PRODUCT LIFECYCLE MANAGEMENT

PLM for Admins

Release 10.0-MP3 (October 2020)

StiboSystems
MASTER DATA MANAGEMENT

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PLM for Admins

Welcome to PLM where concepts can be captured, designed, created, and managed all the way to the product's retirement. PLM allows for quick adaptability to any changes that should arise during the production process, ensuring that timely responses can be made.

The following documentation describes the setup needed in workbench and Web UI. If the steps are not followed (including naming conventions, except where notated), then PLM will not function as expected.

Users of PLM will not see the workbench, and they will not see the designer in Web UI, but will only interact with PLM through the web. Proper workbench and Web UI setup is vital for the user to have a seamless experience while working.

Important: It is recommended that admin users read through the **PLM for Users** documentation before starting setup. It is important to understand how PLM works prior to beginning any configuration. Additionally, it is important to be familiar with standard STEP functionality.

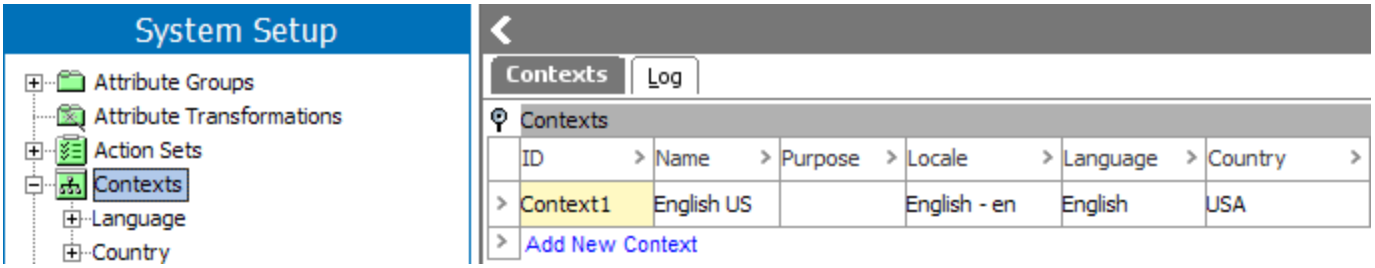
Context, Action Sets, and User Groups

Setting up the proper context, action sets, and user groups are all important for helping to maintain a properly functioning system. Through context, data can be organized, and with action sets and user groups, it is possible to maintain who has access to what data. It is important that before any configuration for PLM takes place, that the following context and any needed user groups are created.

Context

A context is a specific filter placed on data in the workbench which groups a set of dimension points, allowing data to vary based on context. Each context is a combination of different dimensions, such as language and country. Only one dimension point from each dimension can be associated with a specific context. While there can multiple contexts in workbench, PLM will only operate in the context that is specified in the uploaded configuration document.

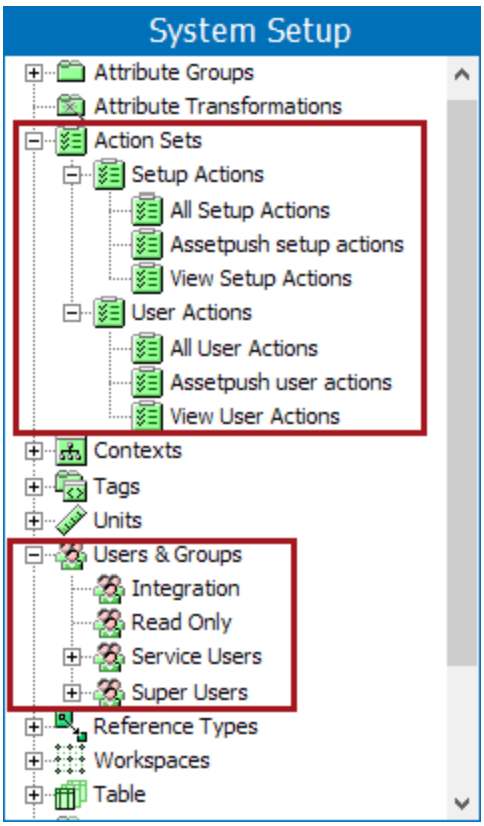
Initially, the context ID in the configuration documents is labeled 'Context1.' If this needs to be changed, notify your implementation team.



To learn more about contexts and how to set one up, see the **Contexts** topic in the **System Setup / Super User Guide** documentation.

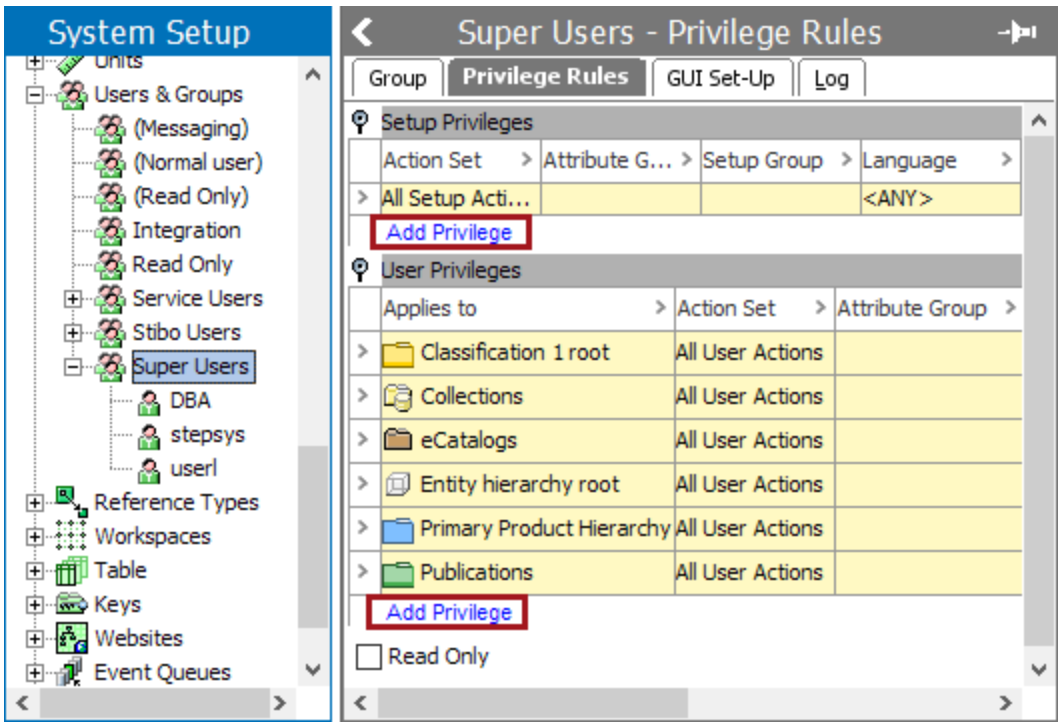
Action Sets

Action Sets are used to define the actions or privileges a user or group of users are permitted to perform in STEP and PLM. Actions are grouped into setup and user Action Sets and can be tied to user group privileges for the user groups under the Users & Groups setup area. For more on how to set up proper action sets and apply privileges, see the **Action Sets** topic in the **System Setup / Super User Guide** documentation.

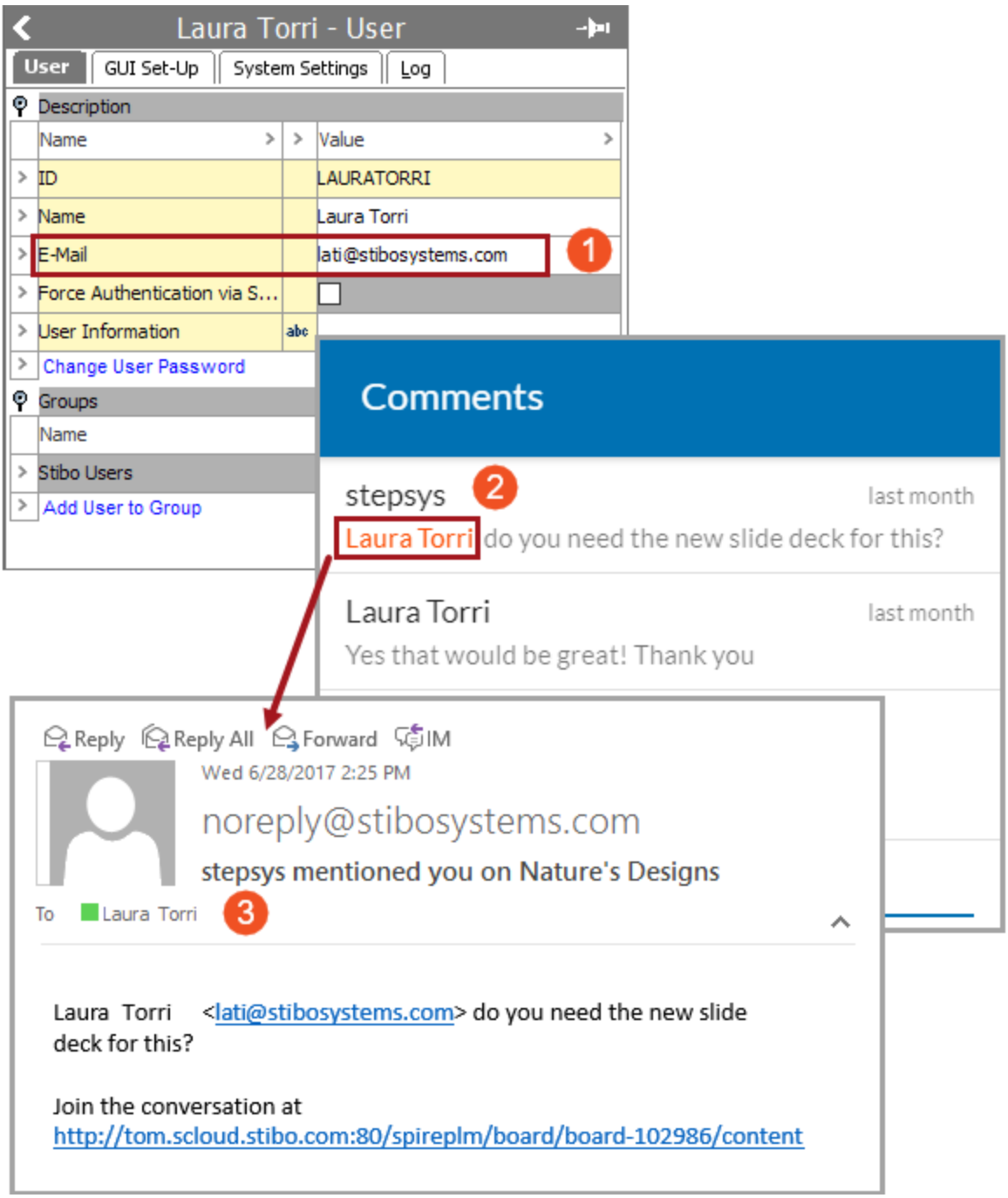


User Groups

In the Users & Groups hierarchy, you can create STEP roles and authorizations to determine who can access the STEP system and what they are able to do or not do as a user in the workbench, Web UI, or in PLM. Well formed action sets allow administrators to create needed user groups with proper settings.



Make sure that each user in the user group has a valid email address. Various notifications are often sent to the user through their email address. One such notification would be that if a user is using storyboards, they will receive an email each time they are mentioned in a comment on a storyboard. The email notification to the mentioned user will include the message and the storyboard URL so that the individual can quickly navigate to that storyboard and read the comments thread.



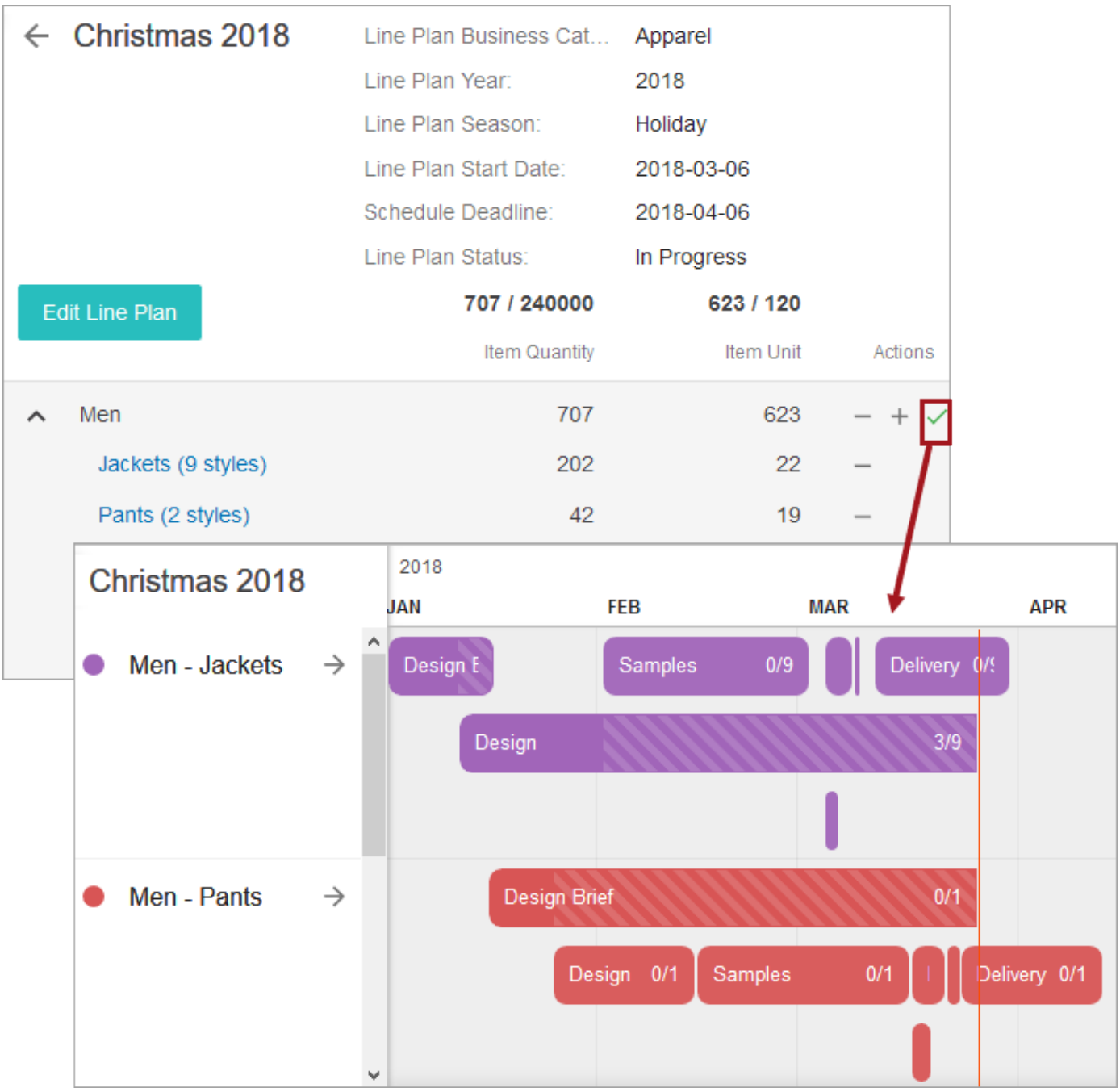
If there is no email in place under the description flipper on their profile, they will not receive these notifications.

For more information on users and groups see the **Users and Groups** topic in the **System Setup / Super User Guide** documentation.

Line Plan and Schedules

Line planning is a discipline for the development of products. Line plan managers closely manage the development of line plans to ensure that they focus on the right products, meet key deadlines, and achieve goals set for cost and profit margins. Schedules are a way to manage the deadlines and goals set in the line plan.

When making a product for distribution, it is important to have a clear line plan and schedule. PLM assists managers in making decisions about whether or not a product should be produced once market analysis has been completed, and assists managers in making sure that a product goes to market on time. It also aids in identifying which tasks are taking longer than the planned duration, enabling managers to focus on process improvements.



For more information on how to setup line plans and schedules, see the following documentation.

- Setting Up Line Plans in Workbench
- Setting Up Schedules in Workbench

The following licenses and components are needed for line plans and schedules to work:

Required License	Components needed
X.STEPIllustrator **Note:** Only needed if also utilizing the ability to integrate with Adobe Illustrator	illustrator **Note:** Only needed if also utilizing the ability to integrate wtih Adobe Illustrator
N/A	spire-plm

Configuration Setup for Line Plans and Schedules

The following steps will upload the configuration file that the line plans and schedules need to function properly, if it has not already been uploaded to your system.

Important: Talk to your implementation team to discuss a configuration strategy before uploading the provided configuration files and configuring anything else for PLM line plans or PLM schedules. Proper ID alignment needs to be established when uploading this configuration file and when configuring any other line plan or schedule objects in workbench. If there is improper alignment with IDs, then the line plan or schedule will fail.

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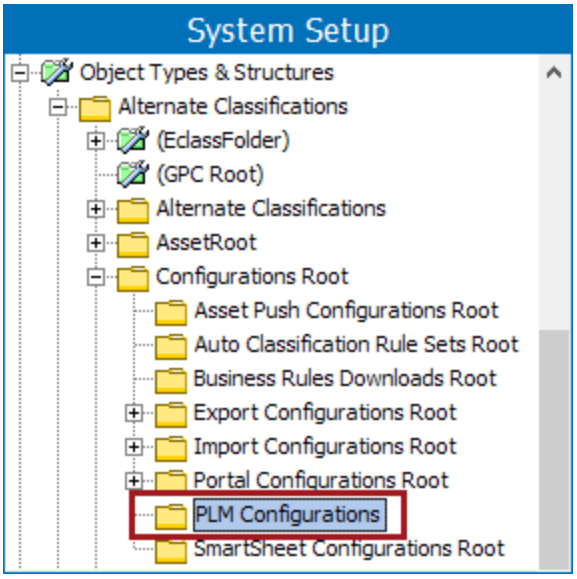
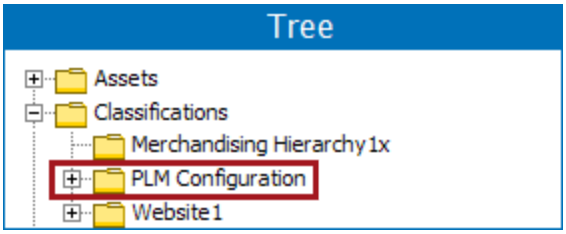
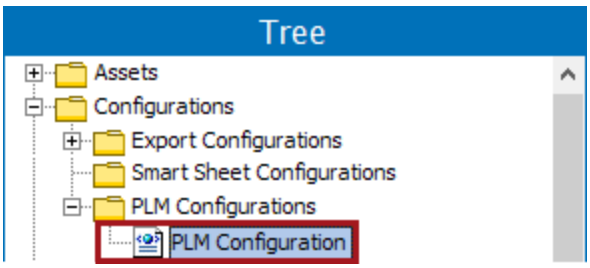
1. In **System Setup** > Object Types & Structures > Alternate Classifications > Configurations Root, create a folder to contain all PLM configurations.



2. Next, in **Tree**, below the classifications node, create a new classification folder to contain the PLM Configuration.



3. In this folder, import the PLM configuration file using the file name as the STEP ID. Make sure that all changes that are needed to be made to the PLM configuration file are made before the file is uploaded. This includes changing any IDs necessary; otherwise, the line plan or schedule will not work properly.



Note: Depending on your implementation team, these steps may or may not be handled by them. If the implementation team does not handle the steps above, they will be the ones to provide the configuration files.

Setting Up Line Plans in Workbench

For line plans to work correctly in the Web UI, proper setup needs to happen in the workbench, and the PLM configuration file needs to be uploaded. If the PLM configuration file has not already been uploaded to your system, see the **Configuration Setup for Line Plans and Schedules** topic in this documentation.

Read the following topics on how to set up line plans properly in the workbench:

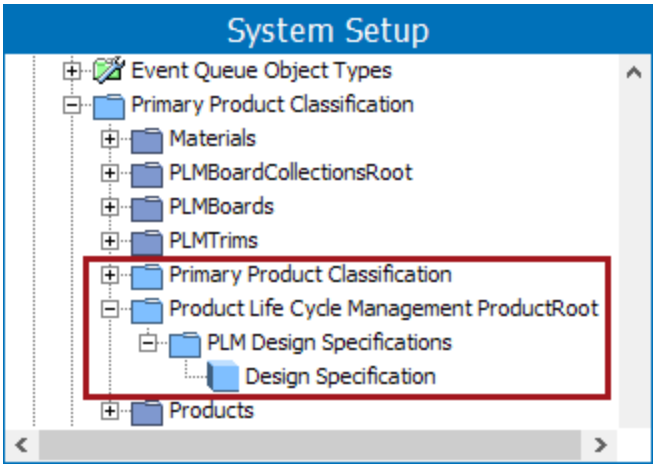
- Creating Line Plan Object Types
- References Needed for Line Plans
- Setting Up Attributes for Line Plans

Creating Line Plan Object Types

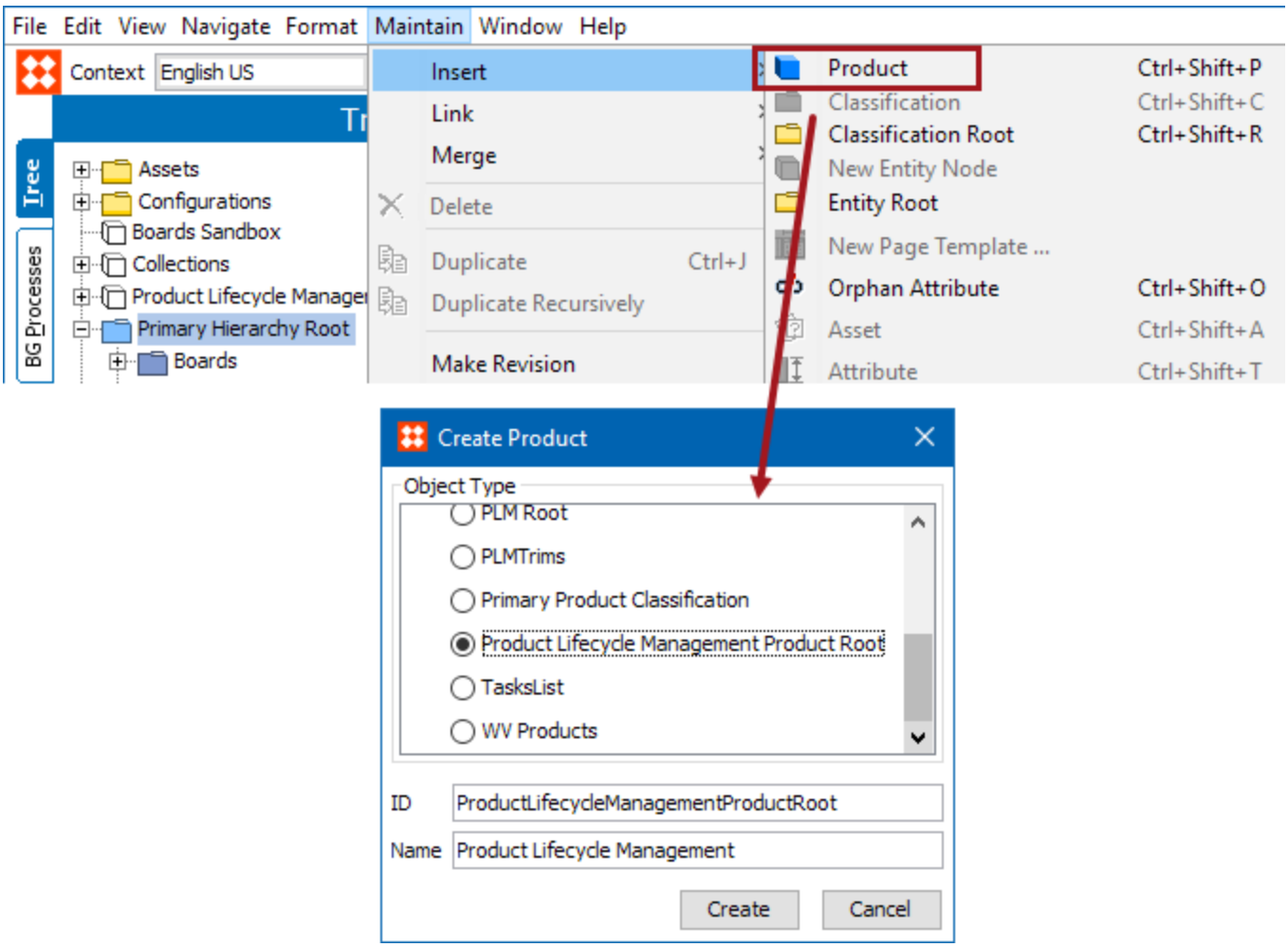
There are a number of object types necessary for line plans to function properly in Web UI. The following sections describe what Primary Product and Alternative Classifications object types are needed.

Creating Primary Product Classification Object Types

Design specifications live in the Primary Product Classification object type structures. A simple hierarchy structure with one parent needs to be created to house the design specifications uploaded from the Web UI. For more on how to create design specifications in Web UI, see the **Creating Line Plans** topic.



After the structure had been created in System Setup, it needs to be added to Tree. In Tree, click on a Primary Product Classification folder and, go to Maintain > Insert > Product > select the object type to hold the design specifications.

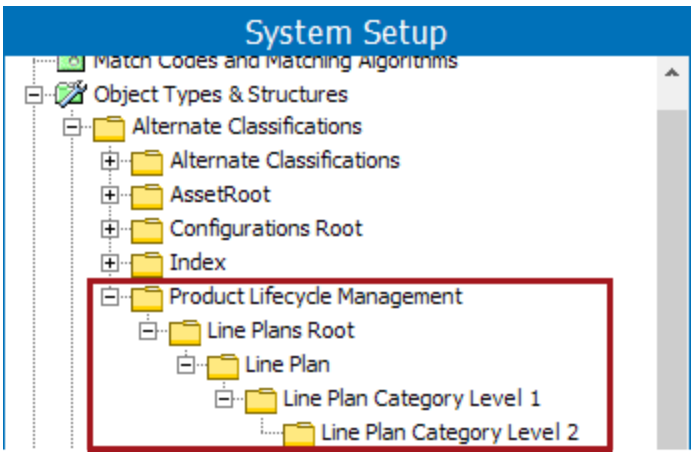


Once the hierarchy structure for design specifications has been crated and added to Tree, a reference needs to be created between the line plan and design specifications. See the **References Needed for Line Plans** topic in this documentation.

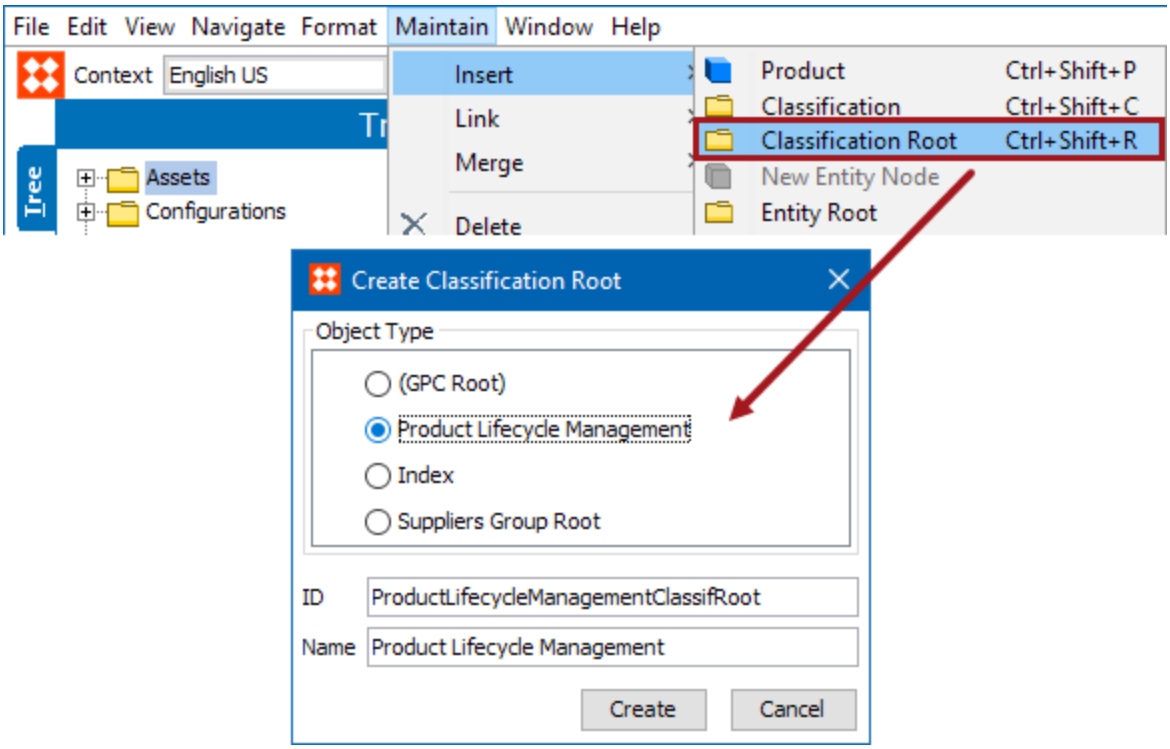
Creating Alternative Classification Object Types

Alternative Classifications are where design specifications are referenced and grouped into a folder for easy line plan use. The Product Lifecycle Management Classification root folder will need to be created for all other line plan roots to live under. Each line plan root can have up to three levels.

