samara (RTZ 3)
Russia TZ 4 Standard Time	(UTC+05:00) Ekaterinburg (RTZ 4)
Russia TZ 5 Standard Time	(UTC+06:00) Novosibirsk (RTZ 5)
Russia TZ 6 Standard Time	(UTC+07:00) Krasnoyarsk (RTZ 6)
Russia TZ 7 Standard Time	(UTC+08:00) Irkutsk (RTZ 7)
Russia TZ 8 Standard Time	(UTC+09:00) Yakutsk (RTZ 8)
Russia TZ 9 Standard Time	(UTC+10:00) Vladivostok, Magadan (RTZ 9)
SA Eastern Standard Time	(UTC-03:00) Cayenne, Fortaleza
SA Pacific Standard Time	(UTC-05:00) Bogota, Lima, Quito, Rio Branco
SA Western Standard Time	(UTC-04:00) Georgetown, La Paz, Manaus, San Juan
Samoa Standard Time	(UTC+13:00) Samoa
SE Asia Standard Time	(UTC+07:00) Bangkok, Hanoi, Jakarta
South Africa Standard Time	(UTC+02:00) Harare, Pretoria
Sri Lanka Standard Time	(UTC+05:30) Sri Jayawardenepura
Syria Standard Time	(UTC+02:00) Damascus
Taipei Standard Time	(UTC+08:00) Taipei
Tasmania Standard Time	(UTC+10:00) Hobart
Tokyo Standard Time	(UTC+09:00) Osaka, Sapporo, Tokyo
Tonga Standard Time	(UTC+13:00) Nuku'alofa
Turkey Standard Time	(UTC+02:00) Istanbul
Ulaanbaatar Standard Time	(UTC+08:00) Ulaanbaatar
US Eastern Standard Time	(UTC-05:00) Indiana (East)

TimeZone (ProductionUnit worksheet)	Timezone (Production Unit record)
US Mountain Standard Time	(UTC-07:00) Arizona
UTC+12	(UTC+12:00) Coordinated Universal Time+12
UTC-02	(UTC-02:00) Coordinated Universal Time-02
UTC-11	(UTC-11:00) Coordinated Universal Time-11
Venezuela Standard Time	(UTC-04:30) Caracas
W. Australia Standard Time	(UTC+08:00) Perth
W. Central Africa Standard Time	(UTC+01:00) West Central Africa
W. Europe Standard Time	(UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
West Asia Standard Time	(UTC+05:00) Ashgabat, Tashkent
West Pacific Standard Time	(UTC+10:00) Guam, Port Moresby