When finished, the line plan structure will look similar to the one below.



After the structure had been created in System Setup, it needs to be added to Tree. In Tree, click on a Classification folder and, go to Maintain > Insert > Classification Root > select the object type to hold line plans.



Each line plan will need to have attributes according to business needs. To set up needed attributes for line plans, see the **Setting Up Attributes for Line Plans** topic in this documentation.

References Needed for Line Plans

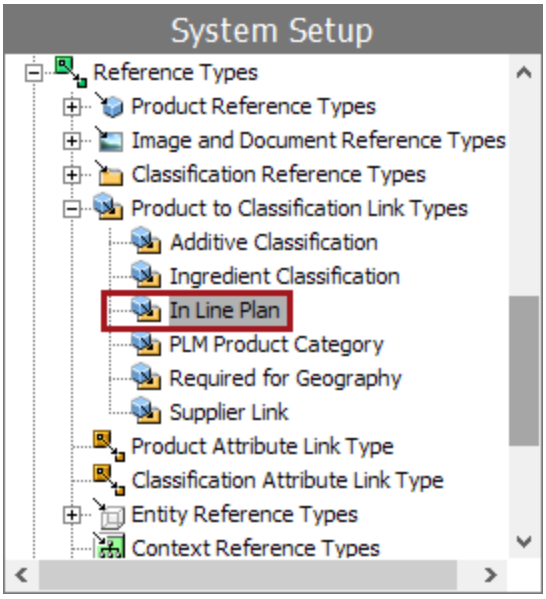
There are two different reference types required for line plans to work properly:

- Product to Classification Link Type
- Entity Reference Type

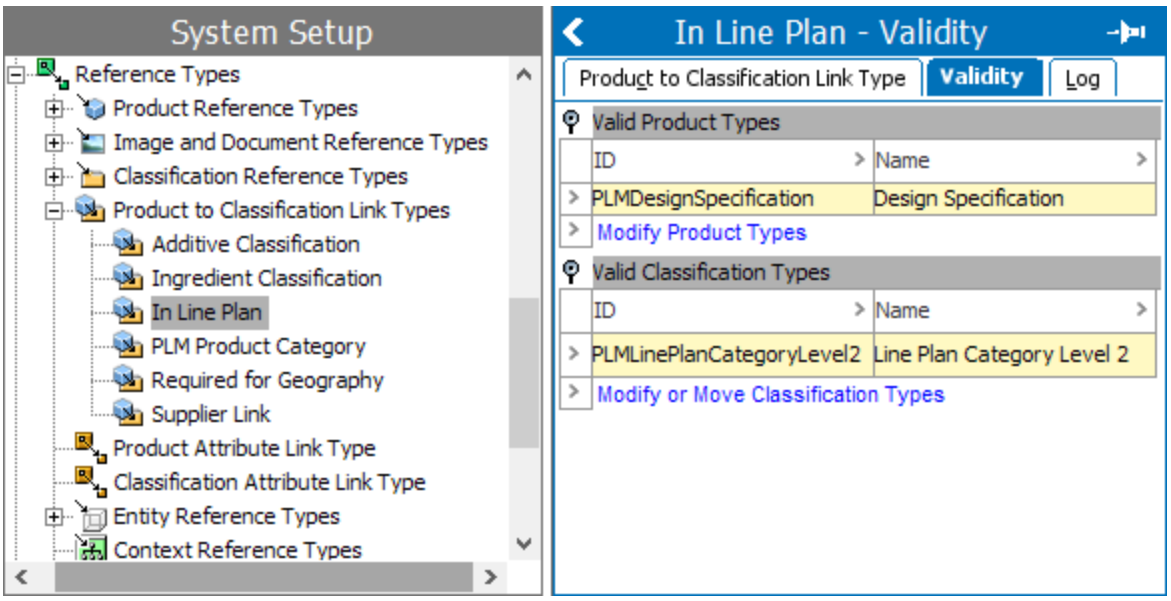
They are needed to link line plans to design specifications and line plans to schedules. This topic describes how to create the necessary reference types.

Product To Classification Link Type

The Product to Classification Link Type is needed as a reference between the line plan category level two and the design specification document. For this Product to Classification Link Type, an 'In Line Plan' reference was created.



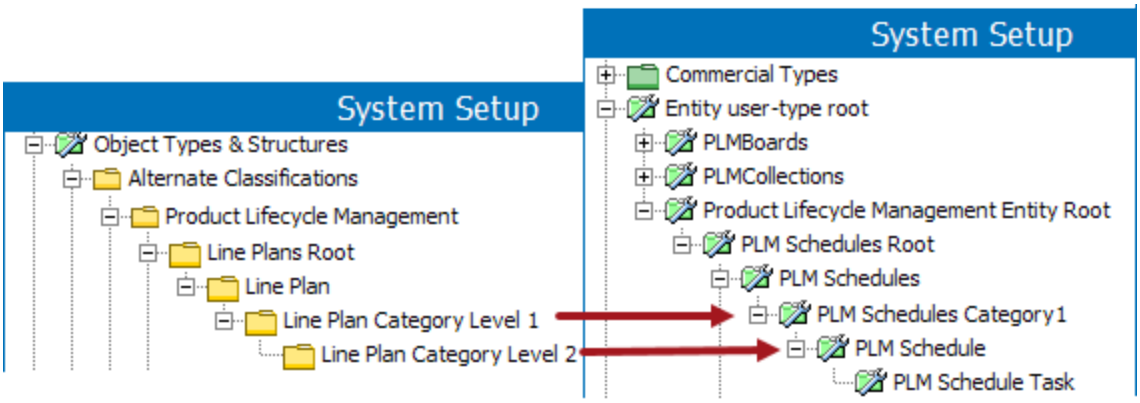
On the Validity tab for this new reference, select the design specification object type for the Valid Product Type and select the Line Plan Category Level 2 object type as the Valid Classification Type.



Entity Reference Type

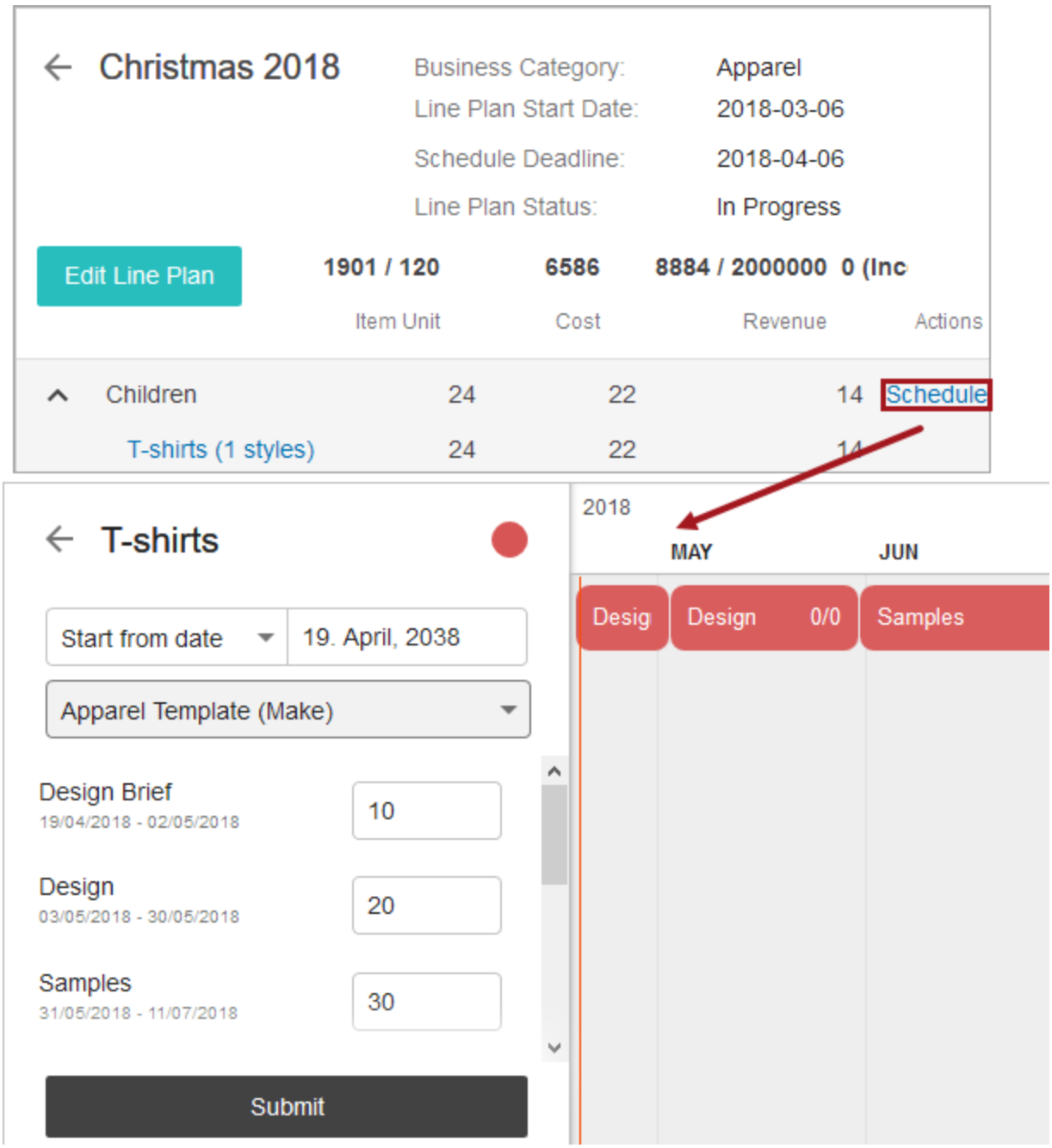
There are two entity reference types needed to connect the line plan to the schedules:

- A reference to connect the classification object type for Line plan Category Level 1 to entity type PLM Schedules Category 1
- A reference to connect the classification object type for Line Plan Category Level 2 to entity type PLM Schedule

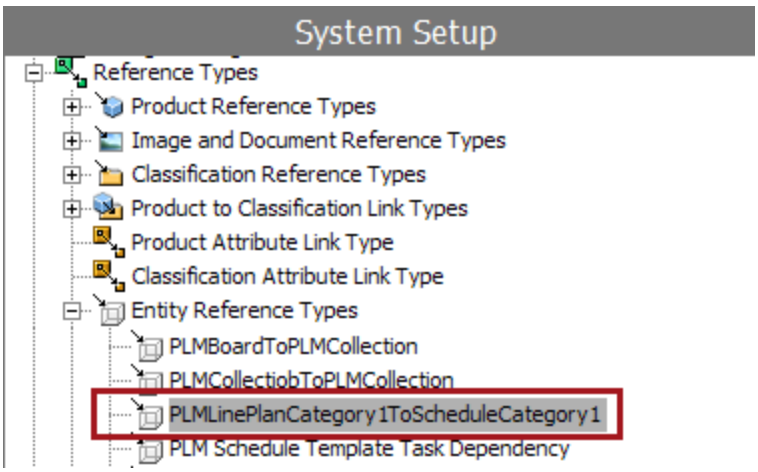


PLM Line Plan Category 1 to Schedule Category 1

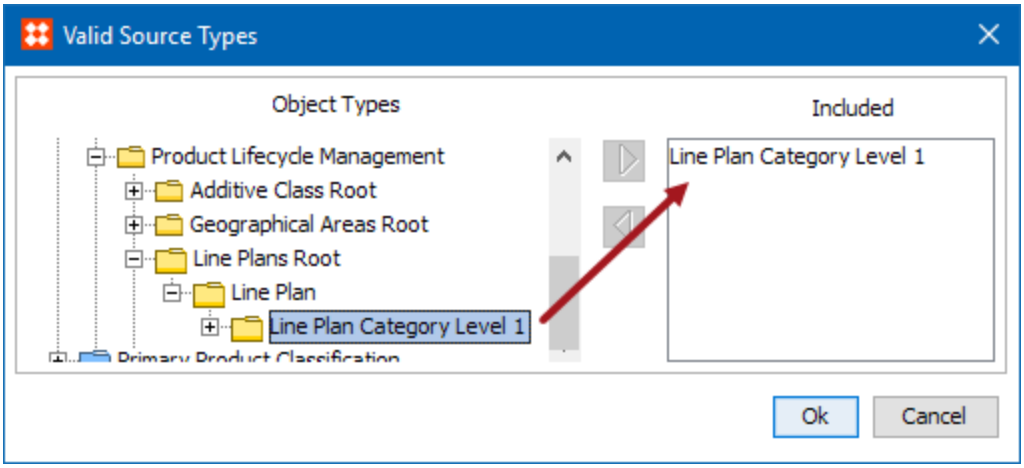
A reference to connect the classification object type for Line plan Category Level 1 to entity type PLM Schedules Category 1 is needed when transitioning from line plans to schedules. When an approved line plan displays the 'Schedule' hyperlink, the reference enables the user to navigate to the appropriate schedule.



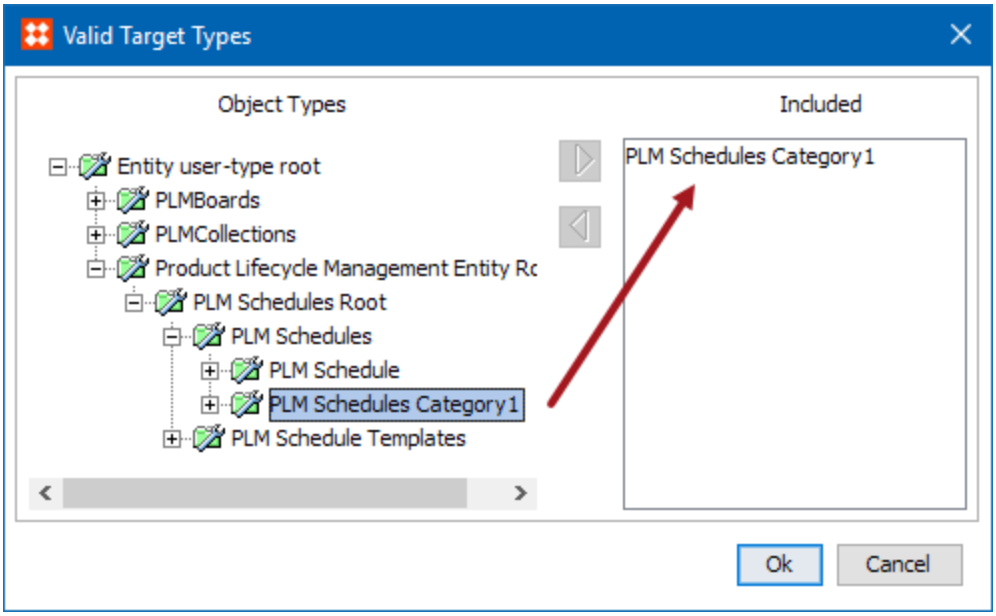
For this example it is 'PLMLinePlanCategory1ToScheduleCategory1.'



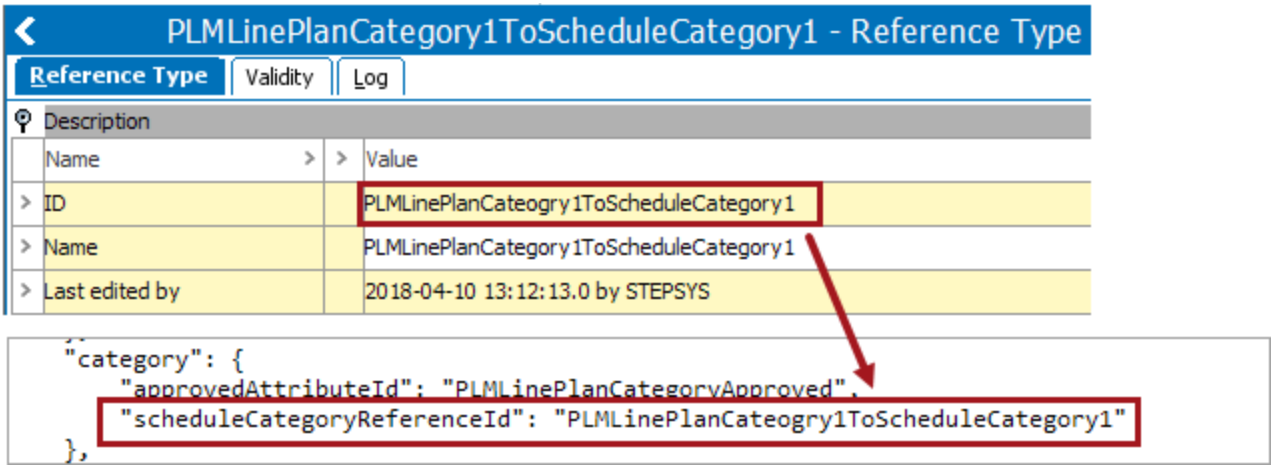
This new reference should have the first level of all line plans as a valid source type. In this example it is 'Line Plan Category Level 1.'



For the target type, make sure that it is valid for the first level of schedules. In this example it is 'PLM Schedule Category1.'



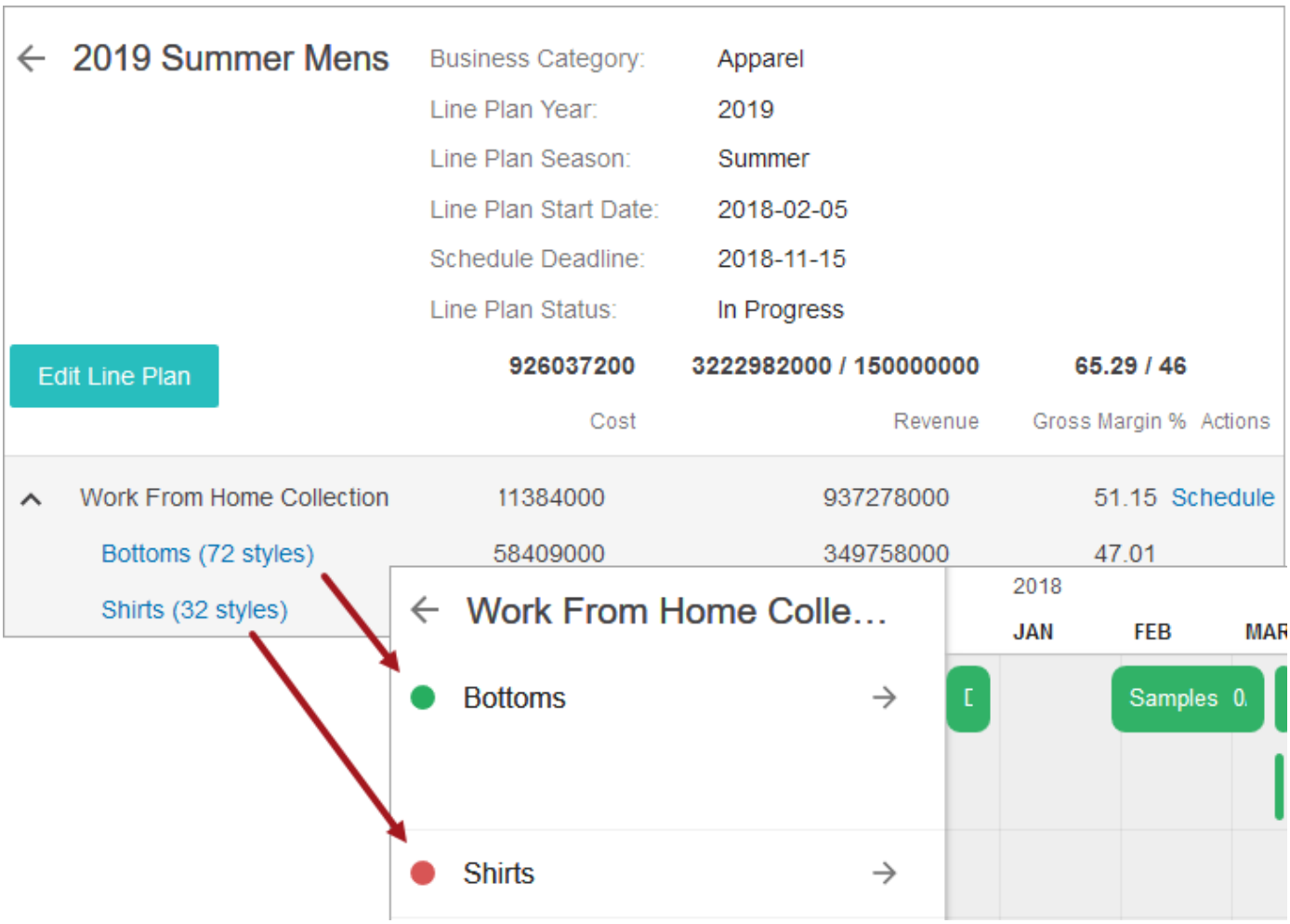
It is important that the ID of this Entity Reference is correctly put into the uploaded PLM configuration file. If the uploaded information is incorrect, then PLM may not work properly.



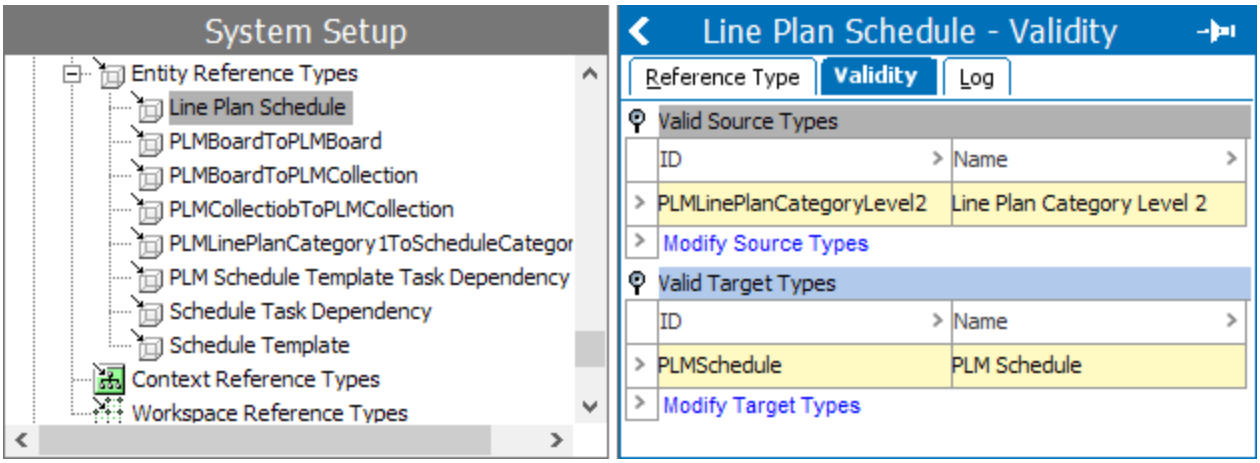
Note: You may need to talk to you implementation team to set the proper ID in the configuration file.

Line Plan Category Level 2 to Schedule level 2

This reference connects the classification object type for line plan category level 2 to entity type schedule level 2. It is needed to correctly create the subcategory from the approved line plan to the schedule subcategory.



To create this entity reference type, make it have the second level of line plans as a Valid Source Type, and the second level of schedules as the Valid Target Type. In the example below, the reference created is called 'Line Plan Schedule.' The second level for line plans was alternate classification Line Plan Category Level 2, and the second level for the schedule entity type was PLM Schedule.



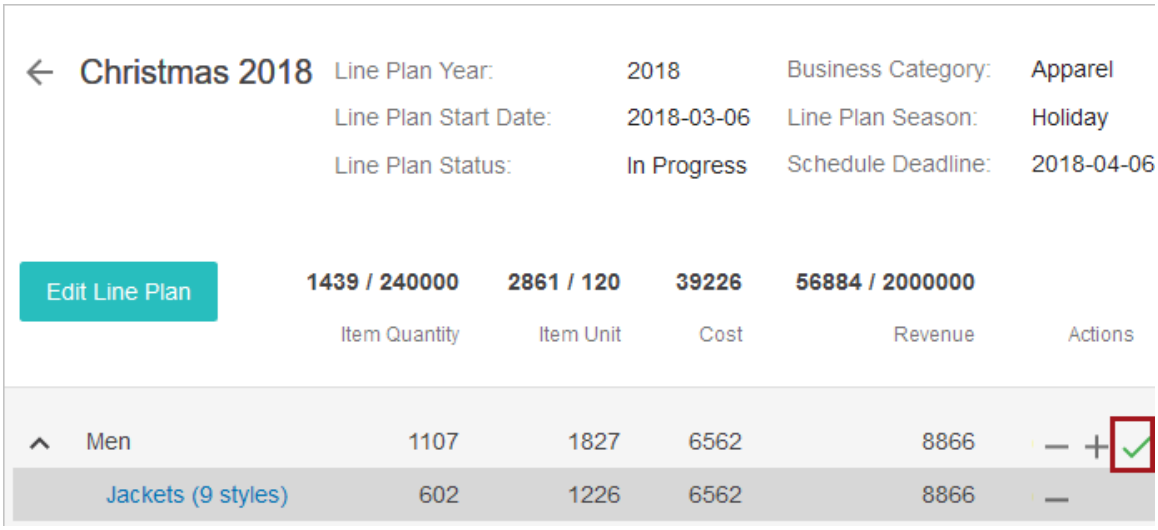
Setting Up Attributes for Line Plans

When creating line plans, there are a number of attributes that need to be set up properly both in workbench and in the uploaded configuration file, in order for line plans to work in Web UI. The sections below detail what attribute setups are need.

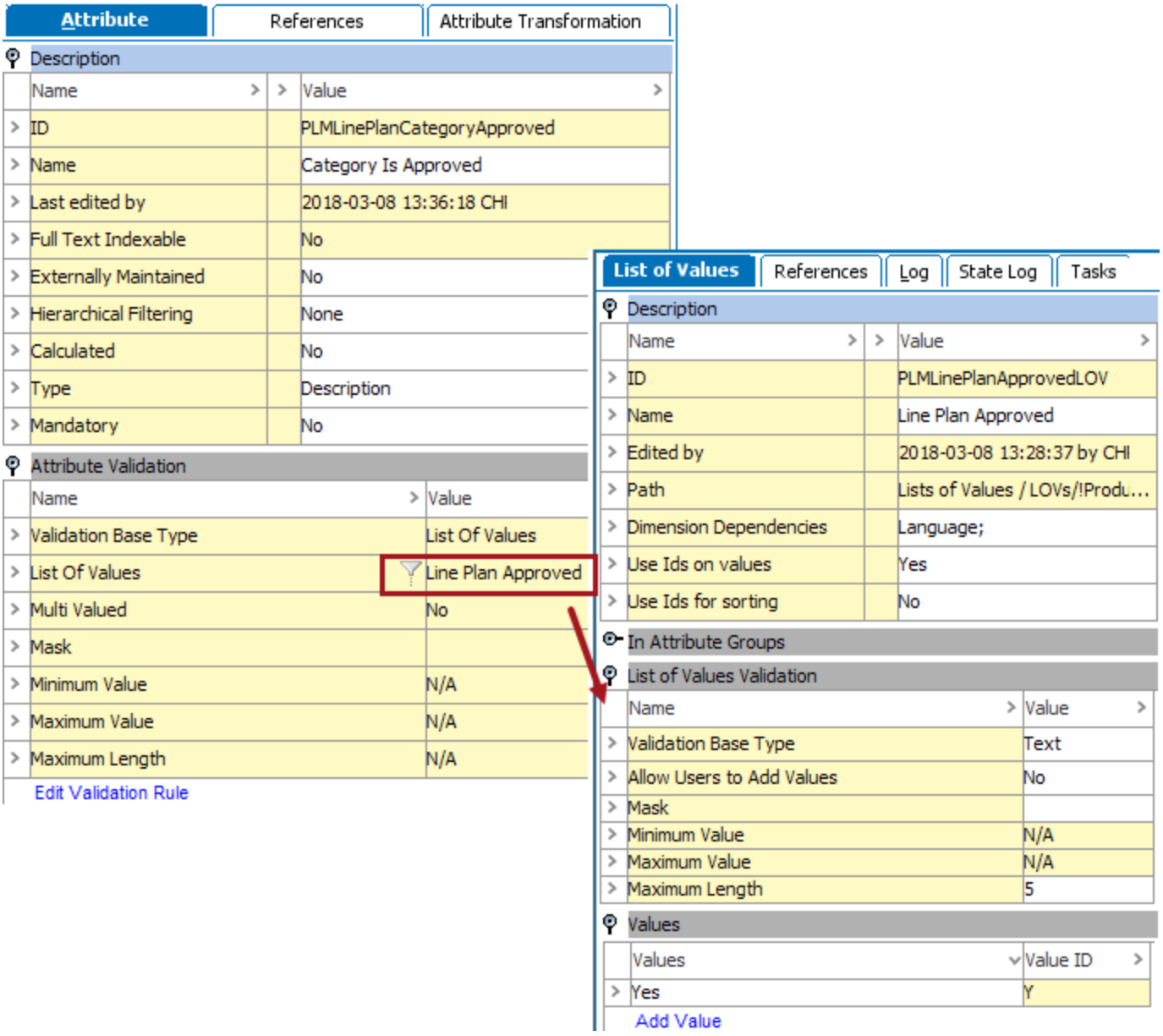
Note: Attributes created for line plans can be calculated attributes, regular attributes, or updated through business rules based on your business needs. For the examples that follow, calculated attributes and regular attributes are used.

Line Plan Approval

When viewed in the Web UI, the line plan approval attribute is an attribute that confirms if a line plan is considered complete by clicking the checkmark under the Actions column in the line plan itself.



This designated attribute for line plan approvals needs to be a description attribute and have an 'List Of Values' as the validation base type. The LOV used for the line plan approval attribute needs to have 'text' as the validation base type and a value of 'Y' in its Values field. In the example below, the 'PLMLinePlanCategoryApproval' attribute is used.



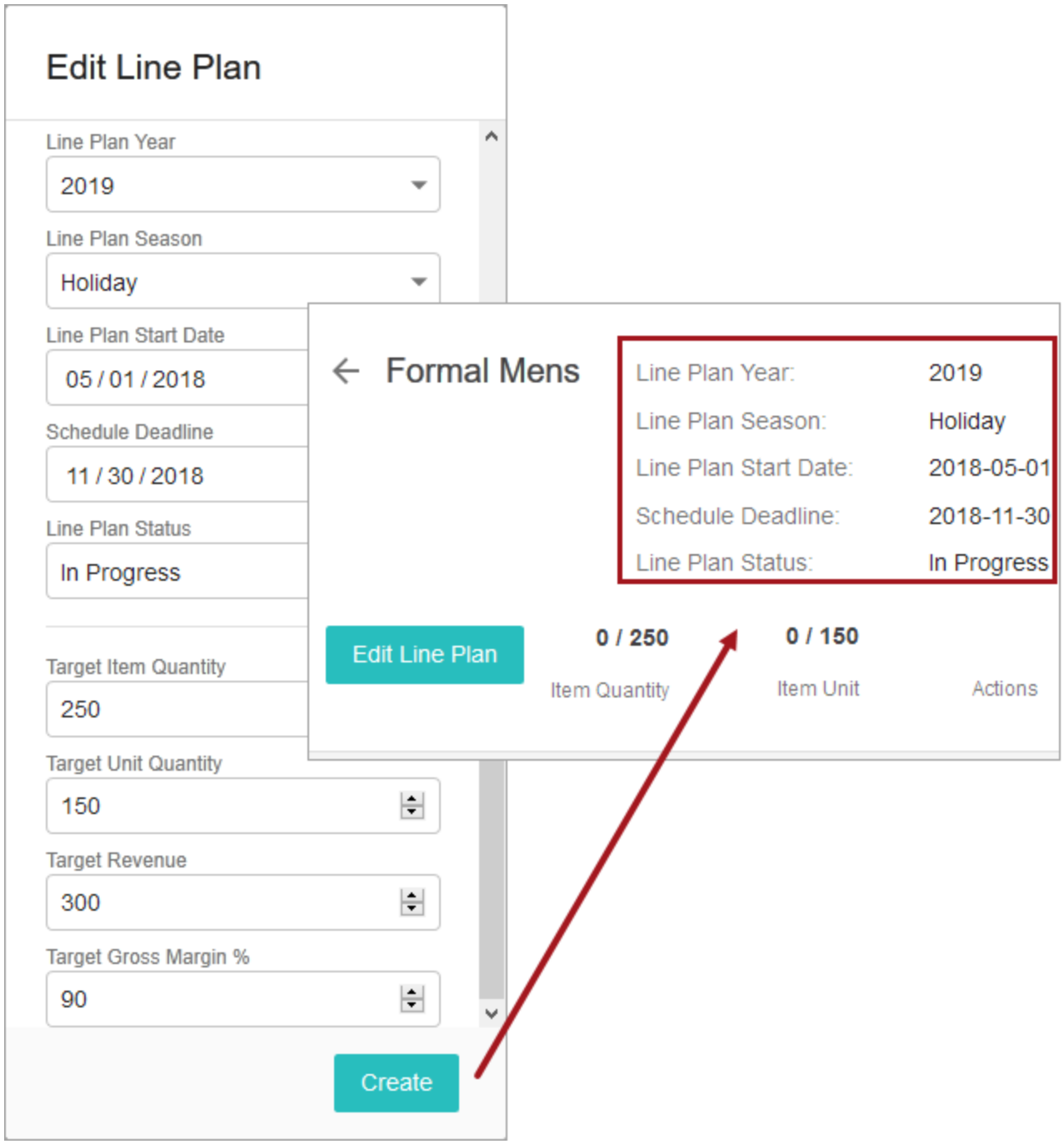
It is imperative that the ID for the line plan approval attribute is entered in correctly to the uploaded PLM configuration file. If it does not match, line plan approvals will not work properly in Web UI.

```
"category": {
    "approvedAttributeId": "PLMLinePlanCategoryApproved",
    "scheduleCategoryReferenceId": "PLMLinePlanCateogry1ToScheduleCategory1'
},
```

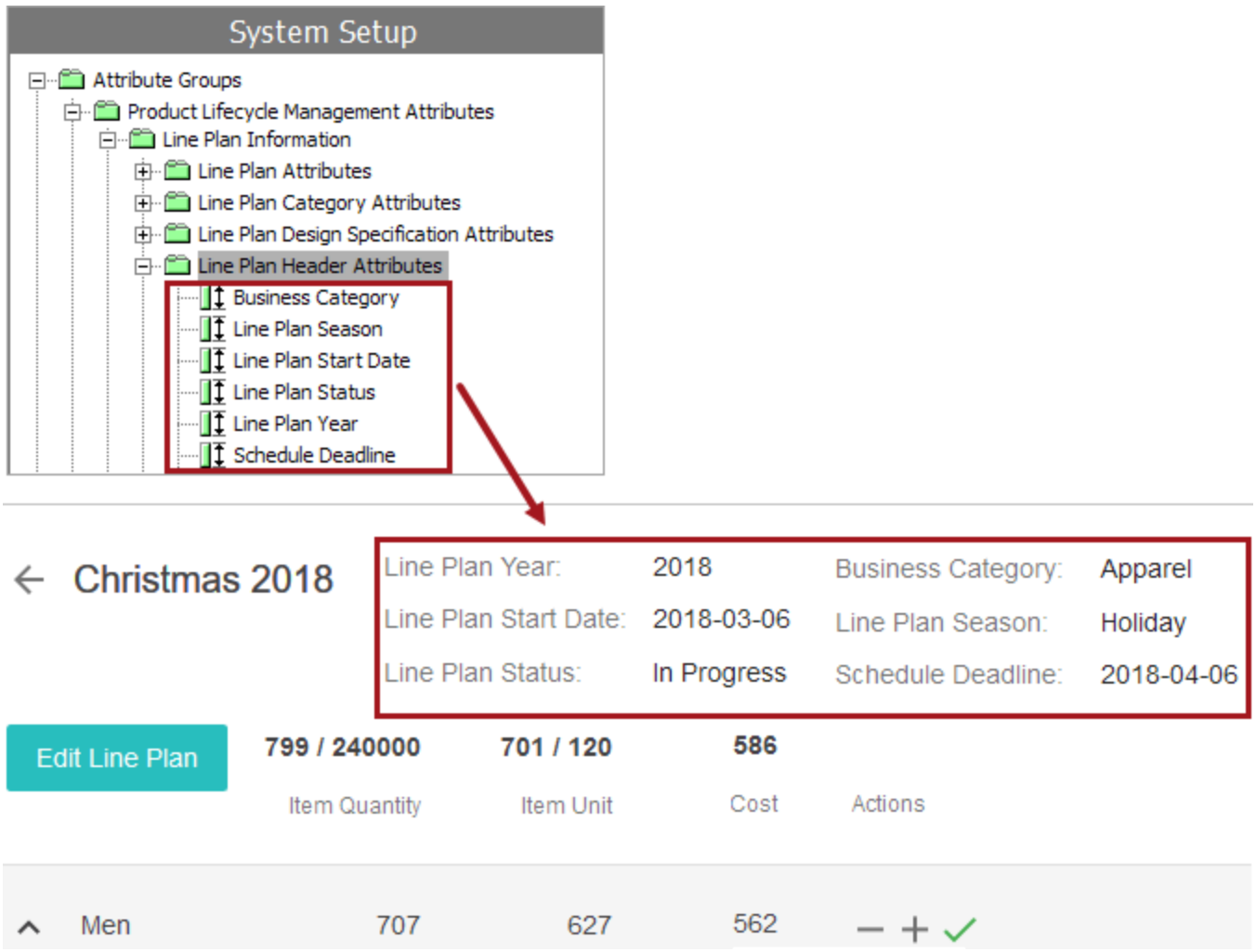
Note: Talk to your implementation team to make sure that the correct attribute ID is used in the uploaded PLM configuration file.

Line Plan Page Headers

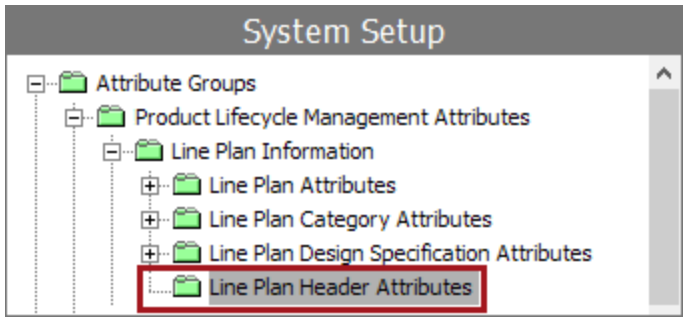
In Web UI, the line plan page headers are attributes that provide extra information about the currently viewed line plan. These attribute values are typically filled out when the line plan is being created, and can be tweaked and edited until the line plan is approved.



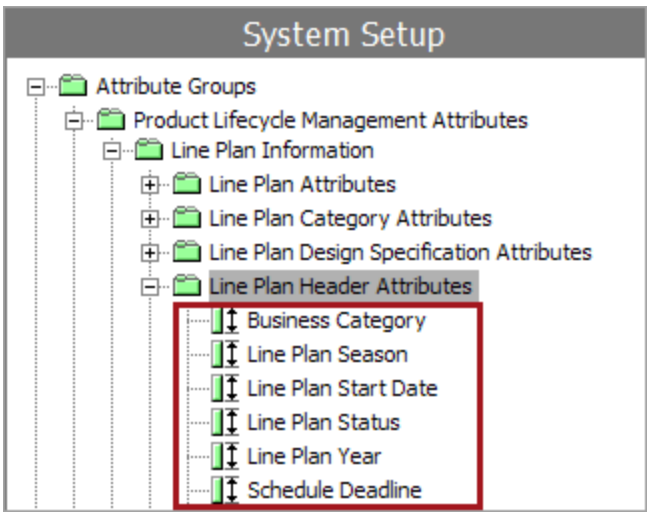
Proper validity setup in the workbench needs to take place in order for the correct attributes to appear on the line plan page header in Web UI.



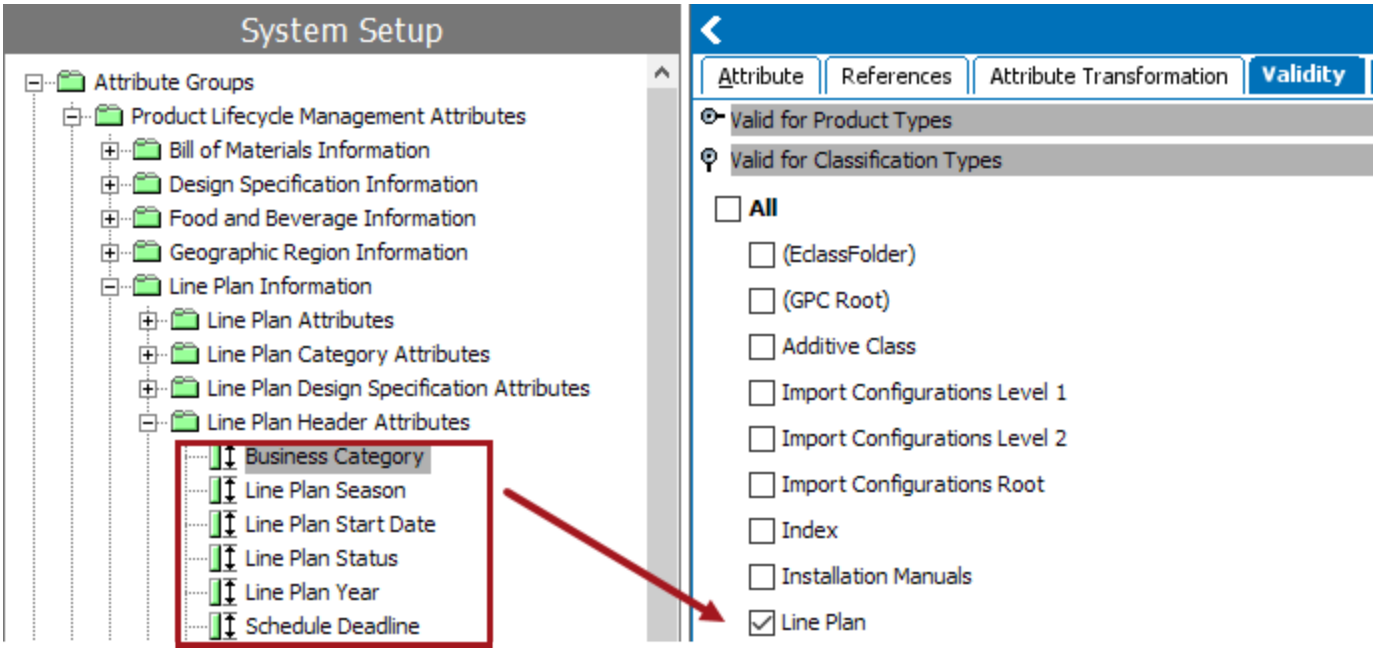
1. In System Setup, create a **PLMLinePlanHeaderAttributes** group to hold all line plan header attributes.



2. Create any children attributes needed for the line plan header in this group. For more on how to create attributes, see the section on **Attributes** in the **System Setup / Super User Guide** documentation.



3. Make the validity for these attributes valid for the object type that represents line plans. In this example, Line Plan is the needed validity to ensure that these attributes display correctly in Web UI.



4. Make sure that the proper attribute group ID is used in the uploaded PLM configuration file. If the IDs do not match, then the attribute group headers will not appear in Web UI correctly.

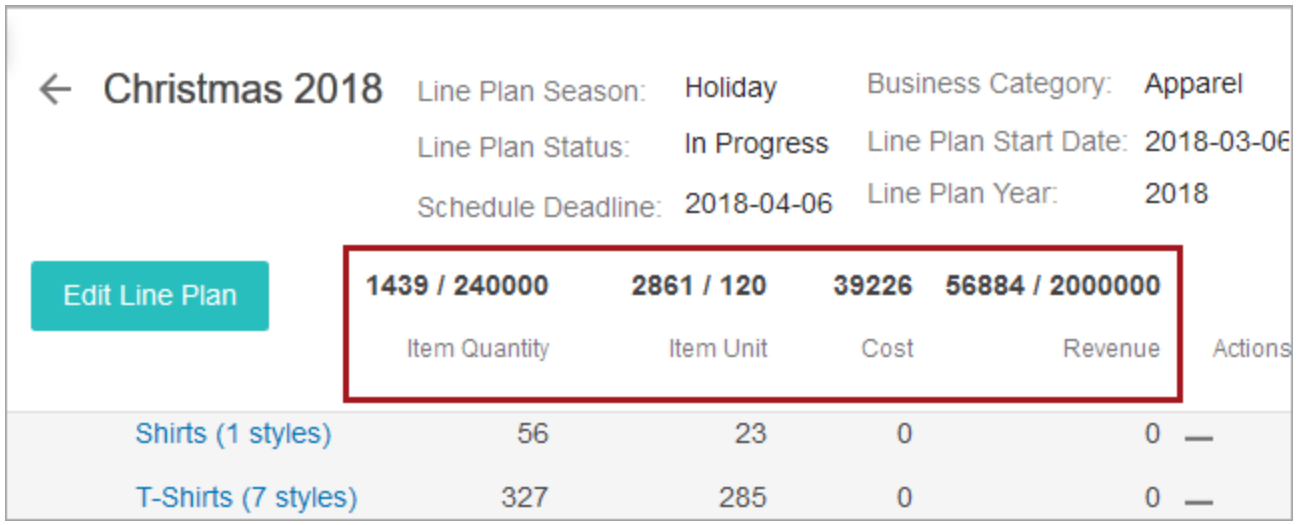
```
"lineplans": {
  "lineplan": {
      "headerAttributesGroupId": "PLMLinePlanHeaderAttributes"
  },
  "category": {
      "approvedAttributeId": "PLMLinePlanCategoryApproved",
      "scheduleCategoryReferenceId": "PLMLinePlanCateogry1ToScheduleCategory1'
```

Note: You may need to talk to your implementation team to ensure that the correct attribute group ID is used in the configuration file. Additionally, should any line plan page headers need to be changed, talk to your implementation team.

Line Plan Column Headers

Note: Attributes created for line plan column headers can be calculated attributes, regular attributes, or updated through business rules based on your business needs. For the examples that follow, calculated attributes and regular attributes are used.

Column headers for line plans are a group of calculated attributes that aid line plan managers in deciding if a particular line plan should be approved and brought to market based on the values in these fields.

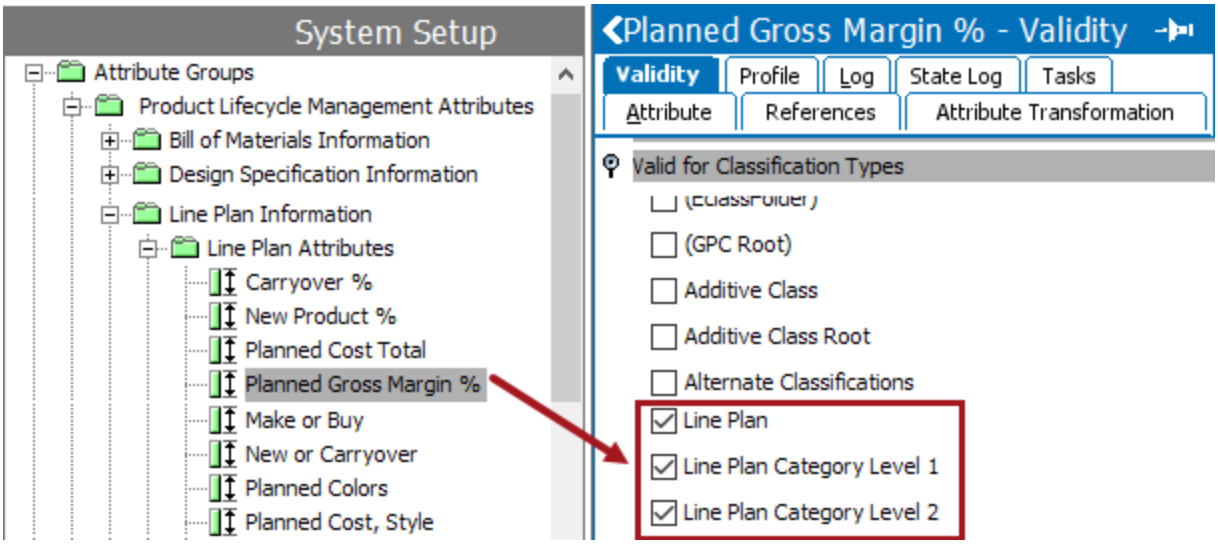


To create column header calculated attributes:

1. Go to System Setup > Attribute Groups > create an attribute group to hold line plan column header attributes.
2. In this folder, create the necessary line plan column header calculated attributes.

Note: Some calculated attributes may be uploaded via a PLM data package, and may need to be tweaked for your business needs. If calculated attributes need to be created, talk to your implementation team.

3. Make each calculated attribute valid for all levels of the line plan.

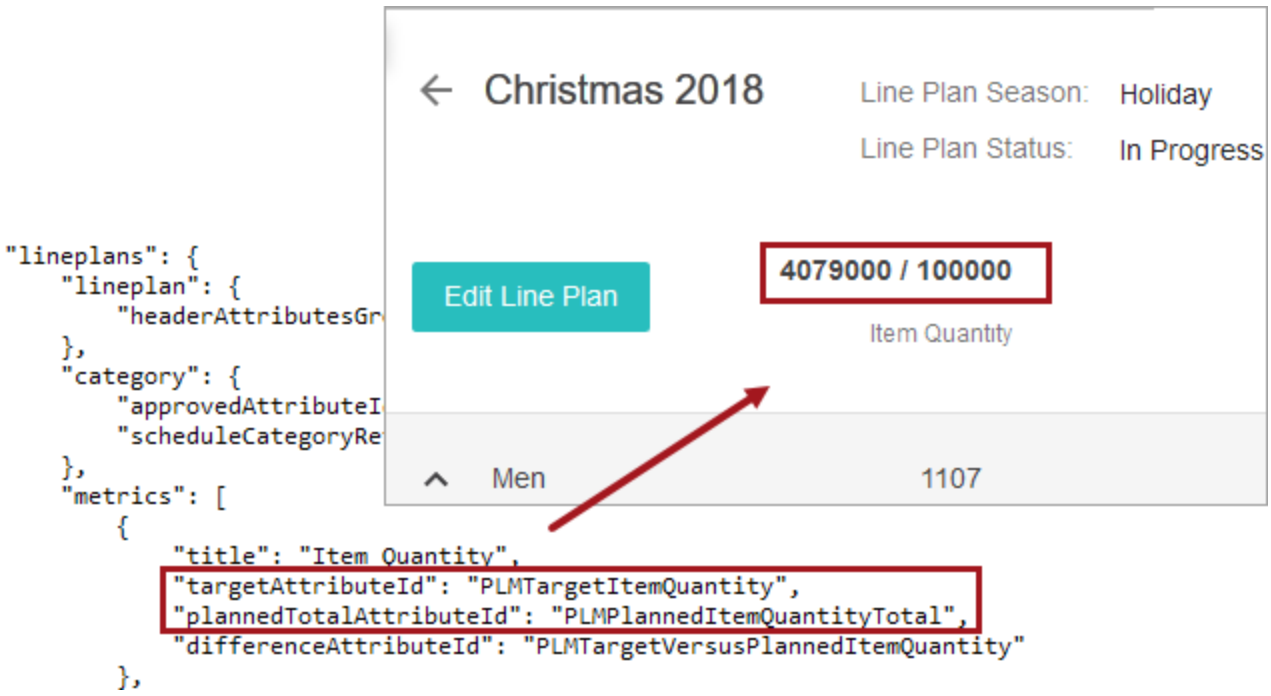


When all needed calculated attributes are added, check that the IDs used for the calculated attributes match those in the uploaded PLM configuration file. Each calculated attribute is grouped in the PLM configuration file to make a complete line plan column header. If the IDs are not entered correctly in the PLM configuration file, the line plan column header(s) will not display or work properly.

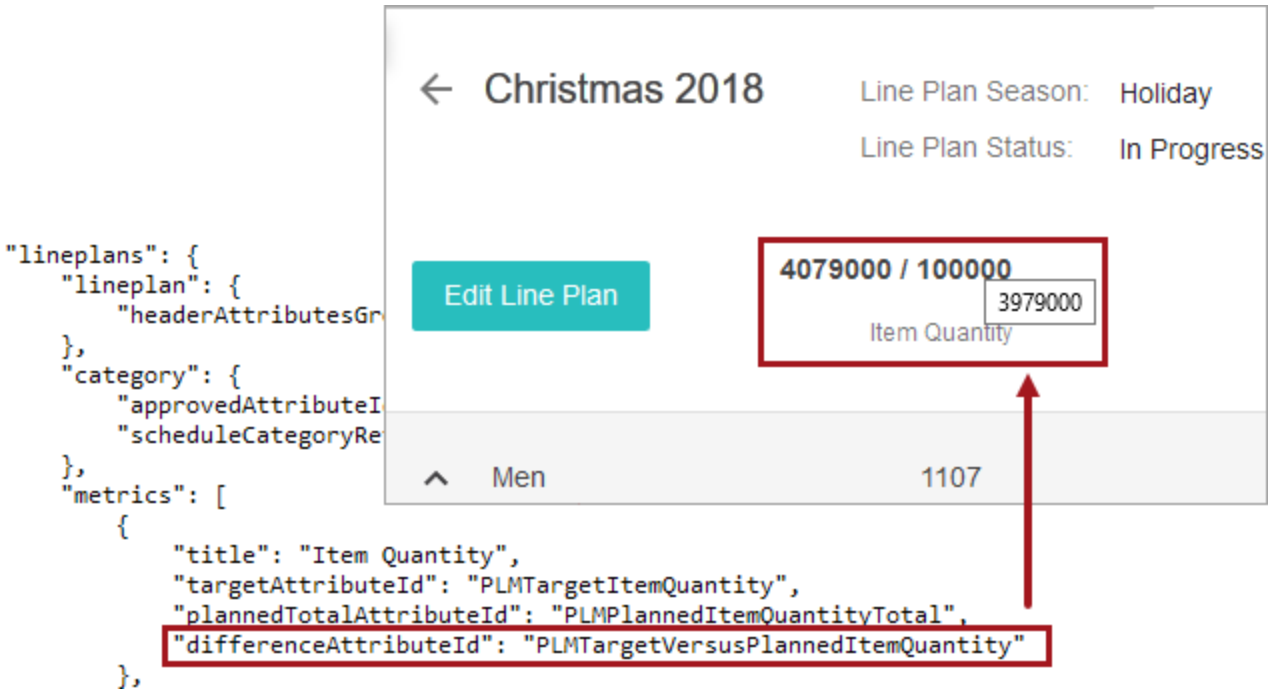
Note: Some calculated attributes may be uploaded via a PLM data package, and may need to be tweaked for your business needs. Talk to your implementation team should you need different calculated attributes for the line plan column headers, or if the line plan column headers are not working properly. For more on how to create calculated attributes see the **Calculated Attributes** topic in the **Attributes** section of the **System Setup / Super User Guide** documentation.

Titles for line plan column headers are only able to be set in the uploaded PLM configuration file. In the example below, the Item Quantity line plan column header is represented by the following calculated attributes:

- PLMPlannedItemQuantityTotal - a value of 4079000
- PLMTargetItemQuantity- a value of 100000



- PLMTargetVersusPlannedItemQuantity - when hovered over, a value of 3979000



In addition to calculated attributes being used in line plan column headers, they are also used in the design specification documents. See below for more on calculated attributes used in design specifications.

Attributes for Design Specifications

Note: Attributes created for design specifications can be calculated attributes, regular attributes, or updated through business rules based on your business needs. For the examples that follow, calculated attributes and regular attributes are used.

Design specifications are created by filling in various attributes and calculated attributes that are valid for the design specification object type.

Title	Planned Item Units	Planned Cost, Style	Planned Item Revenue, Each	Planned Revenue, Style	Planned Item Gross Margin %
Style 115952	105000 fx	3045000 fx	46.00	4830000 fx	36.96 fx

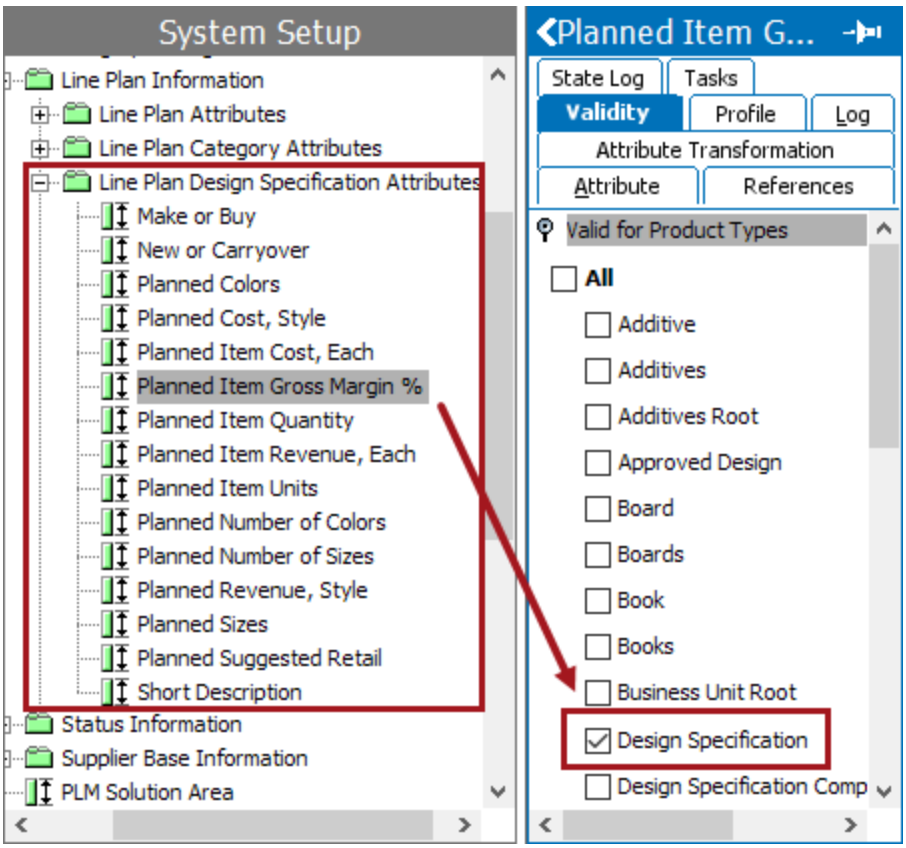
The values input into the design specification attributes and calculated attributes then generate information in the line plan column headers (see section above for more information).

To create design specification attributes, follow the directions below:

1. In workbench, navigate to System Setup and create an attribute group to hold design specification attributes.
2. Create any attributes or calculated attributes needed for design specifications.

Note: Some design specification attributes and calculated attributes may be uploaded via a PLM data package, and may need to be tweaked for company needs. If additional attributes need to be created, talk to your implementation team.

3. Make all of these attributes and calculated attributes valid for the design specification object type. In this example, it is called 'Design Specification.'



Once setup is finished in workbench for design specifications, setup in Web UI can take place. See the **Adding a Classification Screen** topic in this documentation.

For more on how to create attributes, calculated attributes, and set validity, see the **Attributes** topic in the **System Setup / Super User Guide** documentation.

Line Plan Setup in Web UI

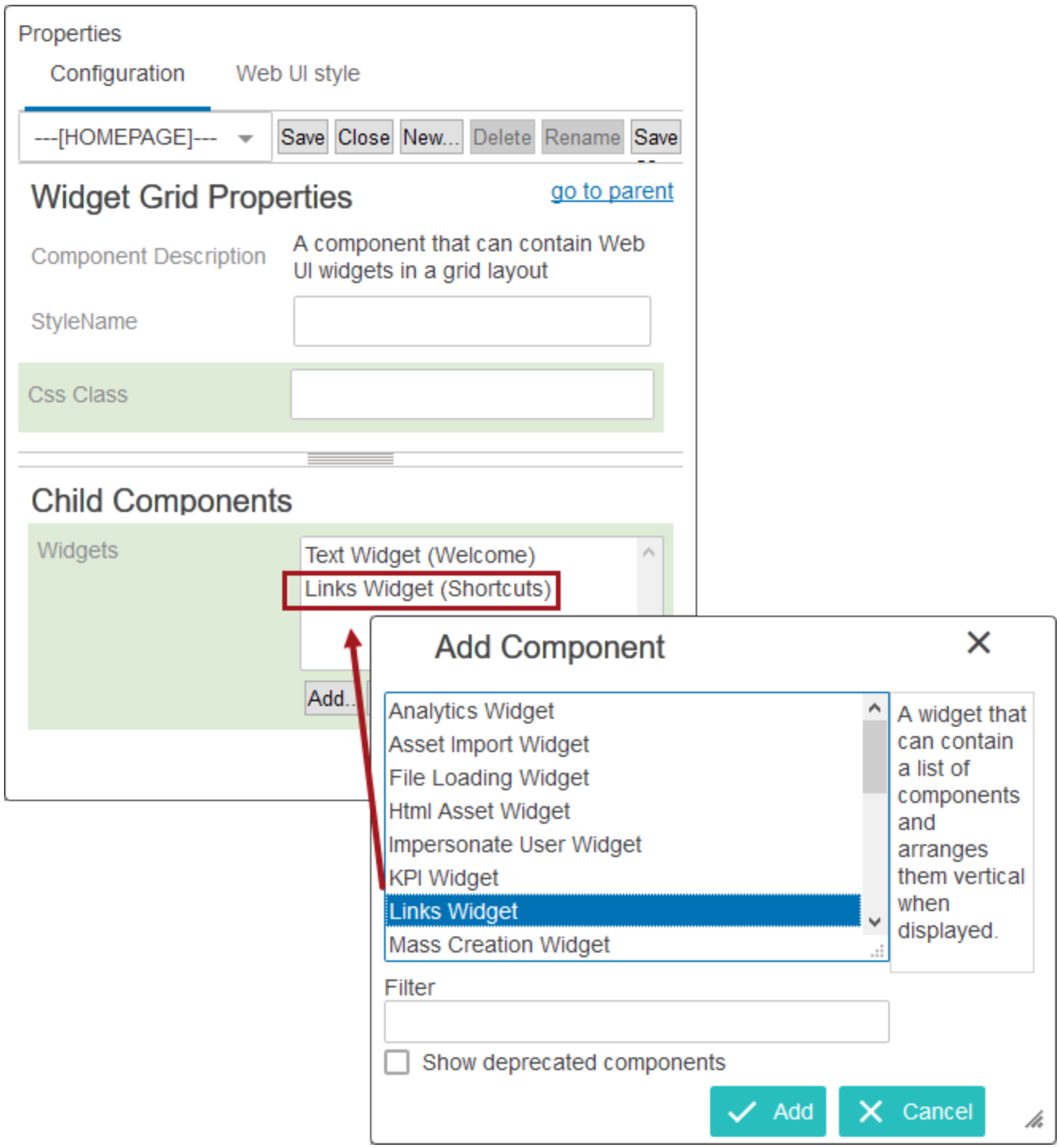
Users interact with line plans only in the Web UI, thus it is important to have proper configuration so that the user has a seamless experience. There are a number of configurations and screens that need to be established for users to create, interact with, maintain, and delete line plans. They are the following:

- Adding Line Plans to a Links Widget
- Adding a Children Of Types Screen
- Adding a PLM Line Plan Screen
- Adding a Classification Screen

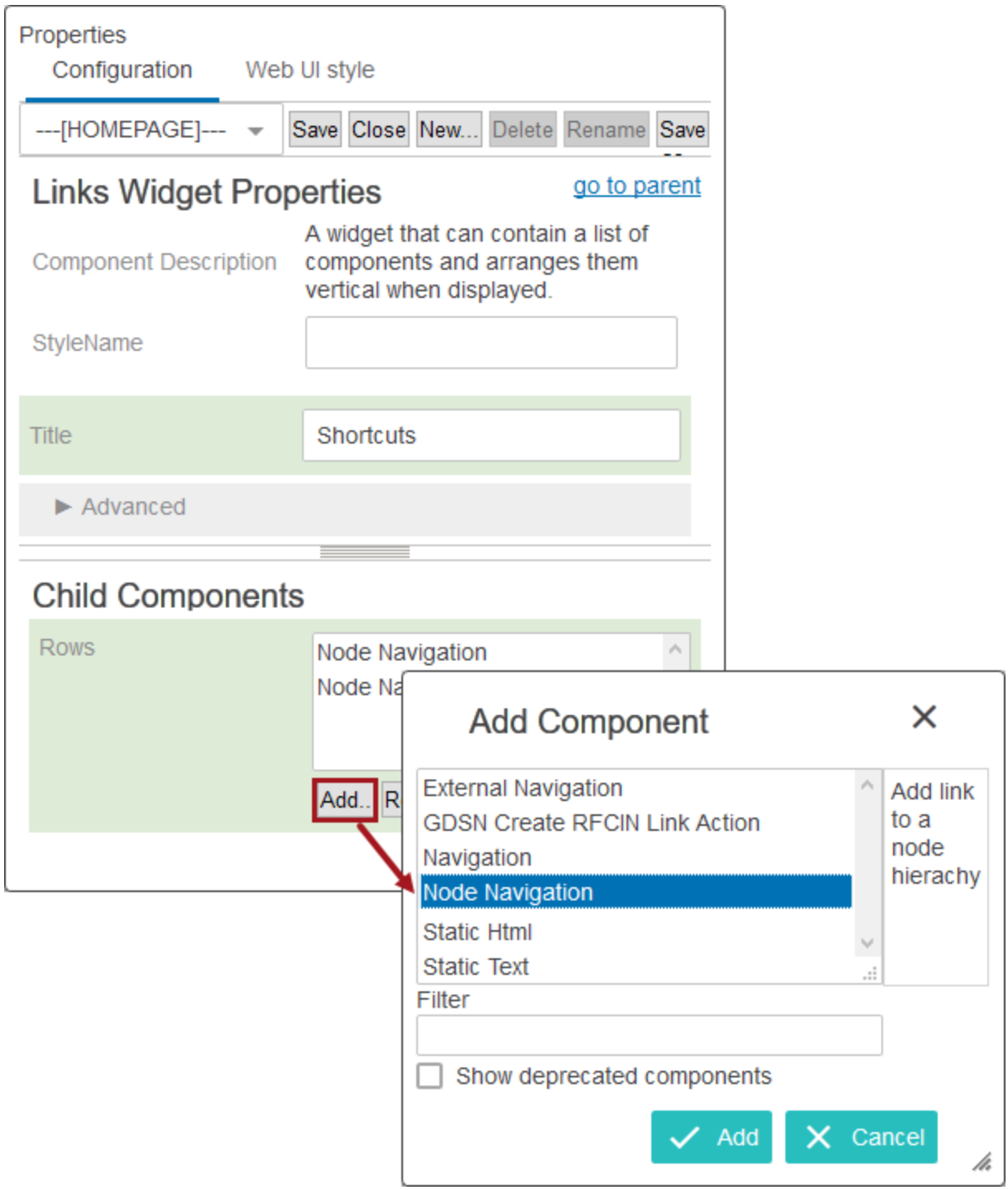
Adding Line Plans to a Links Widget

It is possible to add a link to a Links Widget for easy user access to line plans. The steps below outline how to add the link. For more information on Links Widgets, see the **Homepage Widgets** topic in the **Web User Interfaces / Web UI Setup and User Guide** documentation.

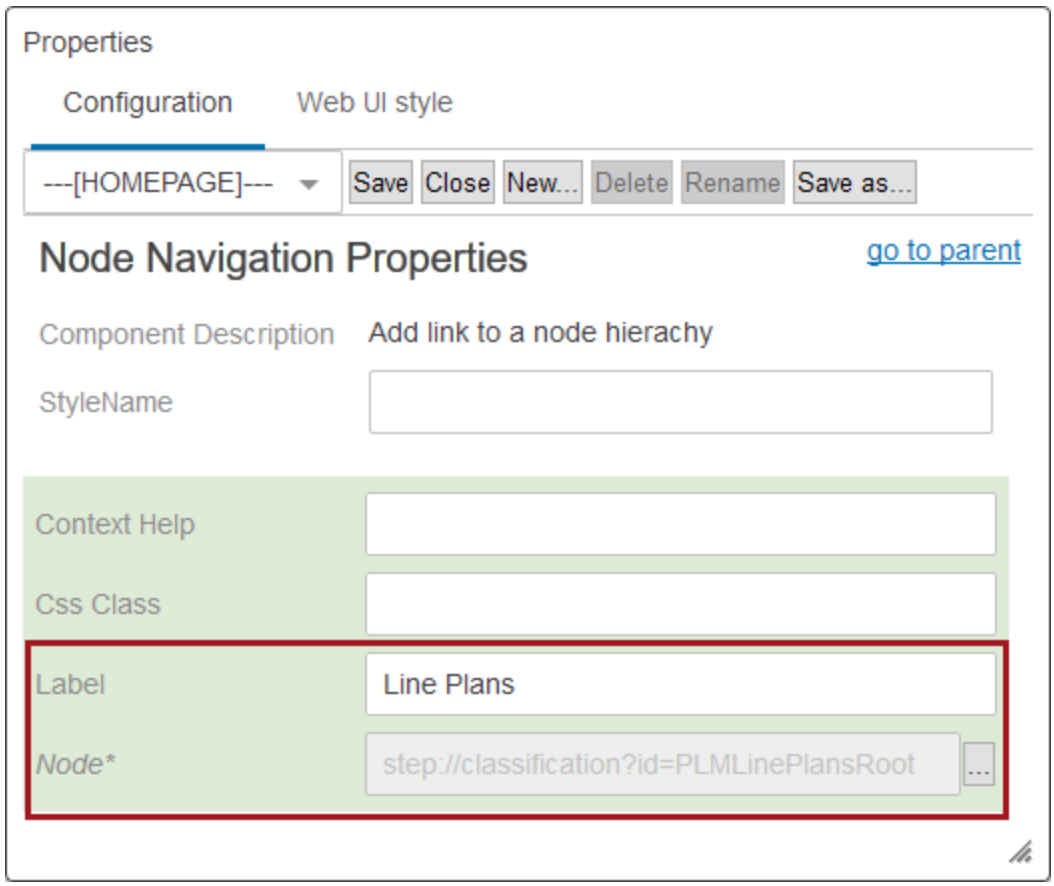
1. From the Web UI Designer, navigate to --[HOMEPAGE]-- > Widget Grid > Child Components. Under Child Components, add a Links Widget.



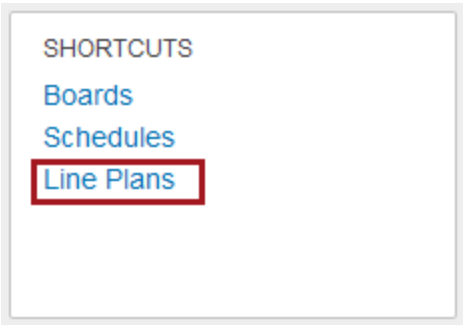
2. On the Links Widget Properties under Child Components, add a Node Navigation component.



3. Double click on the newly added Node Navigation component to open the Node Navigation Properties. Enter in the desired line plan label, and select the node that all line plans will be stored under. In this case, PLMLinePlansRoot is selected to be the parent node when line plans are created.



4. When finished configuring the link, click Save and close the designer. The link will appear in the Link Widget on the Web UI homepage.

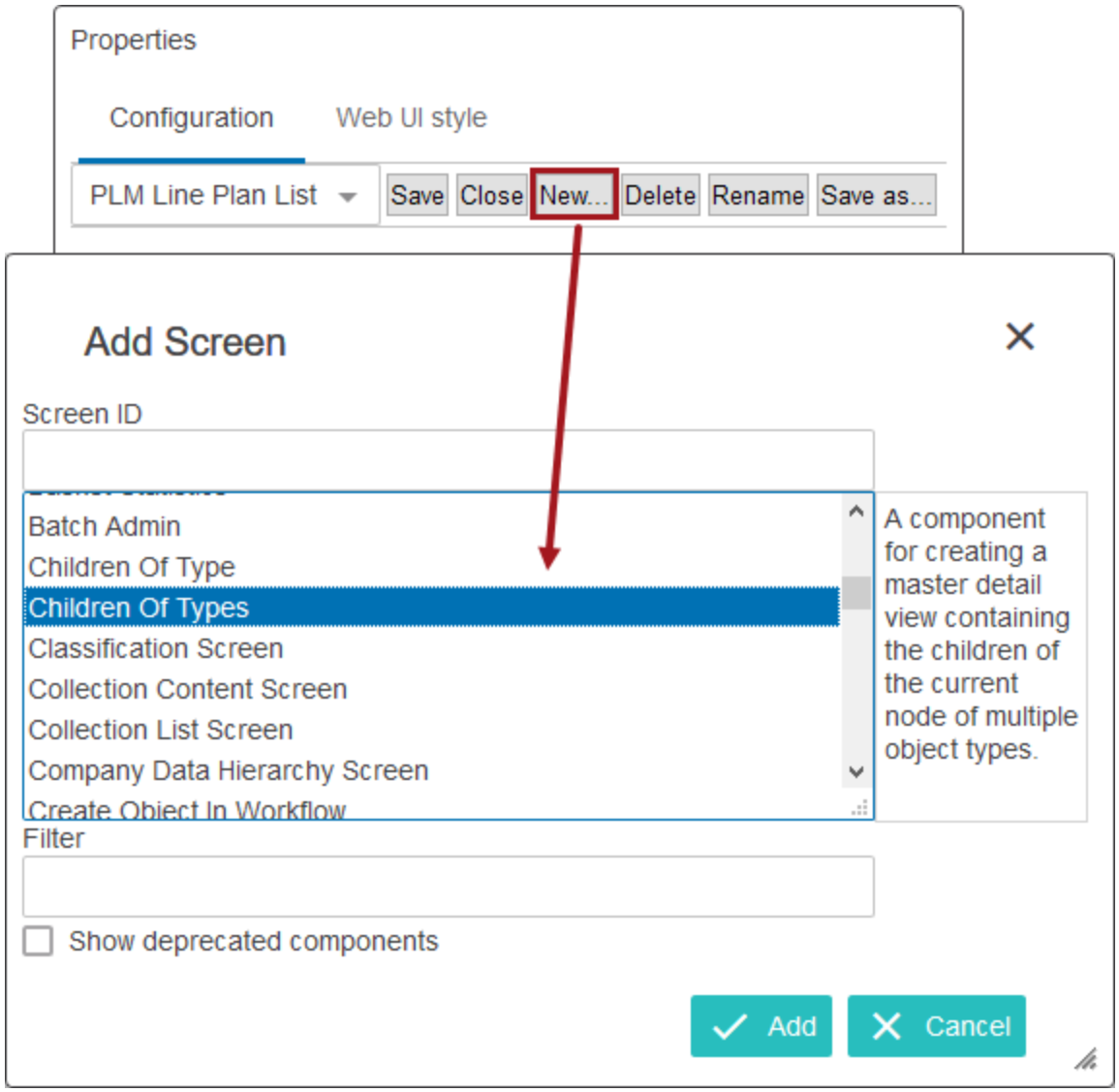


After the line plans link has been created, the Children of Types properties screen, which is the landing page for all line plans in Web UI, needs to be created. See the **Adding a Children Of Types Screen** topic.

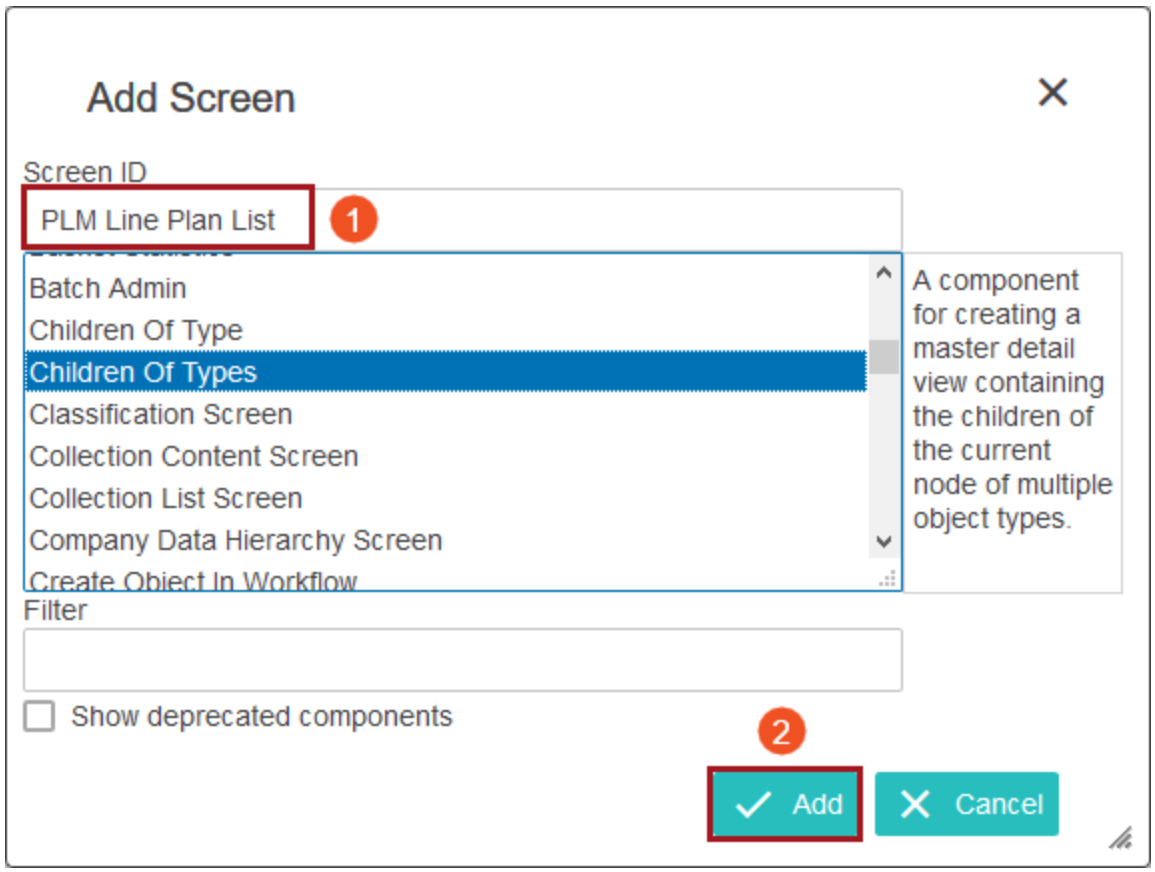
Adding a Children Of Types Screen

The Children of Types screen is the landing page for all line plans in Web UI. From this page, users are able to select which line plan they need to work on. To configure this screen:

1. From the designer, select New... > **Children of Types** screen.

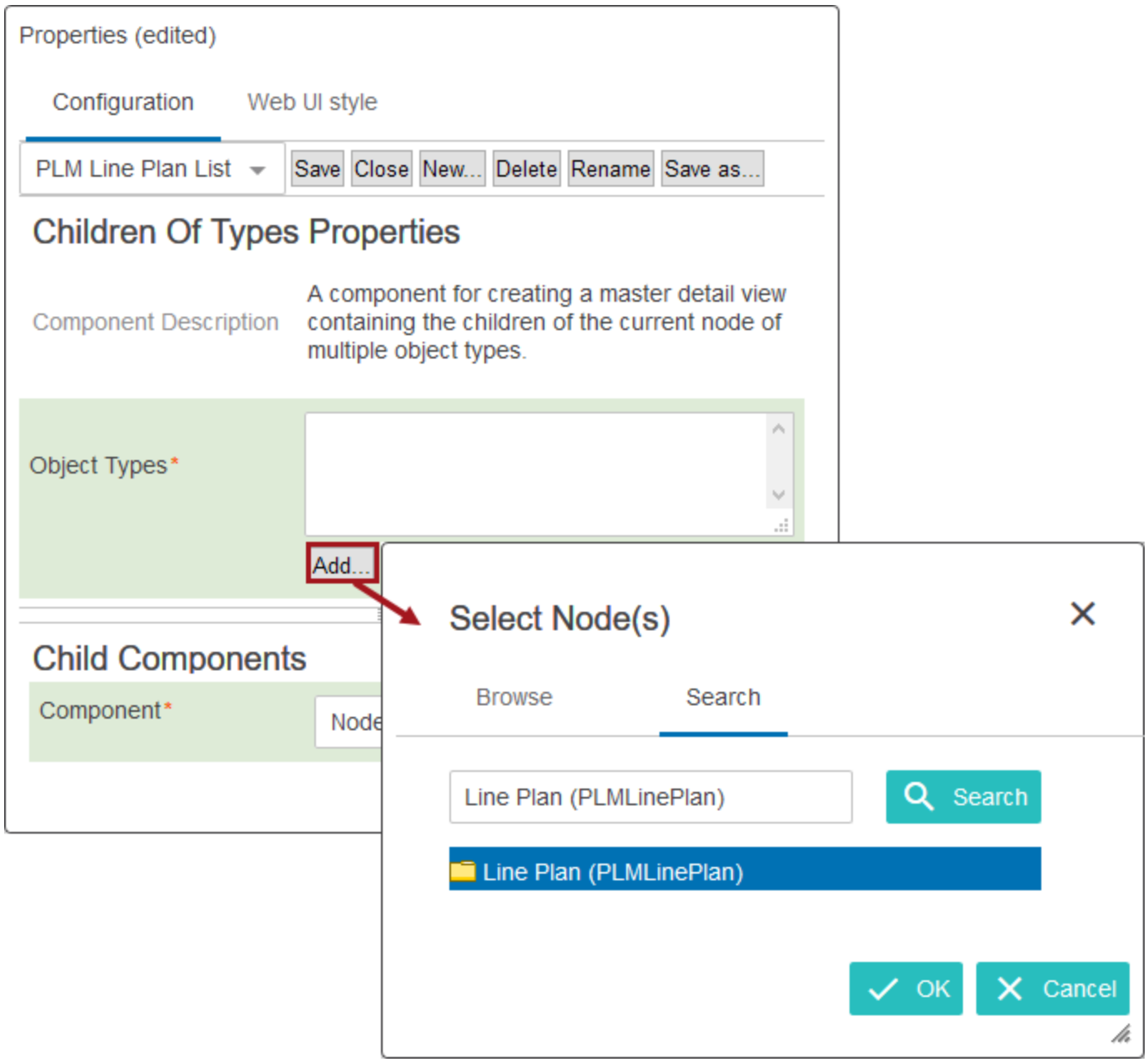


2. Enter in a Screen ID, and click **Add**. *Specify a screen ID that will be easily identifiable when setting up screen mappings later in this process.*

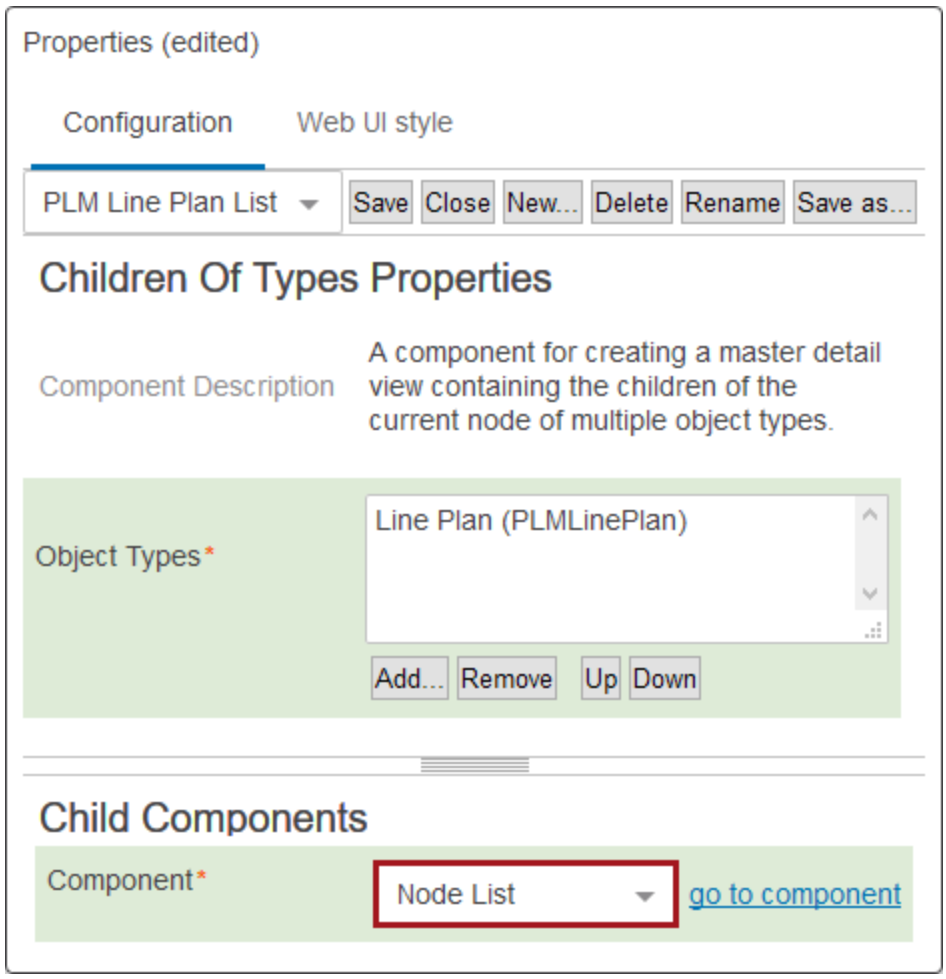


3. On Children of Types Properties, click on the **Add** button under the **Object Types** field to select the appropriate PLMLinePlan node.

Note: Depending on your configuration in workbench, you may have a different ID than the example. Check with your administrator or implementation team.



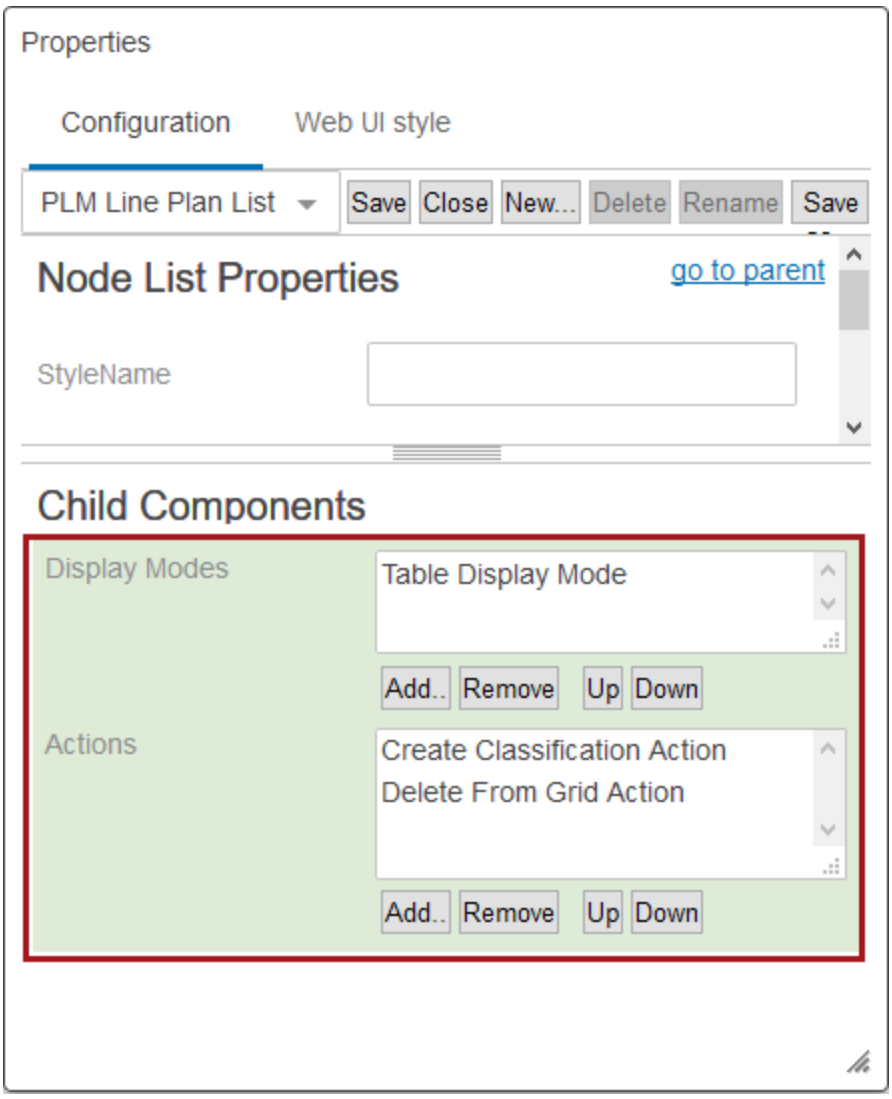
4. In the Components field under Child Components, add a Node List.



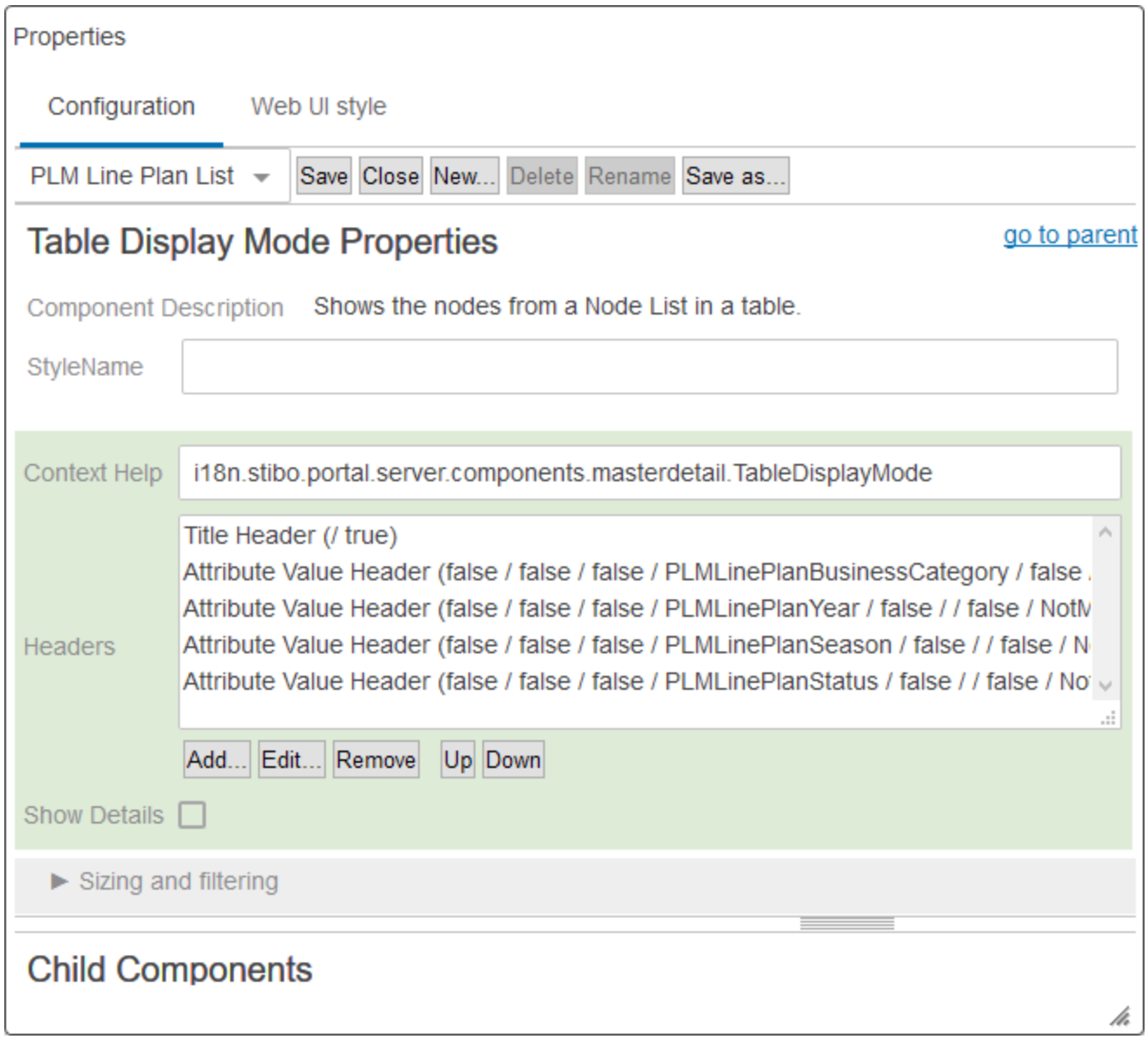
5. Click on the 'go to component' next to the Node List to open the Node List Properties.
   - For the Display Modes parameter, add a Table Display Mode.
   - In the Actions field, add the Create Classification Action and the Delete From Grid Action.

Note: The Create Classification Action will have the default name of 'Create Classification.' It is considered recommended practice to edit this label so that it is easier for users to understand that clicking this action will create a new line plan.

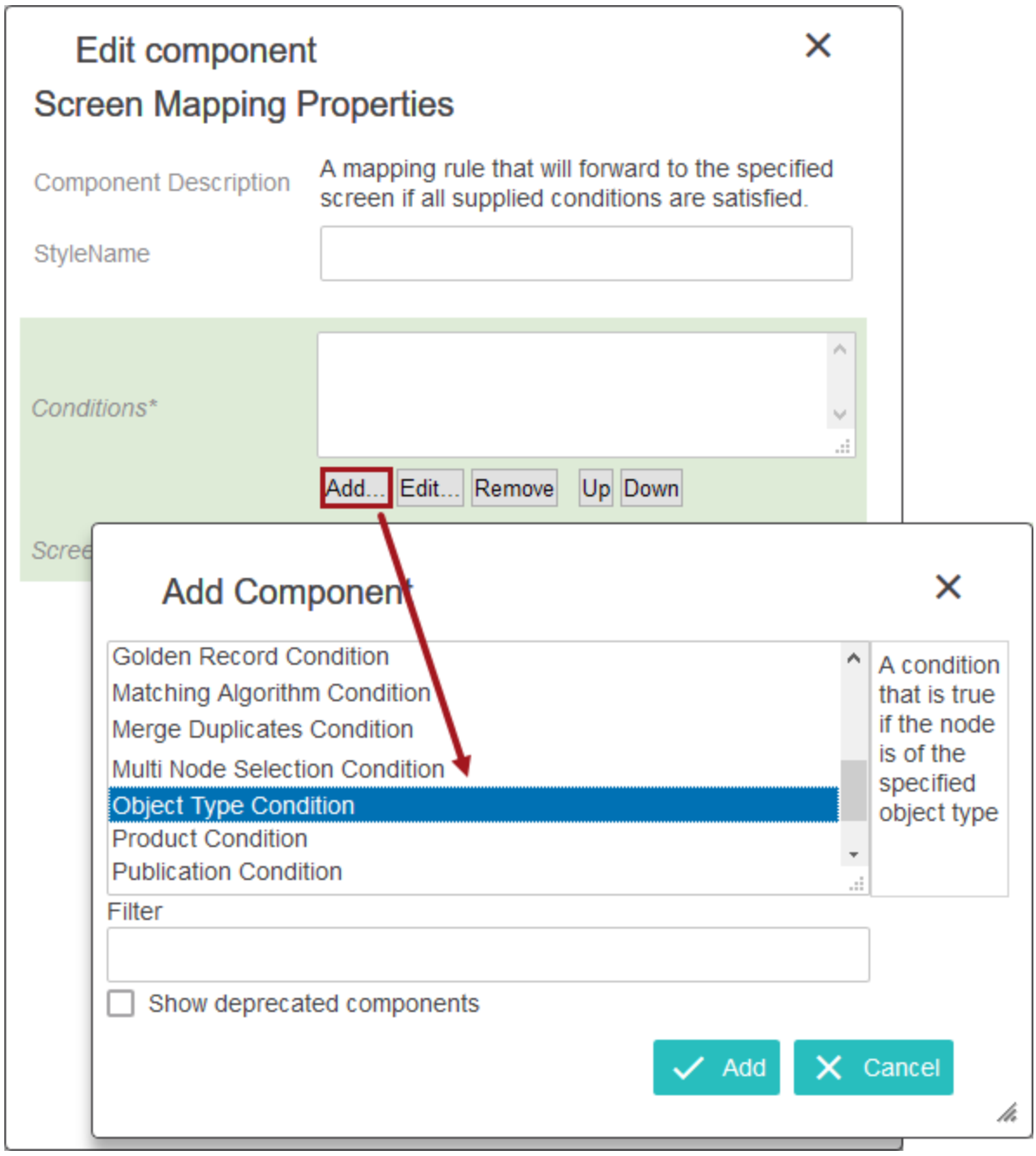
For more on how to configure action buttons, see the **Action Buttons** topic in the **Web User Interfaces / Web UI Setup and User Guide** documentation.



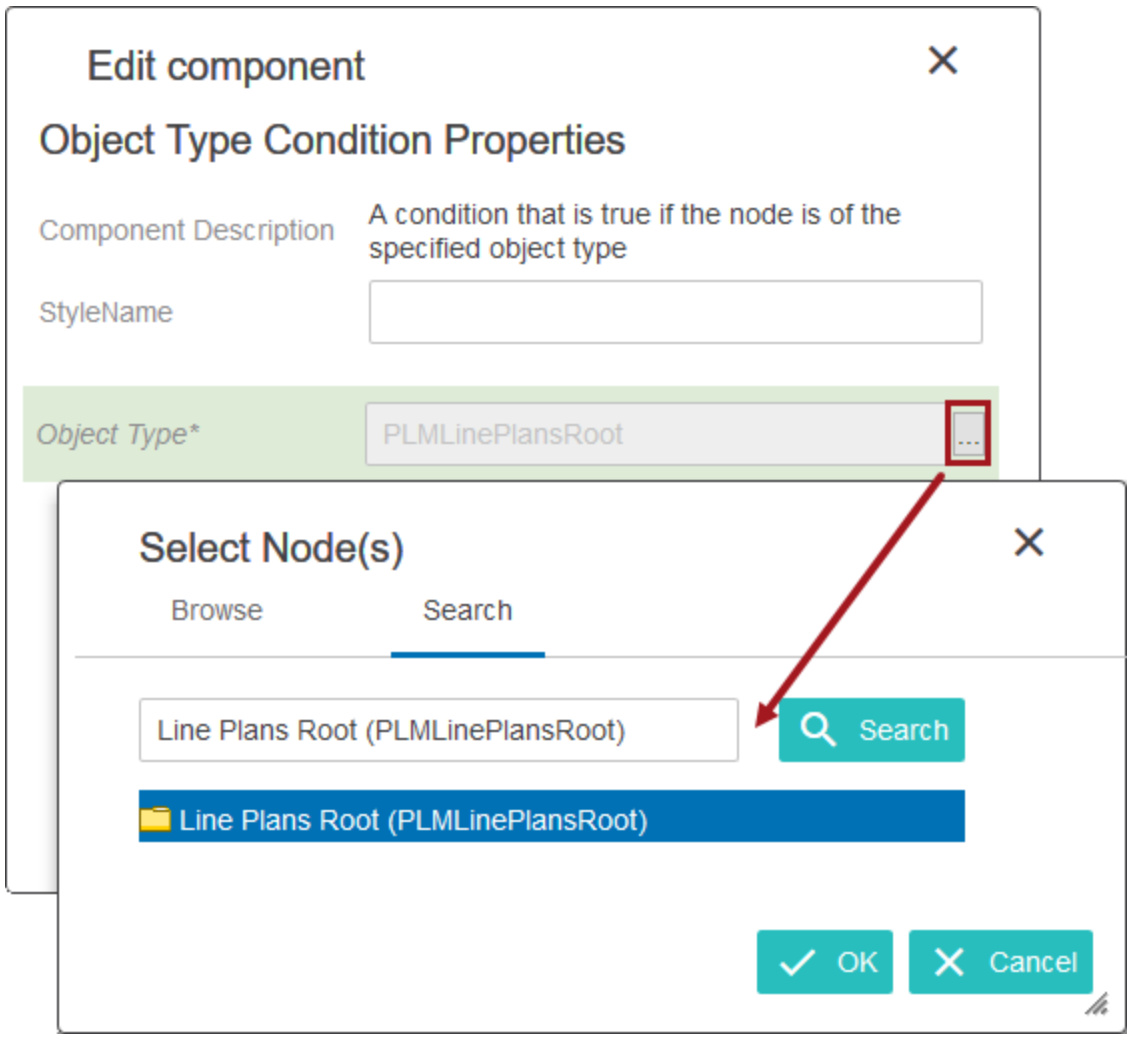
6. Double click on the Table Display Mode to navigate to the Table Display Mode Properties. On Table Display Mode Properties, add any needed Headers, such as Attribute Value Headers or Attribute Value Group Headers, for the line plan. In this example, a Title Header and a number of Attribute Value Headers have been added.



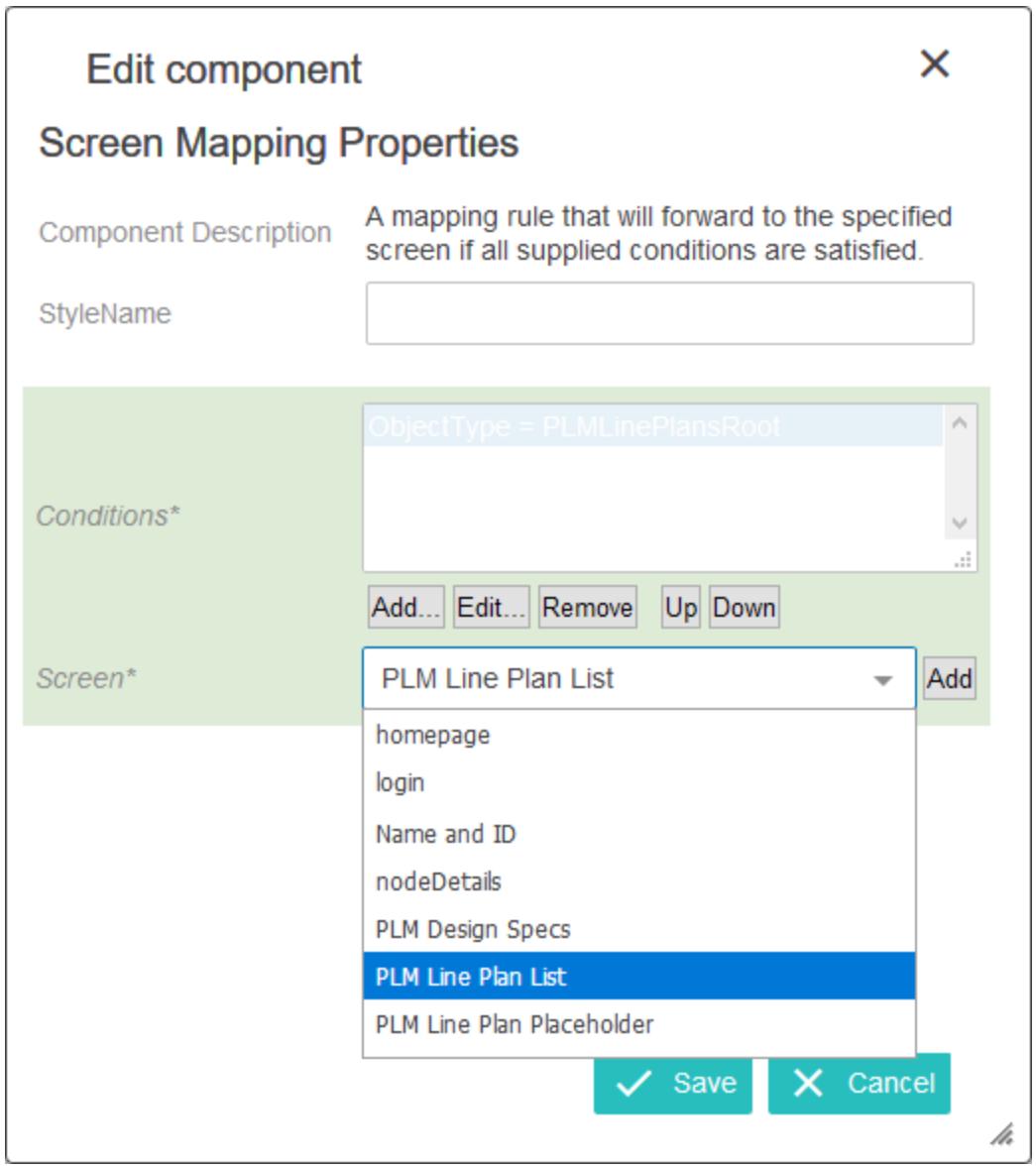
7. When all needed headers are added and configured, click Save.
8. To use the screen, it needs to be mapped. Select --[MAIN]-- from the designer screen dropdown. Click Add in the Mappings field to bring up the Screen Mapping Properties.
9. Click Add under the Conditions field, and select the **Object Type Condition** component.



10. On the Object Type Condition Properties, click the ellipsis button (...) to specify the **Object Type**. In this example, it is PLMLinePlansRoot. Click **OK** when finished.

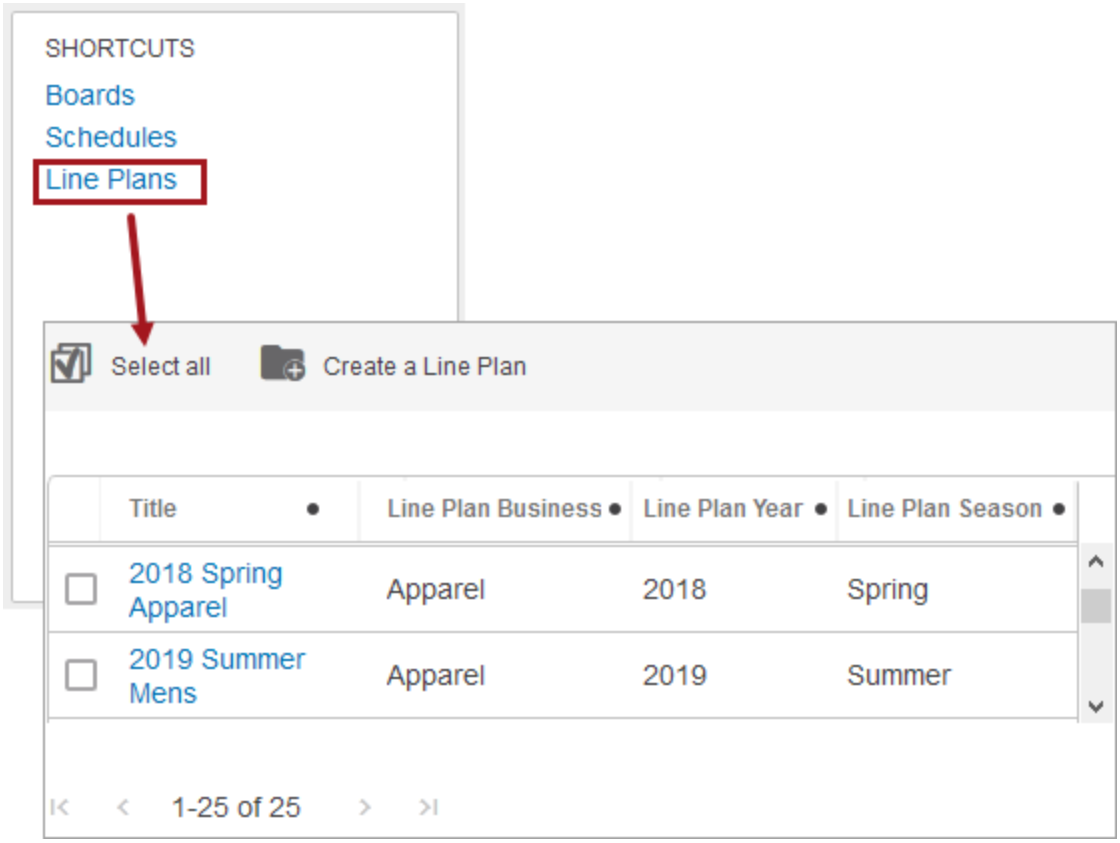


11. In the Screen dropdown, choose the Child of Types screen that you created in step 2 as the landing page to display the line plans. Click **Save**.



12. Click **Save** in the designer window, and **Close** when finished.

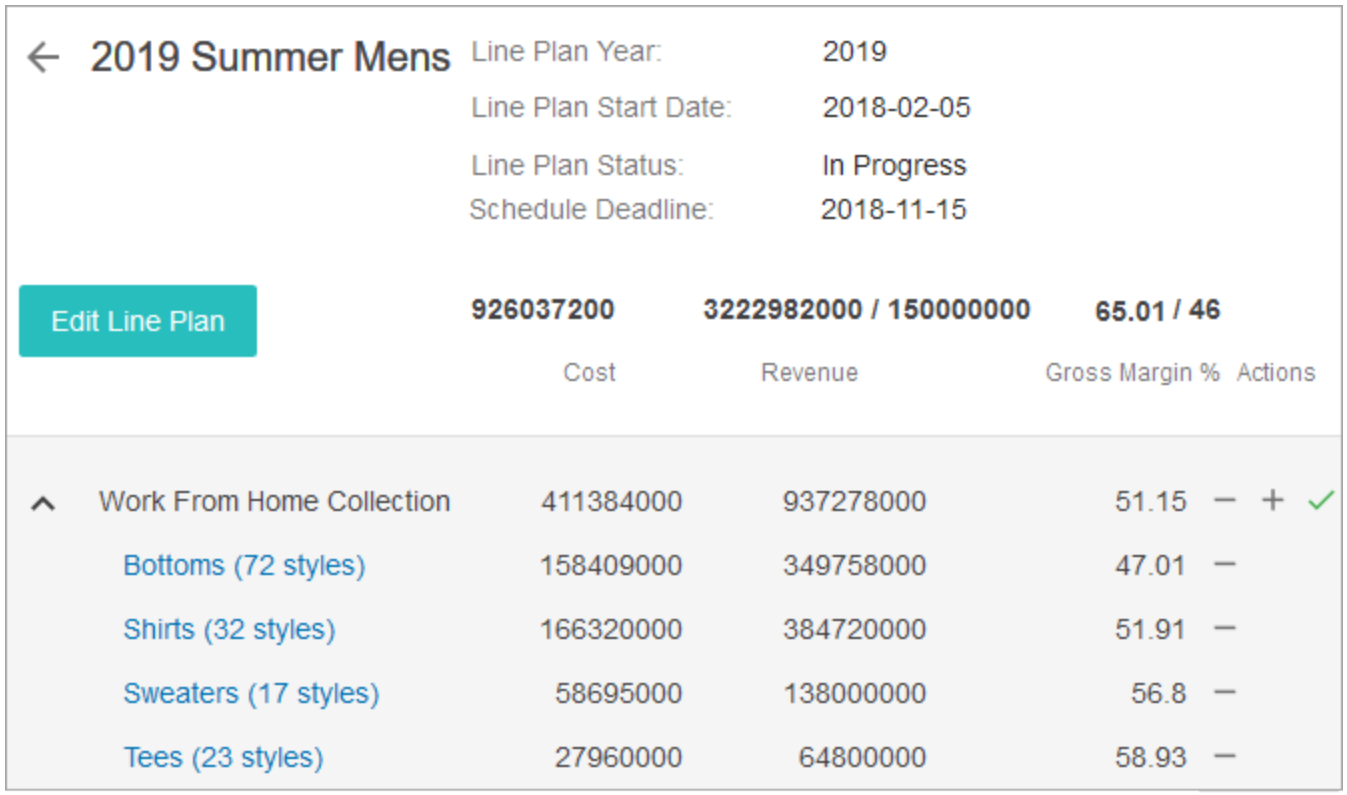
    If the newly created screen is mapped correctly, clicking the Line Plan quick link will direct the user to the Children of Types screen. For more on mapping screens, see the **Mappings** topic in **Main Properties Overview** section in the **Web User Interfaces / Web UI Setup and User Guide** documentation.



Once this screen is configured, a PLM Line Plan screen needs to be configured, so that users are able to see and work with specific line plan data. For more on how to add this screen, see **Adding a PLM Line Plan Screen** in this documentation.

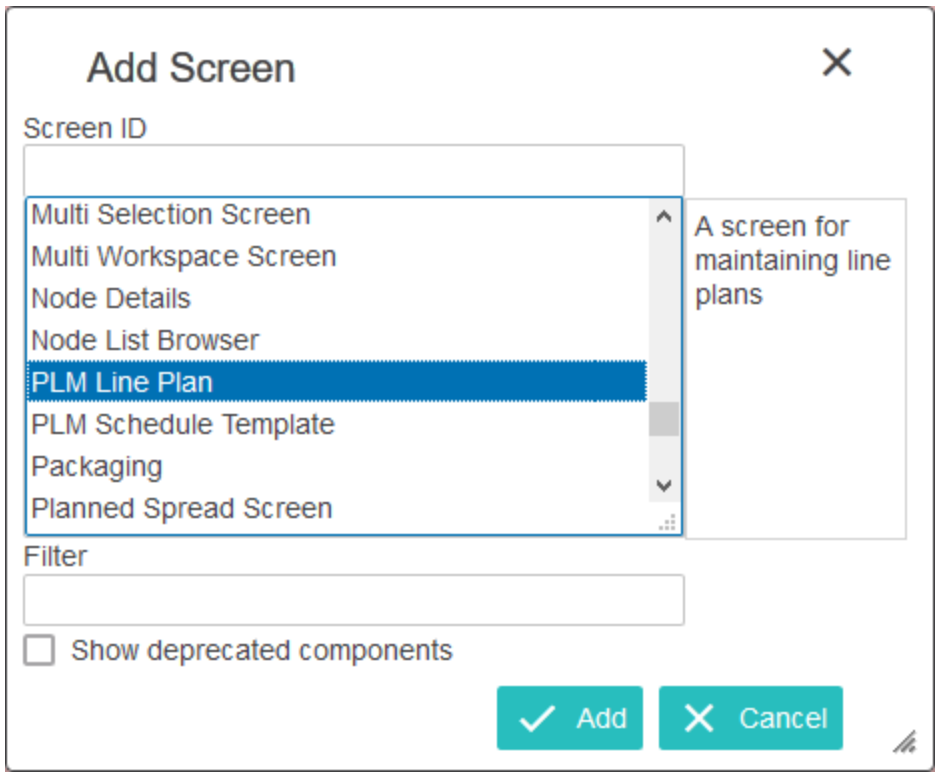
Adding a PLM Line Plan Screen

The PLM Line Plan screen is the screen that displays after an individual line plan has been selected.

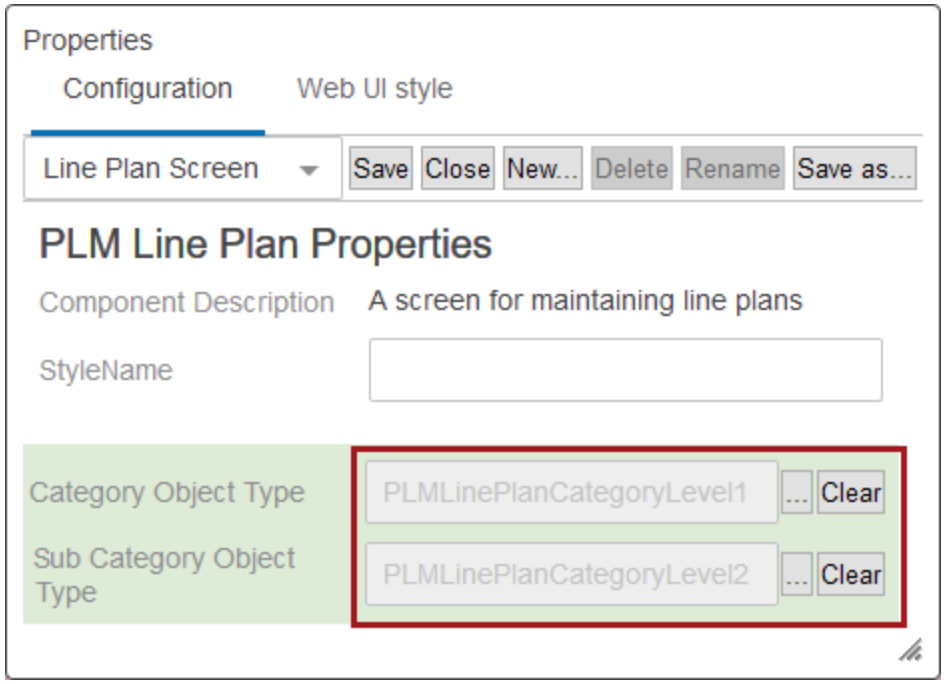


From this detailed overview of the line plan, the user can add, edit, delete, and maintain line plans according to their user privileges. To add this screen:

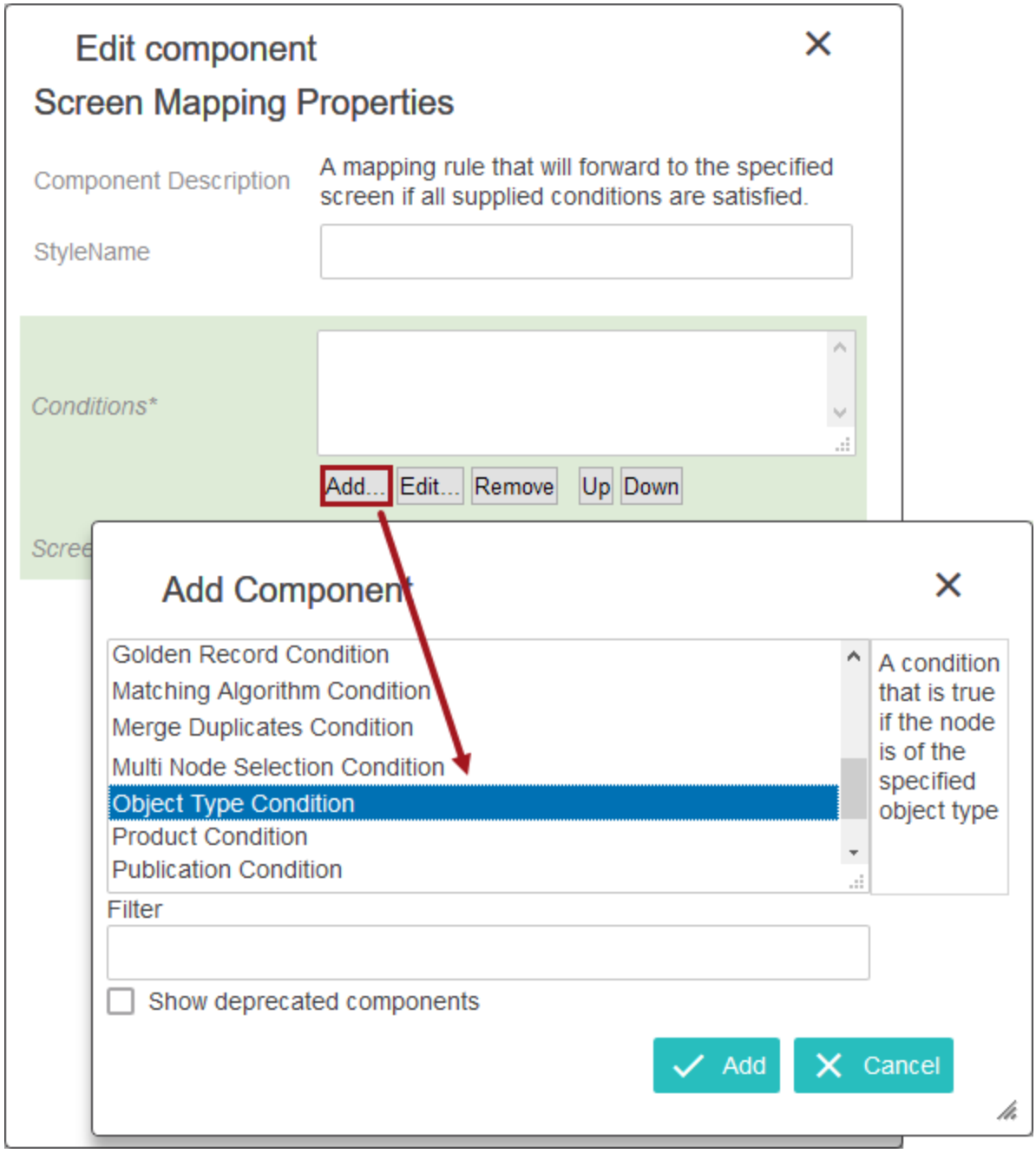
1. Open the designer, click on **New** and add a **PLM Line Plan** screen. *Specify a screen ID that will be easily identifiable when setting up screen mappings later in this process.*



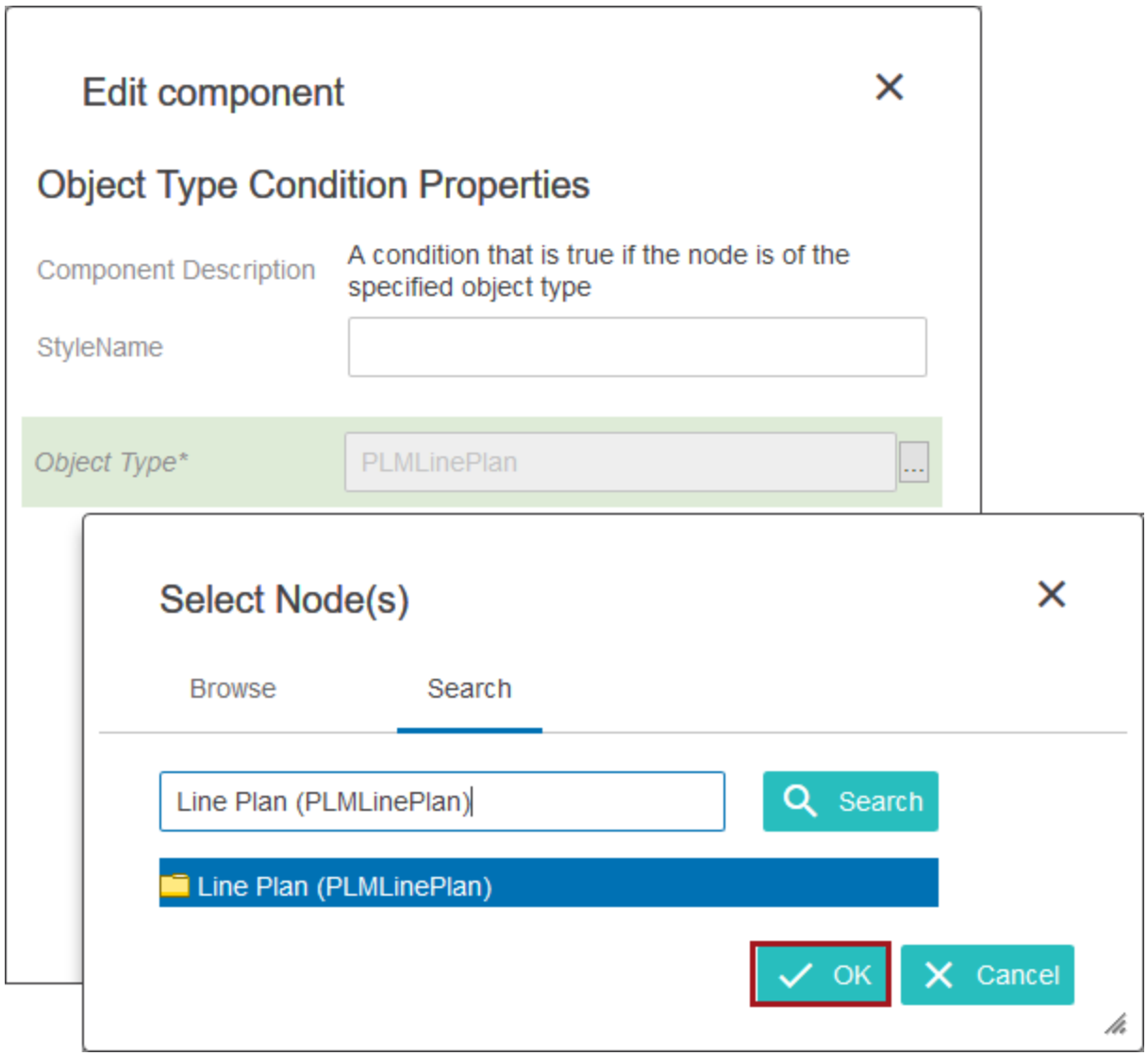
2. In the PLM Line Plan Properties, click the ellipsis button (...) next to each field to fill in both the **Category Object Type** and **Sub Category Object type** parameters. Add the first and second levels of the line plan to these fields. In this example, it is PLMLinePlanCategoryLevel1 and PLMLinePlanCategoryLevel2.



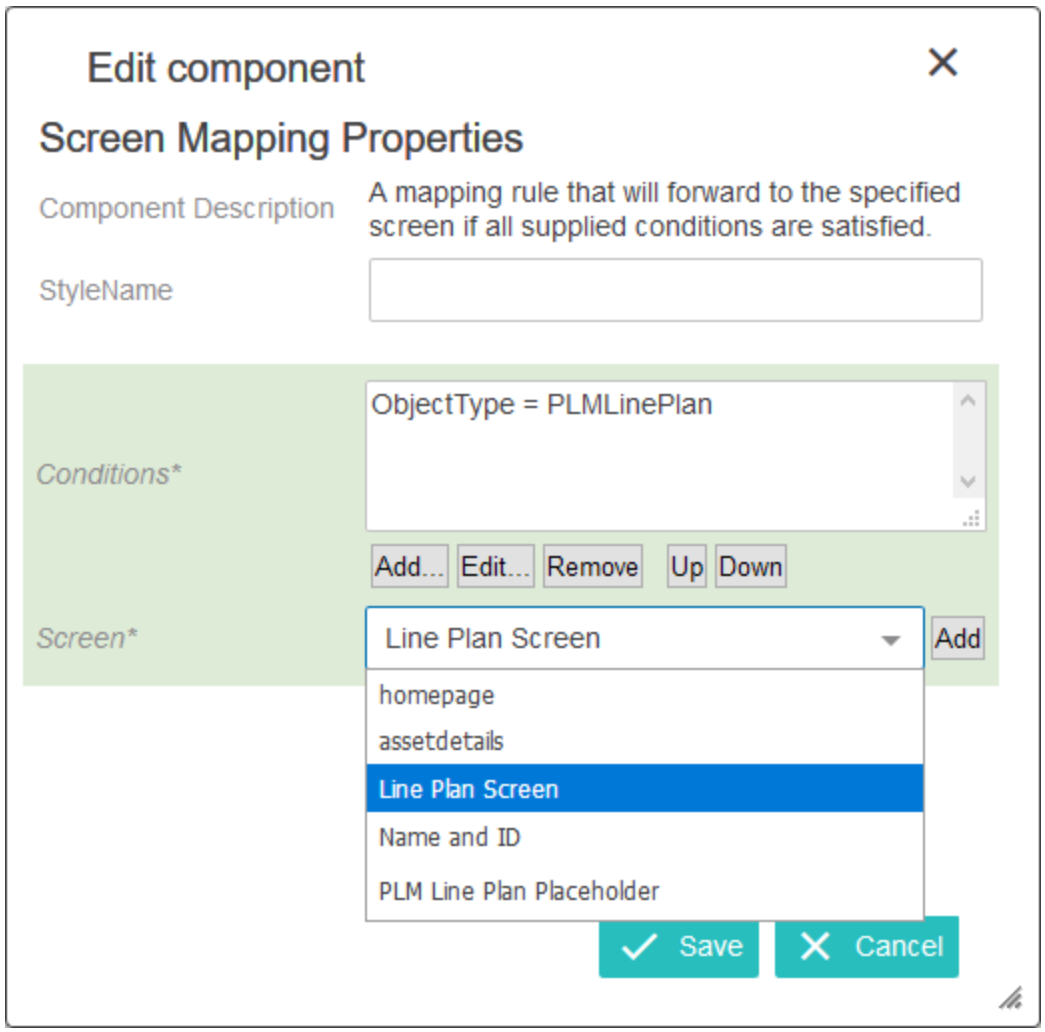
3. Click Save, and using the screen dropdown, navigate to --[MAIN]--.
4. In the Mappings field on --[MAIN]--, map the newly created screen by first clicking Add...
5. Click Add under the Conditions parameter, and then select an **Object Type Condition** component.



6. In the Object Type Conditions Properties, click the ellipsis button (...) to specify the **Object Type**. In this example it is PLMLinePlan. Click **OK** when finished.

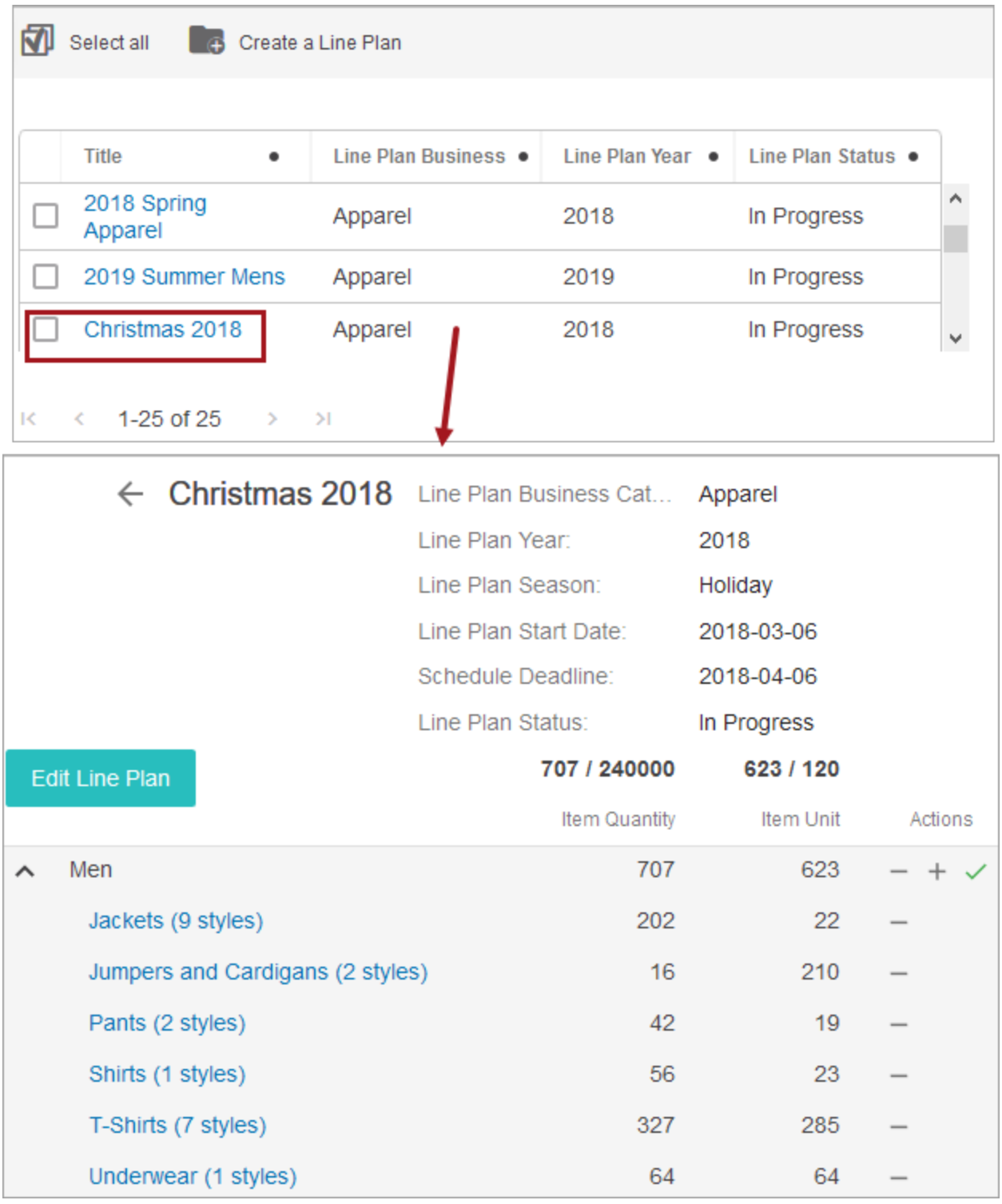


7. In the screen field, choose the PLM Line Plan screen that you created in step 1 as the landing page to display the line plan details. In this example, it is called Line Plan Screen. Click **Save**.



8. Click **Save** in the designer window and then **Close** when finished.

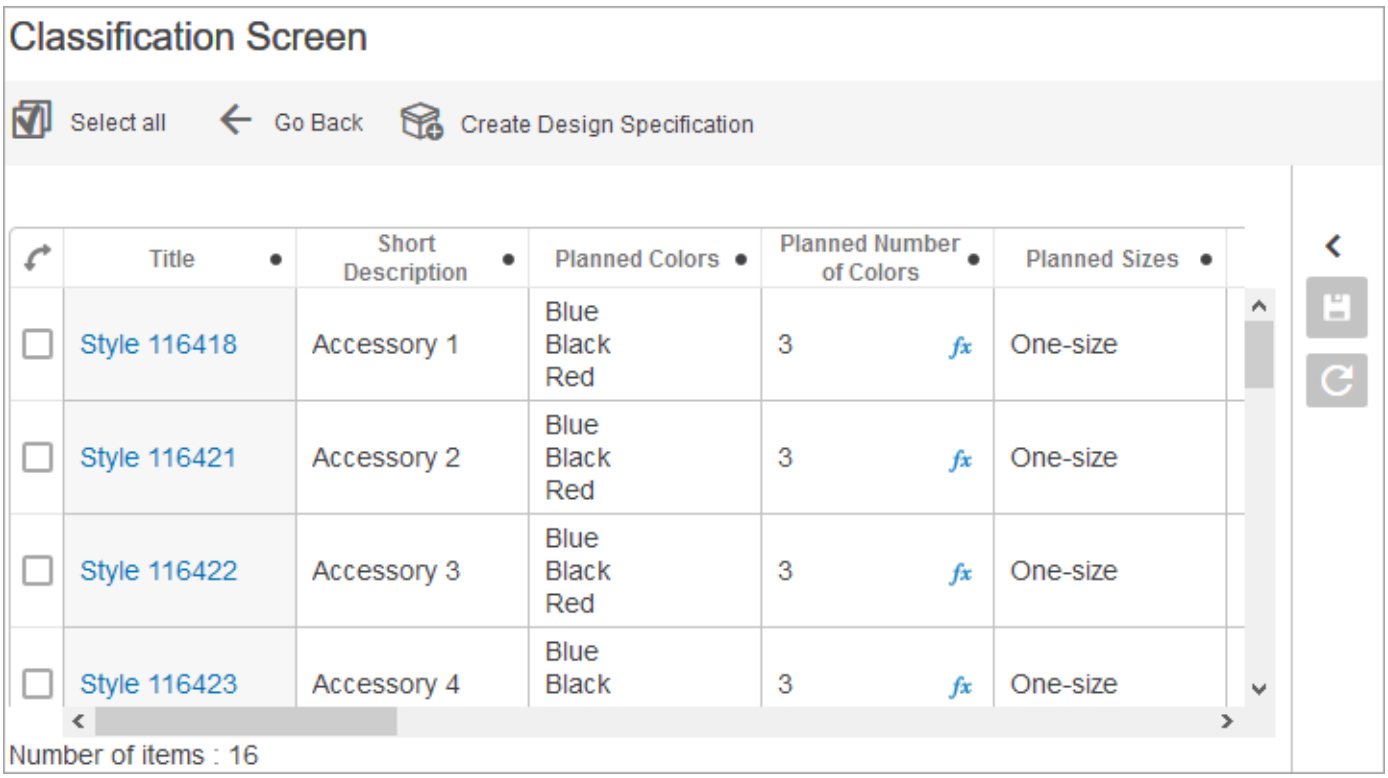
If the newly created screen is mapped correctly, selecting one of the line plans will bring you to the PLM Line Plan screen. For more on mapping screens, see the **Mappings** topic in **Main Properties Overview** section in the **Web User Interfaces / Web UI Setup and User Guide** documentation.



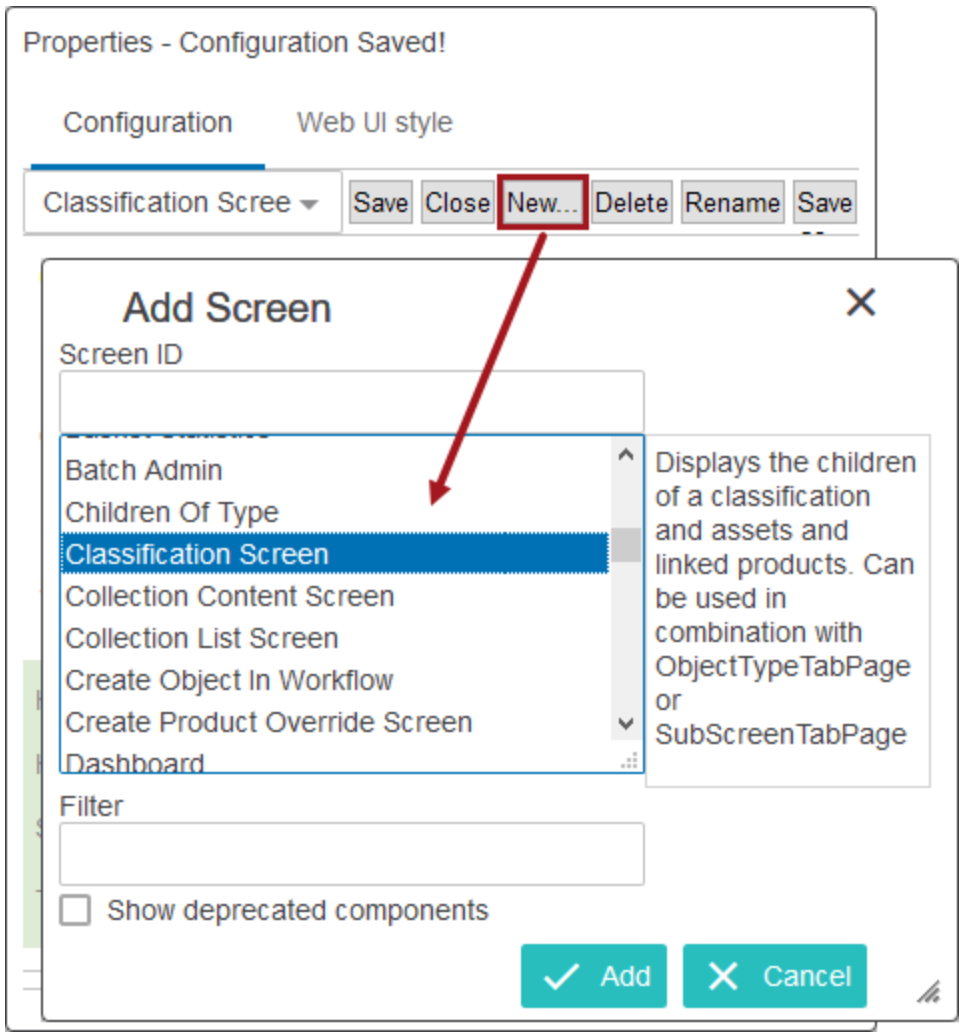
The user will now be able to add, delete, maintain, and modify the selected line plan's data according to user group privileges. For more information on user group privileges, see the **Context, Action Sets, and User Groups** topic in the **PLM for Admins** documentation.

Adding a Classification Screen

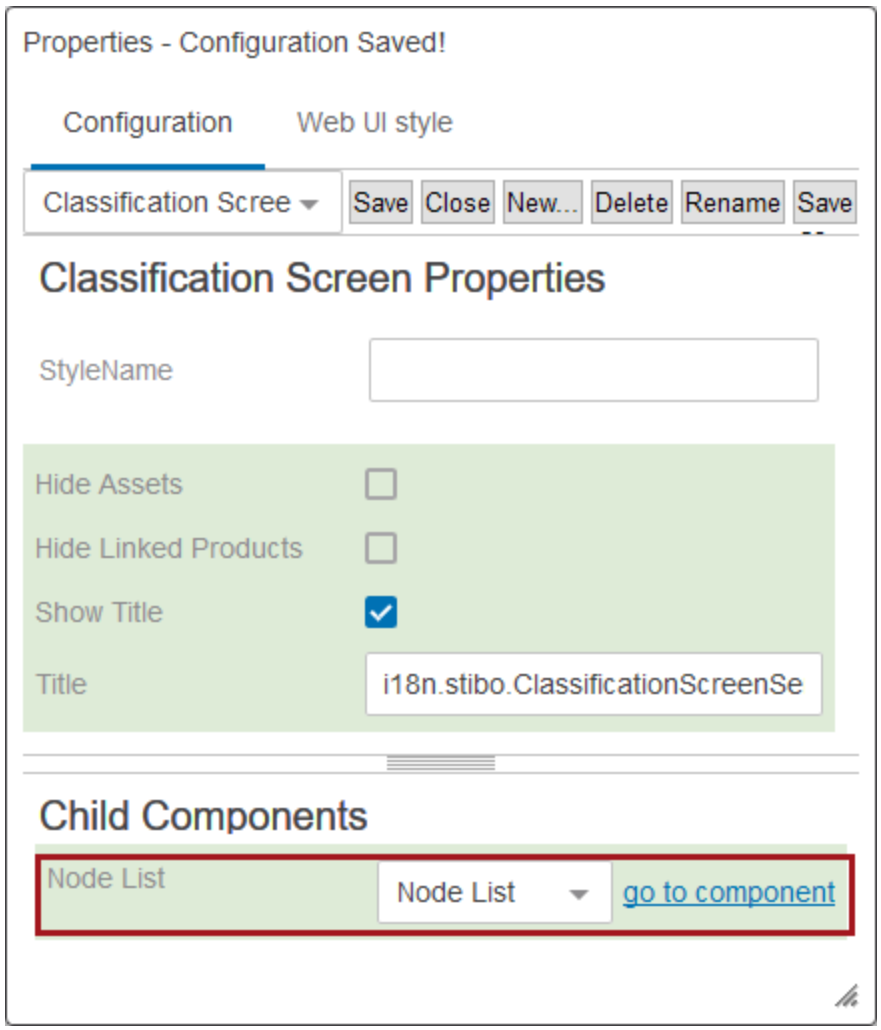
After a line plan has been selected and a specific line plan item in that line plan has been selected, a user is brought to a Classification Screen, which displays further details about the particular item. On this page, a user is able to add a design specification and fill out or change any data needed for the selected item in the table. Follow the steps below to create and configure the Classification screen.



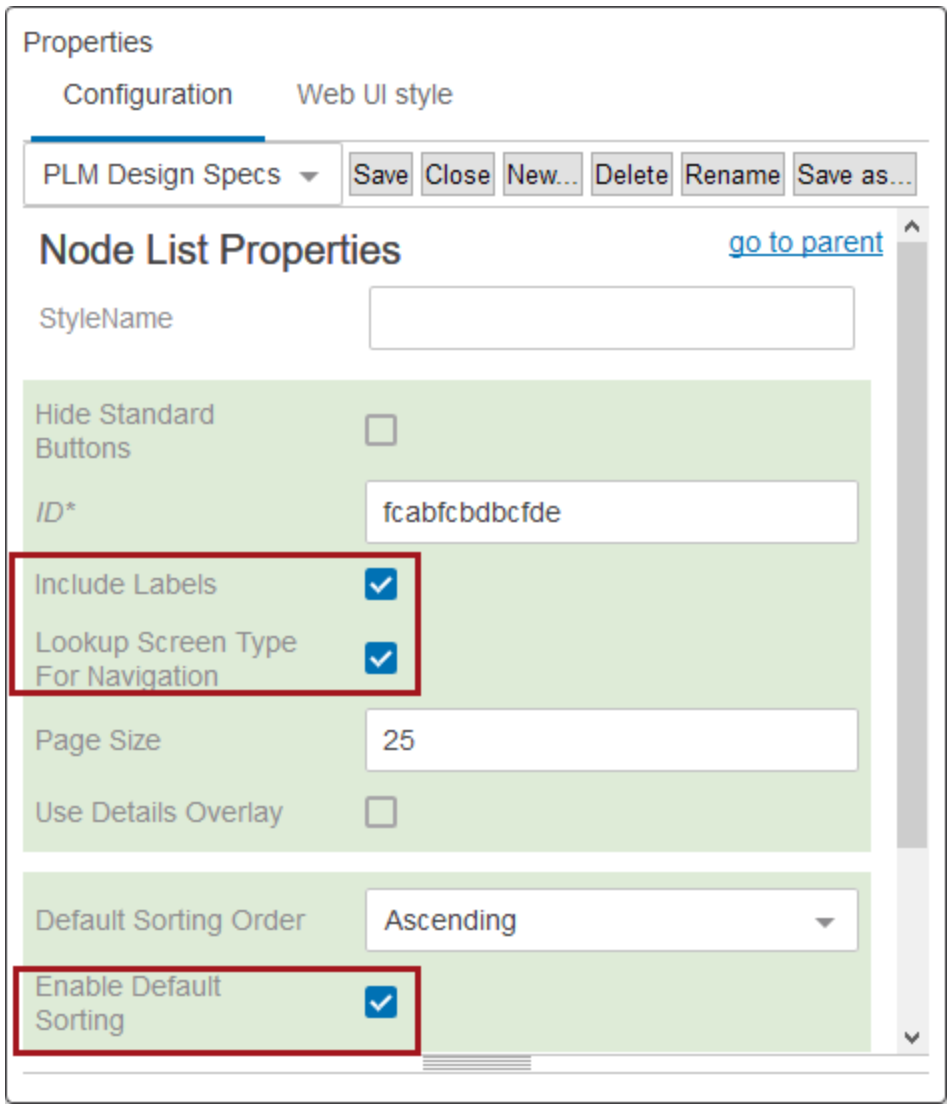
1. Open the designer, click on **New...** and add a **Classification Screen**. *Specify a screen ID that will be easily identifiable when setting up screen mappings later in this process.*



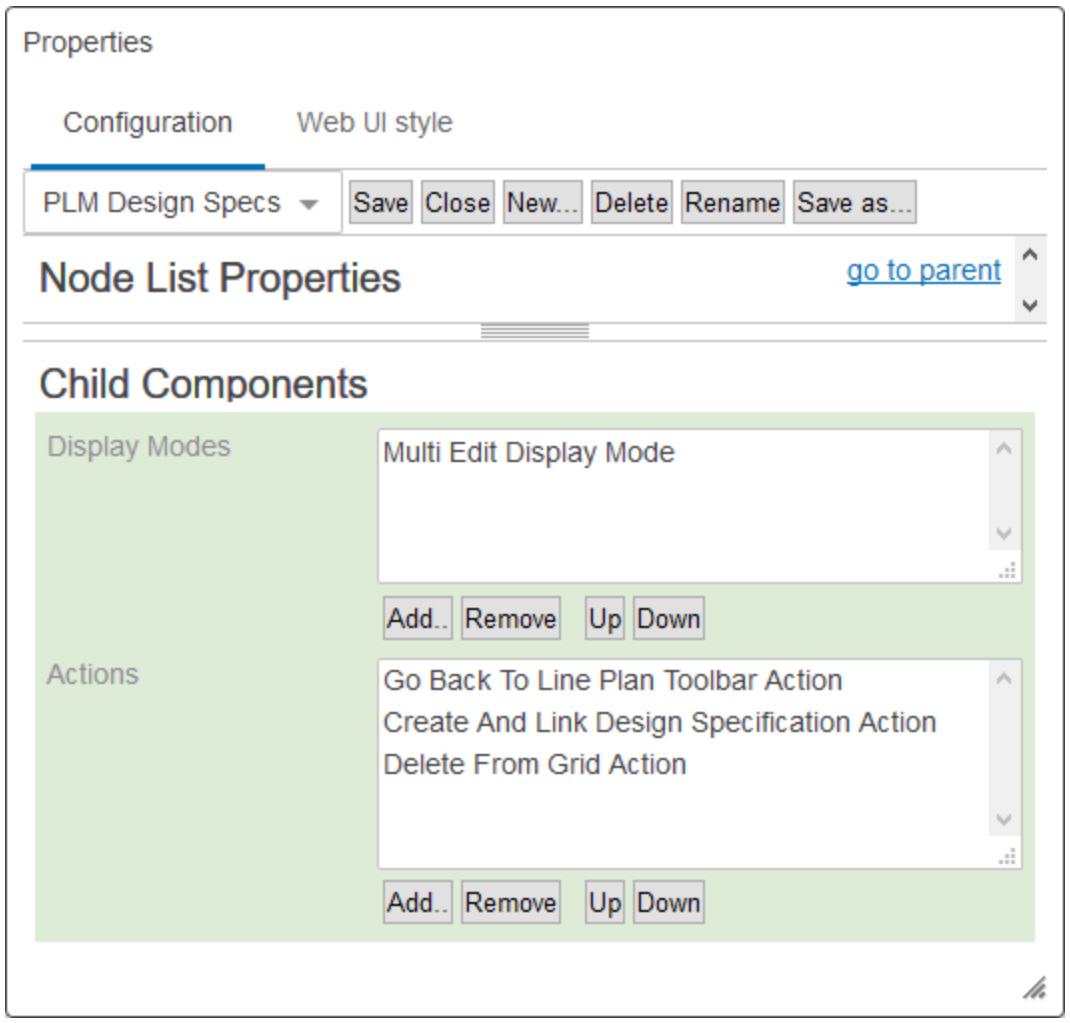
2. In the Classification Screen Properties, under Child Components, select **Node List** from the Node List dropdown menu and click on **go to component**.



3. On the Node List Properties, confirm that the following parameters are enabled:
   - Include Labels
   - Lookup Screen Type For Navigation
   - Enable Default Sorting

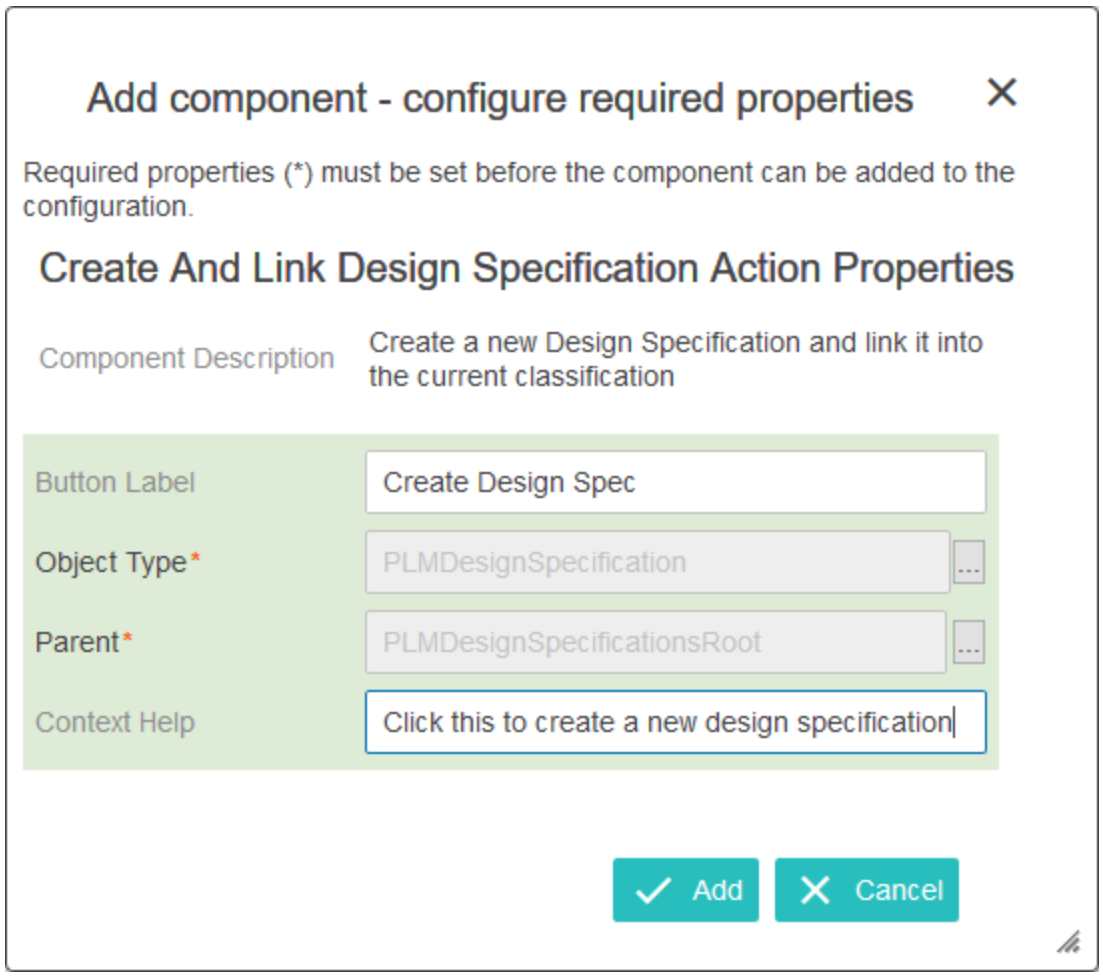


4. Next, under Child Components, go to Display Modes and add a **Multi Edit Display Mode**. Additionally, under Actions, add:
   - Go Back To Line Plan Toolbar Action
   - Create And Link Design Specification Action
   - Delete From Grid Action



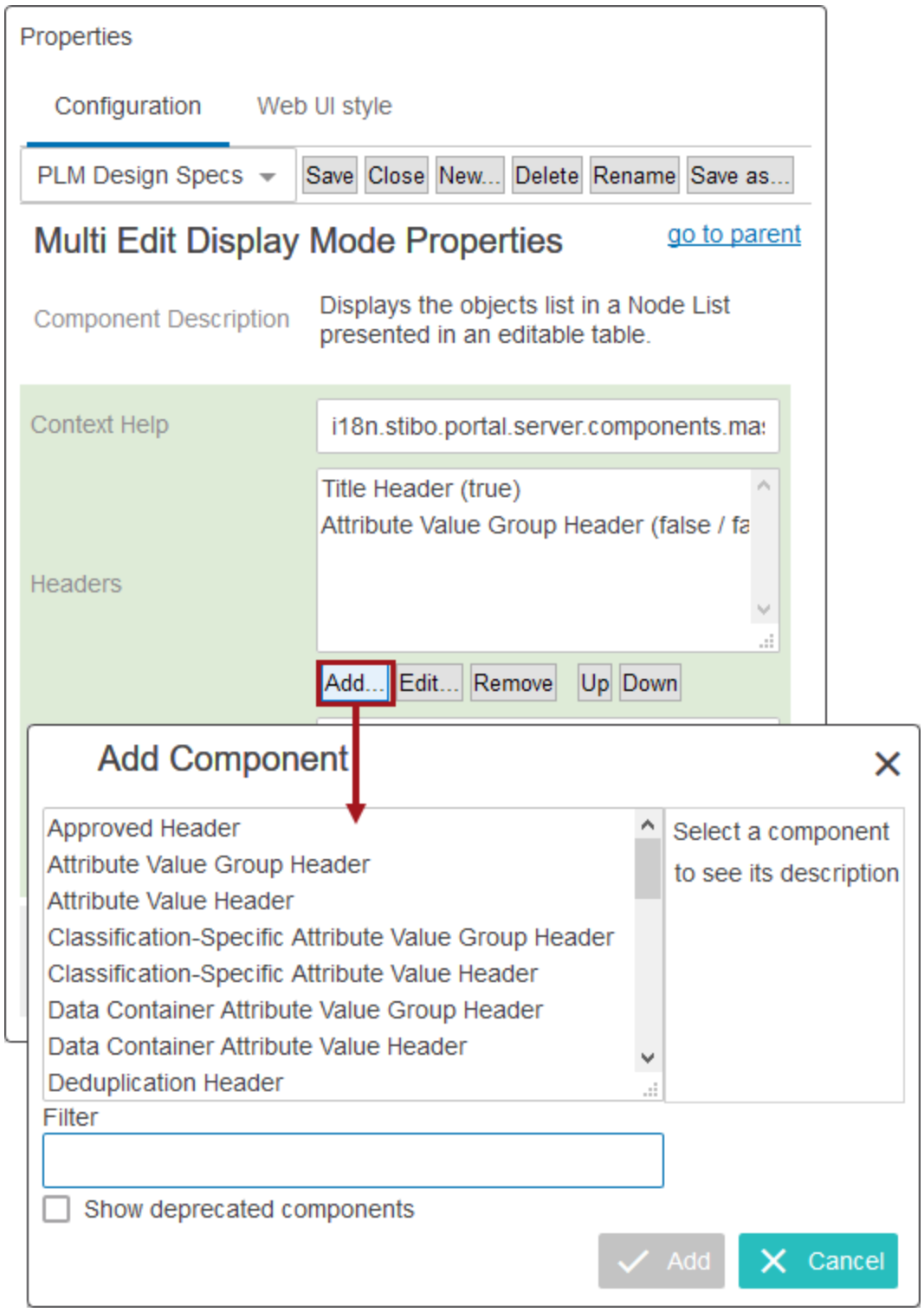
Create And Link Design Specification Action

1. Configure the Create And Link Design Specification Action Properties:
   - Enter a button label.
   - Choose the object type that represents the design specifications. In this example it is PLMDesignSpecification.
   - Choose the object type that is the parent to the design specifications. In this example it is PLMDesignSpecificationsRoot.
   - Configure the context help field that displays when a user hovers the mouse over the action button.



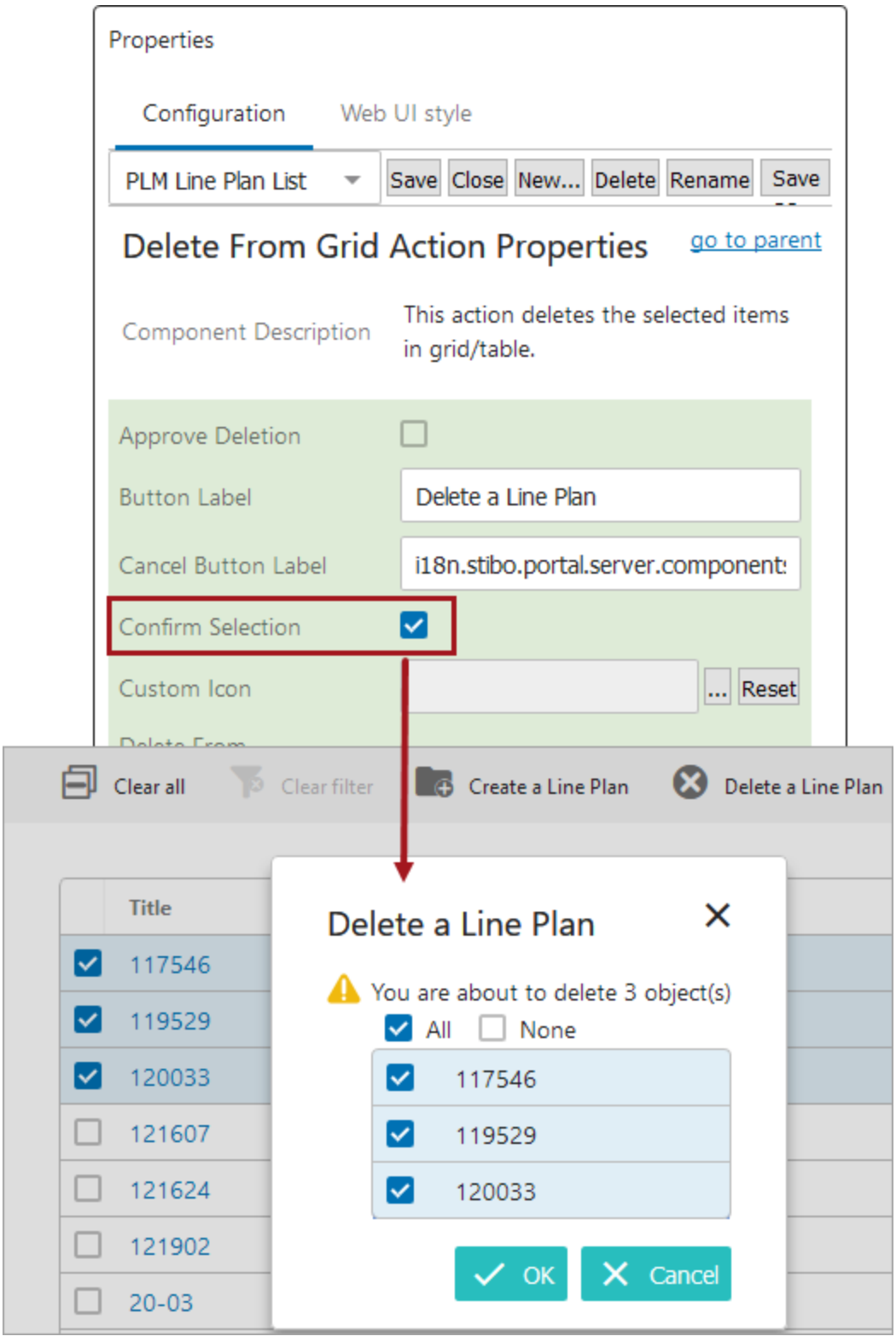
2. Back on Node List Properties, double click on 'Multi Edit Display Mode' to configure the fields that will display in the table.
3. In the Multi Edit Display Mode, click Add under the Headers field and repeat as necessary to add and configure as many headers as needed. In the example below, a Title Header and multiple Attribute Value Headers have been added.

Note: As part of the PLM configuration package, there are some attributes that need to be created and configured in workbench in order for design specifications to work properly. They then need to be added as attribute value headers (or as part of an attribute value group header) in order for design specifications to work in Web UI. See the **Setting Up Attributes for Line Plans** topic in this documentation for a list of attributes that need to be added for design specifications to work.

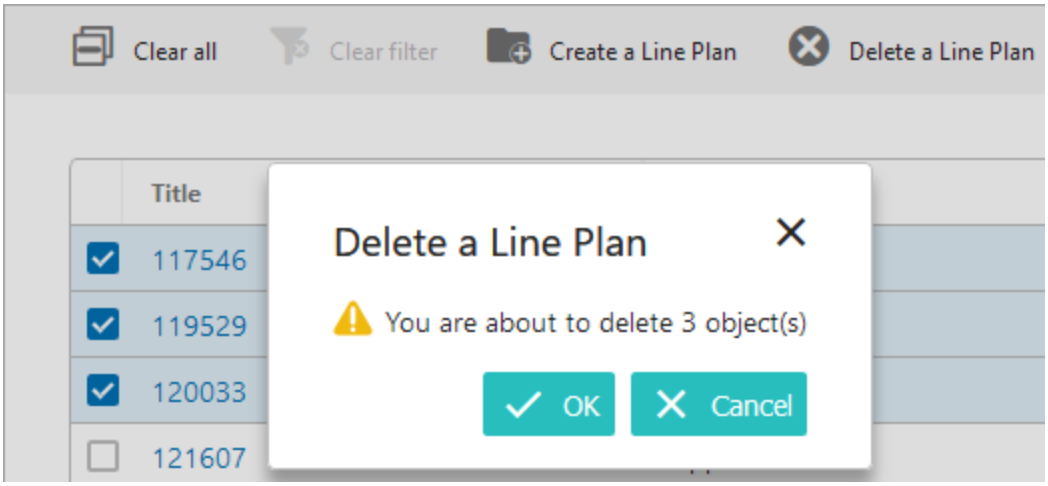


Delete From Grid Action

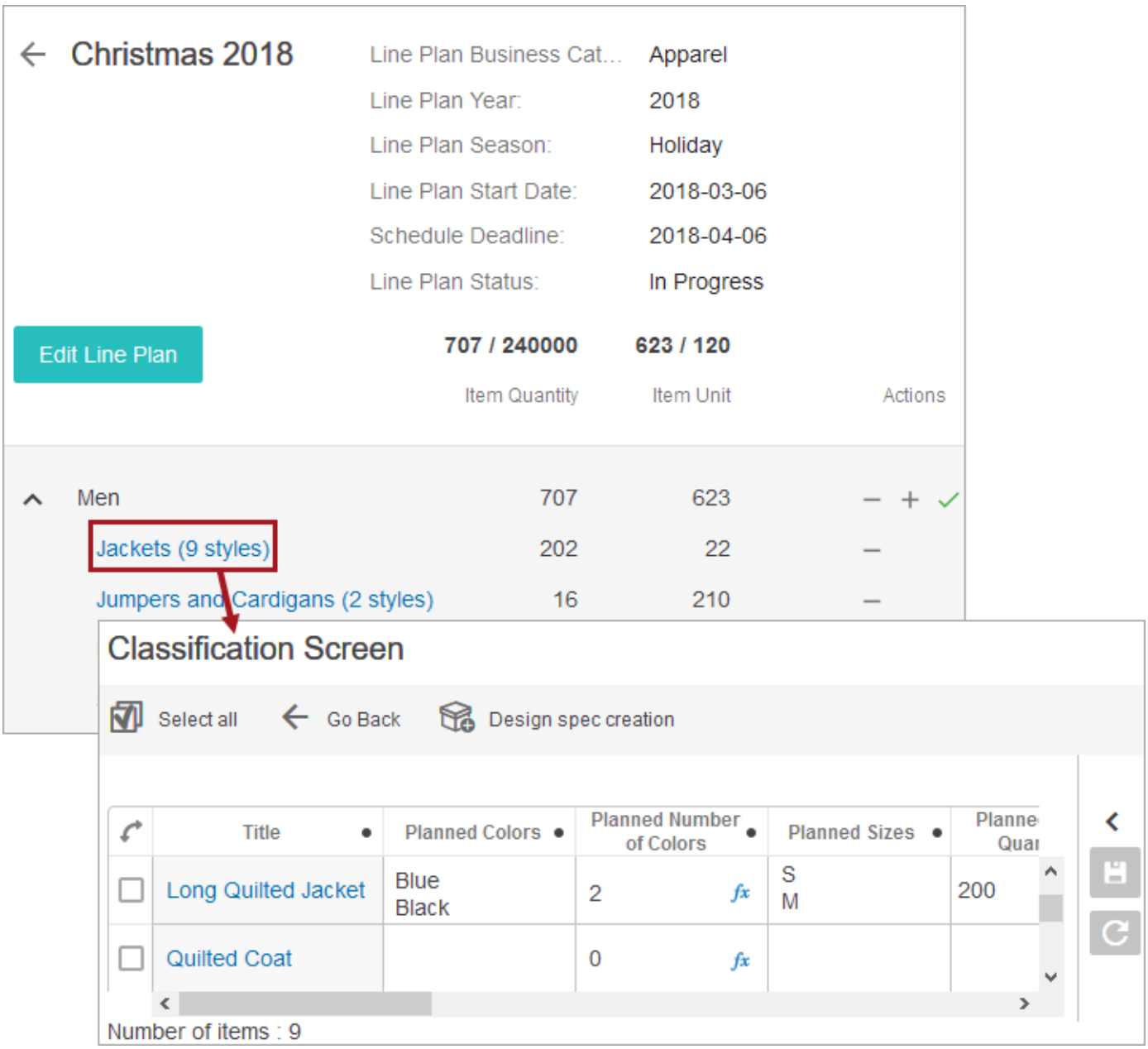
When configuring the Delete From Grid Action, if the 'Confirm Selection' checkbox is enabled, a confirmation dialog with selection details will appear when a user selects items from the table to be deleted.



They can choose to delete only some of the initially selected items, All, or None. If the 'Confirm Selection' checkbox is not enabled, the user will just get a dialog asking them to confirm their initial selection.



If the newly created screen is mapped correctly, when a user clicks on a line plan item, they are able to see and interact with the item details according to user privileges. For more on mapping screens, see the **Mappings** topic in **Main Properties Overview** section in the **Web User Interfaces / Web UI Setup and User Guide** documentation.



If a user needs to edit a reference on a design specification, a Node Details screen needs to be created, configured, and mapped.

In the Node Details Properties (Child Components > Main), add a Multi Reference component configured with a Node List that uses Multi Edit Display Mode. Configure the Multi Edit Display Mode as needed. For more on how to configure this, see the **Multi-Reference Editor** topic in the **Using a Web UI** section of the **Web User Interfaces / Web UI Setup and User Guide** documentation.

Once configured, this will need to be mapped correctly. For information on mapping screens, see the **Mappings** topic in **Main Properties Overview** section in the **Web User Interfaces / Web UI Setup and User Guide** documentation.

Setting Up Schedules in Workbench

Schedules assist managers in attaining deadlines and goals outlined by the line plan, helping to ensure that a product goes to market on time. For schedules to work correctly in Web UI though, proper setup first needs to happen in the workbench.

Prerequisites

- The PLM configuration file is uploaded to STEP. See **Configuration Setup for Line Plans and Schedules** in this documentation.
- Line plans must be set up on the system. This includes the ability to create design specifications, and the ability to approve line plans that are deemed complete. See the topics **Setting Up Line Plans in Workbench** and **Adding a Classification Screen** in this documentation for more information.
- If using workflows, create any workflows needed for schedules. For more on how to configure a workflow, see the **Workflows** topic in the **Workflows** documentation.

Additional setup needed

Read the following topics on how to set up schedules properly in the workbench:

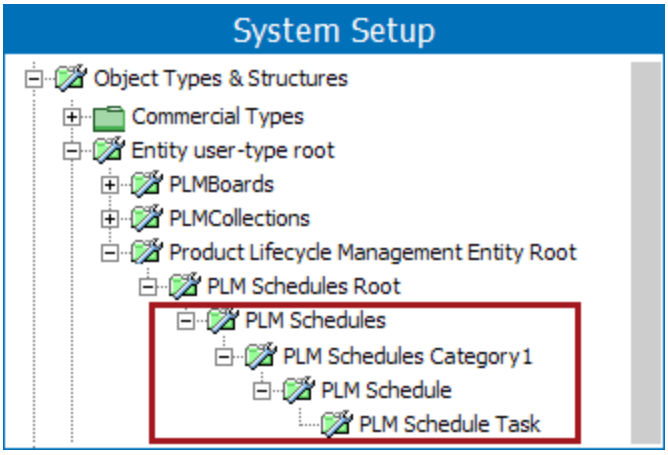
- Creating Schedule Object Types
- References Needed for Schedules
- Setting Up Attributes for Schedules

Creating Schedule Object Types

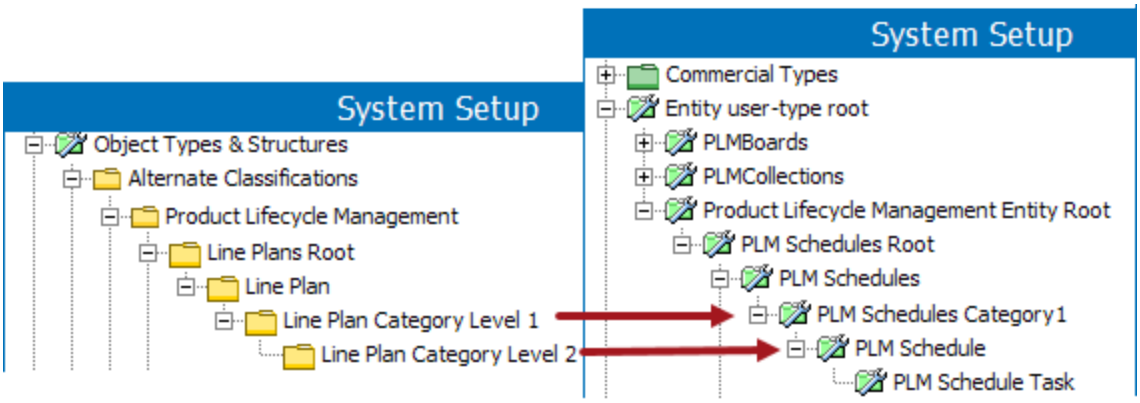
There are a number of entity object types necessary for schedules to function properly in Web UI. The following sections describe what entity object types need to be created.

Creating PLM Schedules

Schedules are entity object types that live in a hierarchy structure like the one shown below.



In the example structure, every time a user approves a Line Plan Category 1 object type, it creates a schedule in the hierarchy structure as a PLM Schedules Category 1 object type. Additionally, for each Line Plan Category 2 object type, a PLM Schedule object type is created.



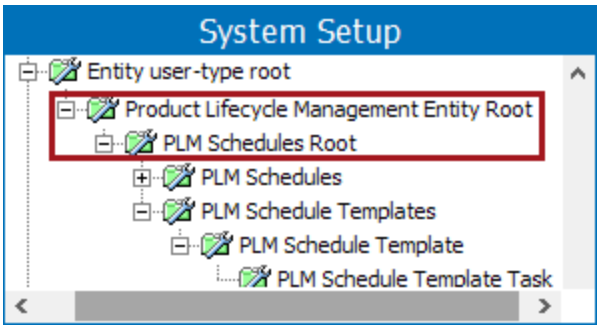
For more on schedule task templates and how to create them, see the next section of this topic.

Note: It is important that the object type IDs used in workbench for schedules are the same used in the uploaded PLM configuration file and in the Web UI designer, otherwise schedules will not work correctly. Talk to your implementation team to ensure they are in alignment.

For more on how to create entity object types in System Setup, see the **Object Maintenance in Tree** topic in the **Getting Started / User Guide** documentation.

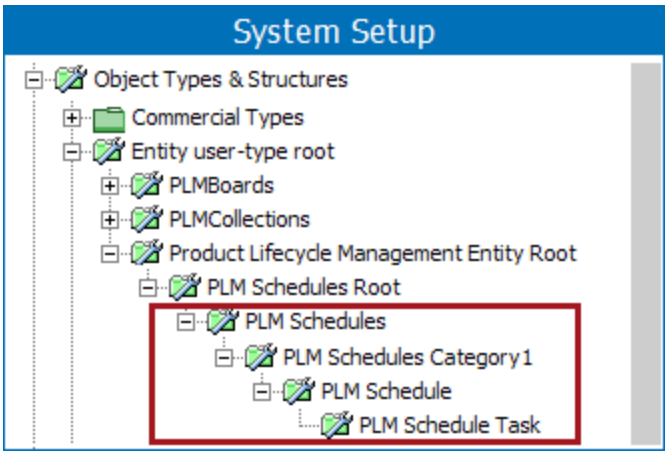
To create the PLM Schedules structure:

1. Create the Product Lifecycle Management Entity Root node and its child PLM Schedules Root if they do not already exist.

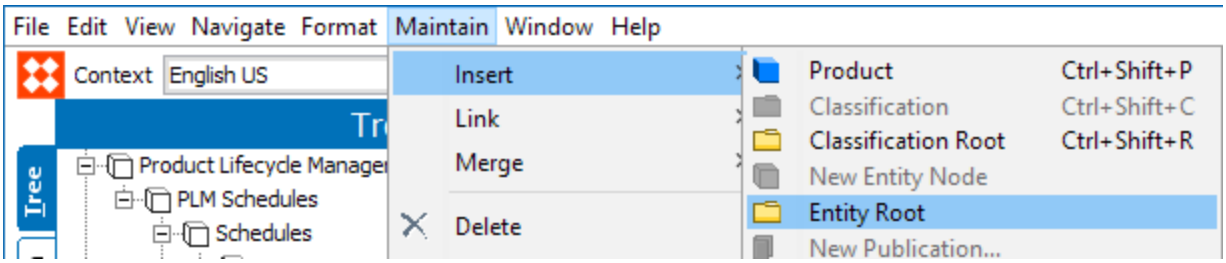


Note: This top-level parent Product Lifecycle Management Entity Root folder and its child PLM Schedules Root will not just hold PLM Schedules, but will hold PLM Schedule Templates as well. For more on schedule templates and how to create them, see the next section of this topic.

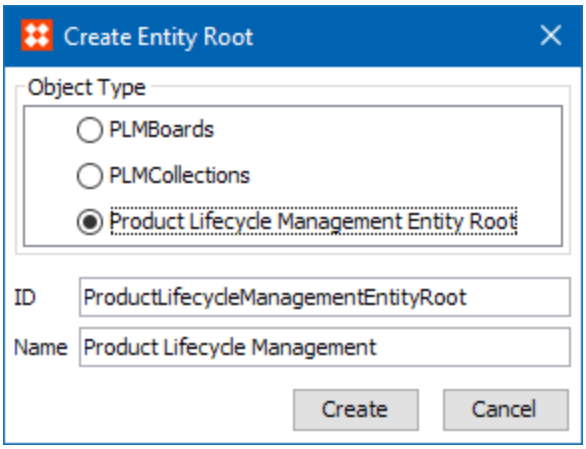
2. Under the Product Lifecycle Management Entity Root node, create the needed hierarchy structure for PLM Schedule object types.



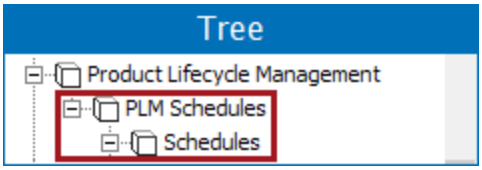
3. To add the schedule structure to Tree, go to Maintain > Insert > click Entity Root.



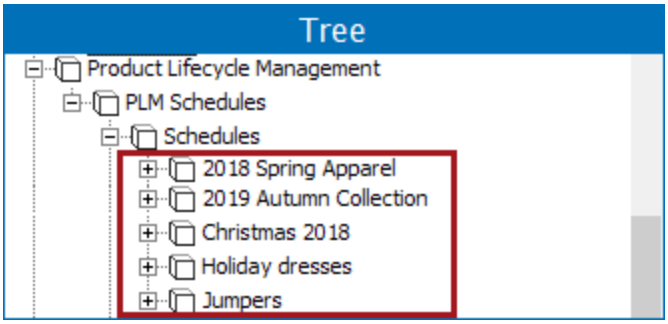
4. The 'Create Entity Root' dialog will appear. Select the object type created to hold all entity schedule object types. In this case it is ProductLifecycleManagementEntityRoot.



5. Once added, add the nodes PLM Schedules and its child Schedules.



All future schedules and their subcategories will be created automatically under the Schedules node as a result of approved line plans. For more on line plan approval, see **Setting up Attributes for Line Plans** in the **PLM for Admins** documentation, or the **Creating Line Plans** topic in **PLM for Users** documentation.



Creating Schedule Template Tasks

Schedule Template tasks are the templates used when creating schedules. Each template has a set of tasks that may have dependencies on one another, and help define the schedule. In order for schedules to work properly in Web UI, schedule templates need to be created using entity object types. Schedule templates can be created one of two ways:

- Import and mapping upon import
- Building the template in the workbench

For more information on how to import and properly map inbound data, see the **Import Manager** and **Data Mapping** topics in the **Data Exchange** documentation.

Note: It is important that the object type IDs used in workbench for schedule templates tasks are the same used in the uploaded PLM configuration file and in the Web UI designer, otherwise schedules will not work correctly. Talk to your implementation team to ensure they are in alignment.

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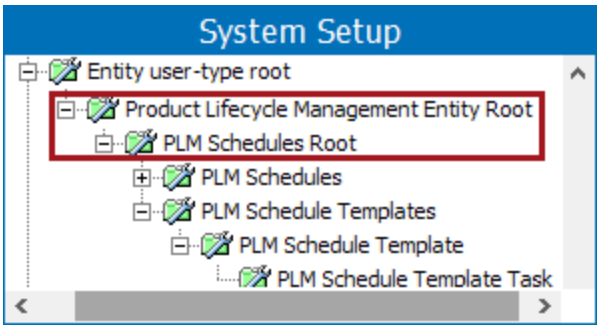
1. If the Product Lifecycle Management Entity Root folder and its child PLM Schedules Root do not already exist, create these nodes.



Note: This top level parent Product Lifecycle Management Entity Root folder and its child PLM Schedules Root will not just hold PLM Schedule Template, but will hold PLM Schedule as well. For more on schedules and how to create them, see the above section of this topic

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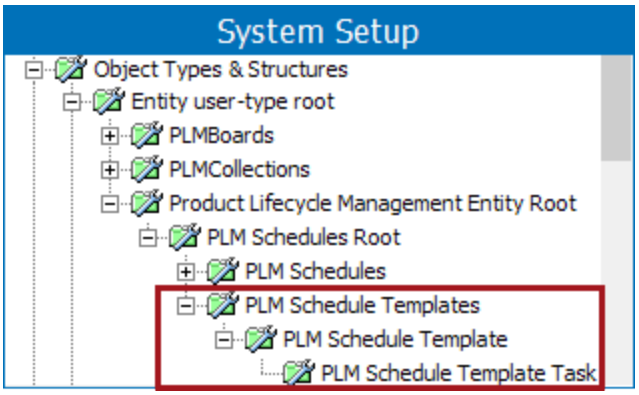
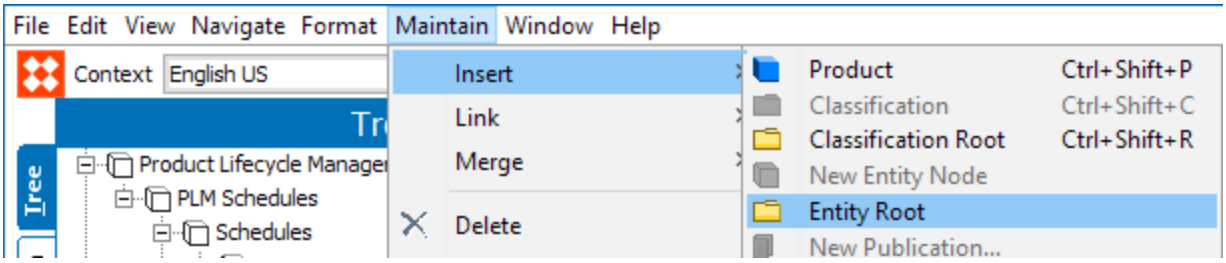
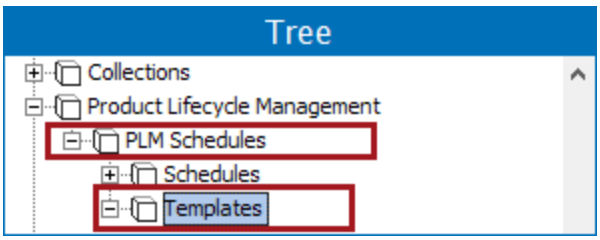
2. Add the needed hierarchy structure for PLM Schedule Templates according to business needs. Below is an example hierarchy structure for PLM Schedule Templates.



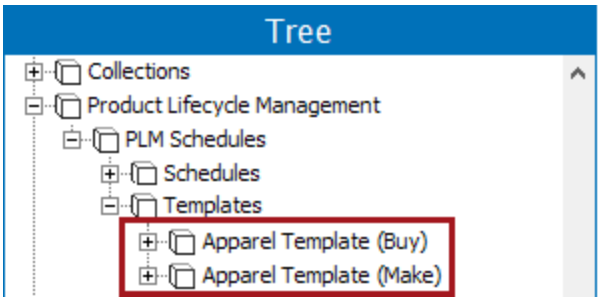
3. To add the schedule templates to Tree, go to Maintain > Insert > click Entity Root.



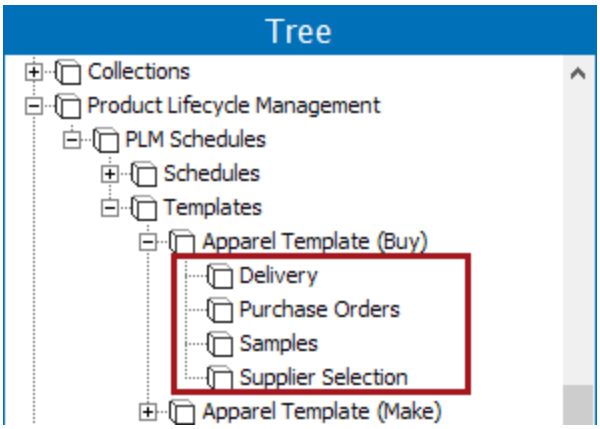
4. The 'Create Entity Root' dialog will appear. Select the object type created to hold all entity schedule object types, if it does not already exist in the system. In this case it is ProductLifecycleManagementEntityRoot.
5. Once added, add the nodes PLM Schedules and its child Templates if it does not already exist on the system.



6. Add as many templates as needed under the Templates node. These templates will become available to select from when creating schedules. See the **Creating Schedules** topic in the **PLM for Users** documentation.



7. Under each template, create the number of needed template tasks.



In Web UI, when a user is creating a schedule and chooses one of the templates, a copy of these schedule template tasks then gets created for each individual line plan.

Note: Schedule Template Tasks use the reference 'PLM Schedule Template Task Dependency,' to ensure that each template task has the appropriate task dependencies. If the reference dependencies are not configured properly, schedules will not work. See the topic **References Needed for Schedules** in this documentation for more information.

References Needed for Schedules

There are three entity references and one product reference needed for schedules to work properly in Web UI. The three entity references are:

- Schedule Template
- PLM Schedule Template Task Dependency
- Schedule Task Dependency

The Product reference needed is:

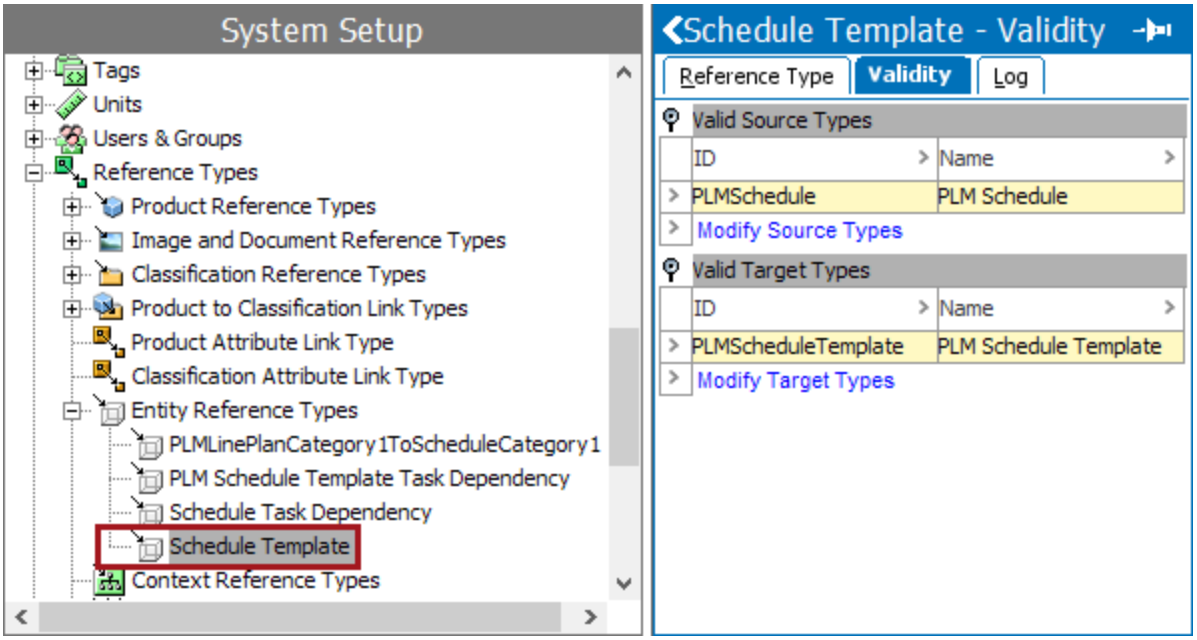
- Schedule Task

These references enable schedules to work with templates, tasks, and design specifications to allow for a seamless experience with schedules.

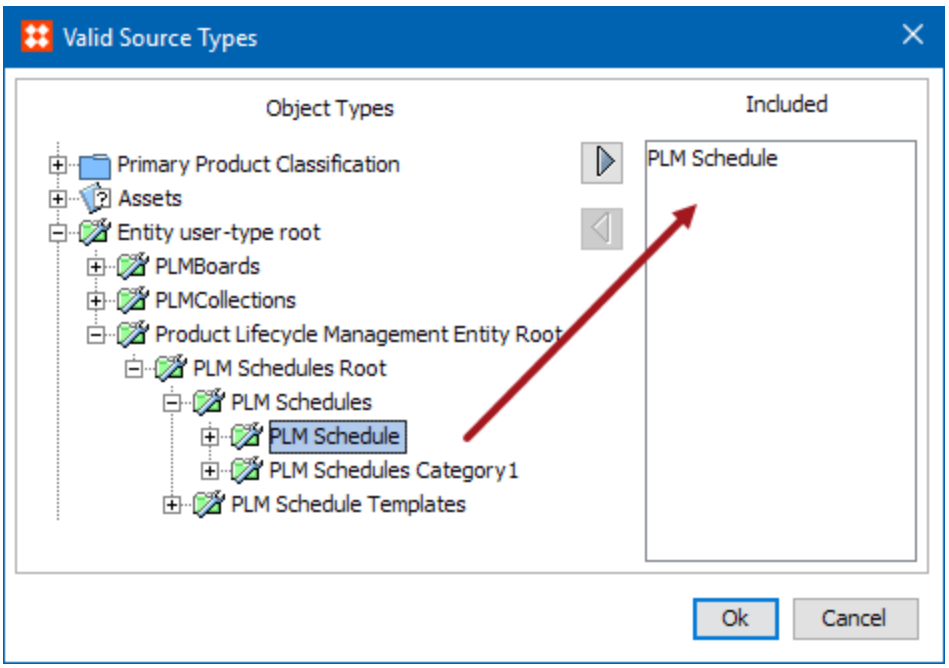
Entity Reference Types

Schedule Template

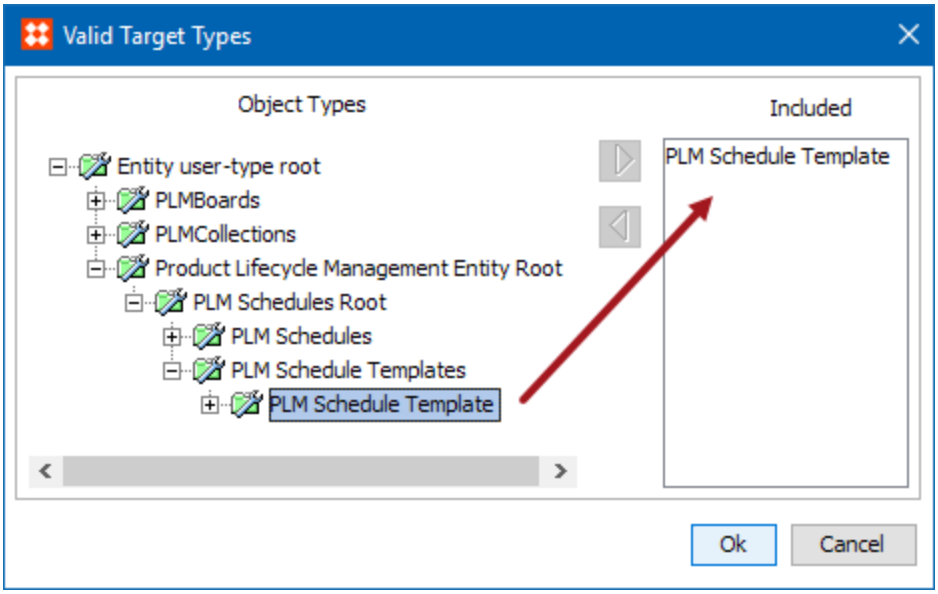
The Schedule Template entity reference is a reference between the schedule and the schedule templates. Each time a template is selected for the creation of a schedule, a copy of the templates is created for the schedule.



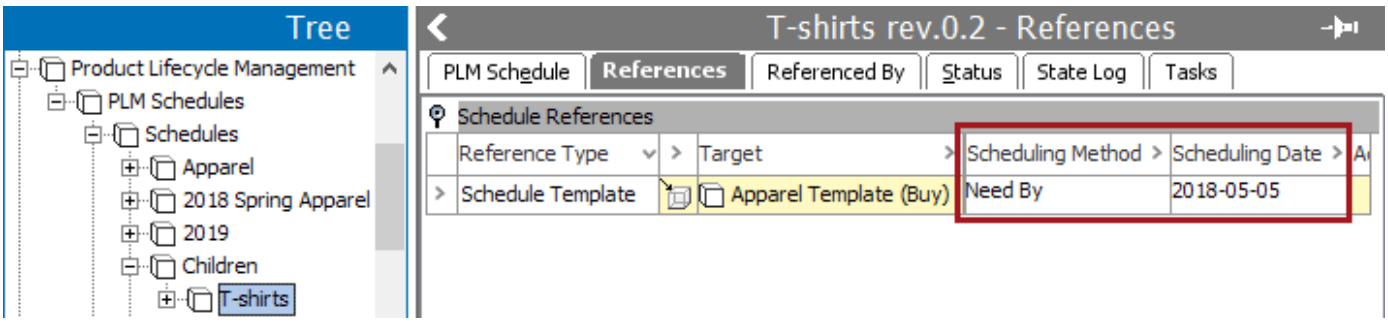
The Valid Source Types is the object type that represents schedules, in this case it is PLM Schedule.



The Valid Target Type is the object type that represents schedule templates, in this case it is called PLM Schedule Template.

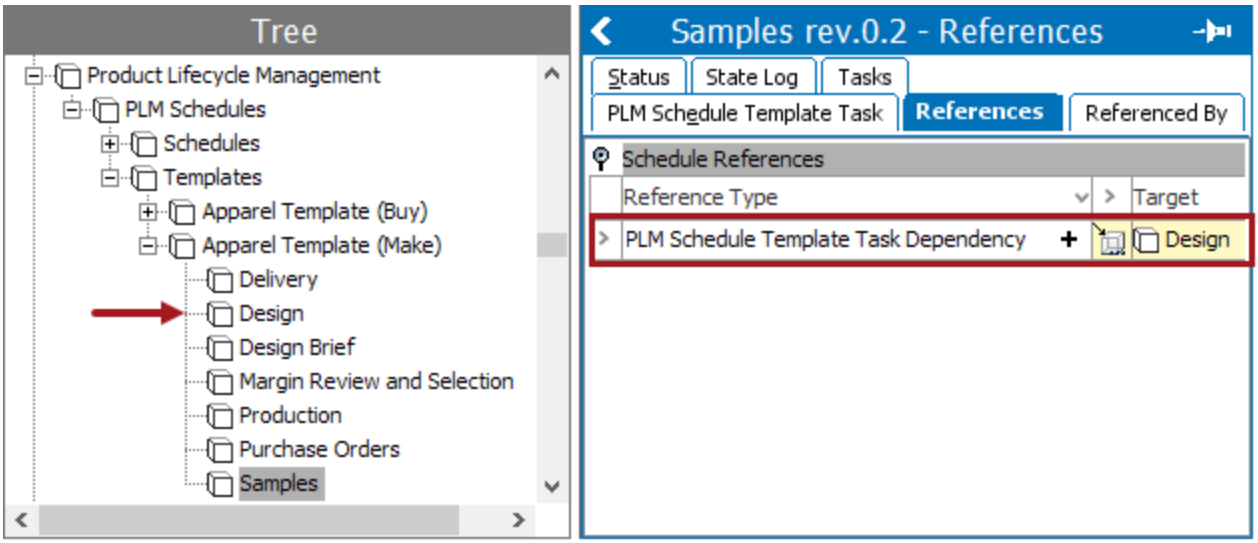


Additionally, this reference has two attributes on it that save the selected Scheduling Method and the Scheduling Date. For more on the Scheduling Method and Scheduling Date attributes, see the **Scheduling Method and Scheduling Date** topic in this documentation.

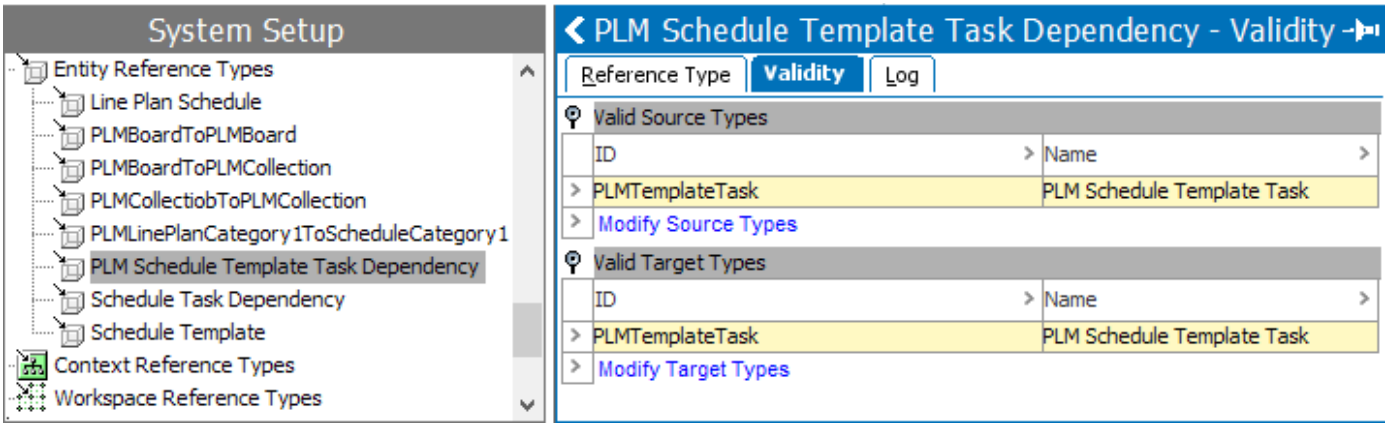


PLM Schedule Template Task Dependency

The PLM Schedule Template Task Dependency reference determines the order, or dependencies, of the schedule template tasks for the schedules. For example, when looking at the schedule template 'Apparel Template (Make)' each task created in the template has a defined dependency on the other tasks in the template. Looking at the 'Sample' template task, you can see that once this task is complete, the Design template task will begin.



This entity reference is used to establish the order of tasks so that scheduled dates can be calculated, based on dependent tasks and their durations. Notice that the validity for the Valid Source Types and Valid Target Types are both the Entity 'PLM Template Task' object type.

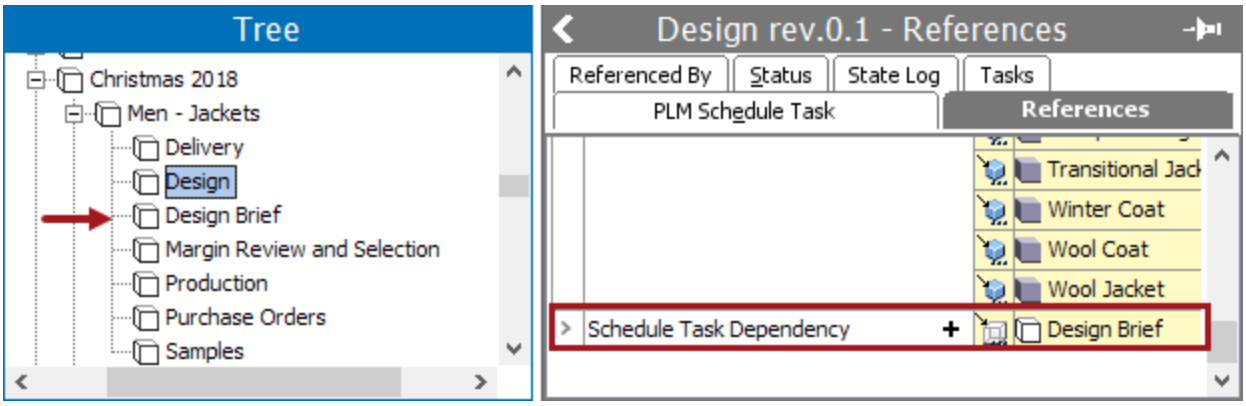


Note: When a user chooses which template to use when creating a schedule, a copy of the template tasks and reference are created for each individual schedule. The reference that mimics the PLM Schedule Template Task Dependency reference for the actual schedule is called Schedule Task Dependency.

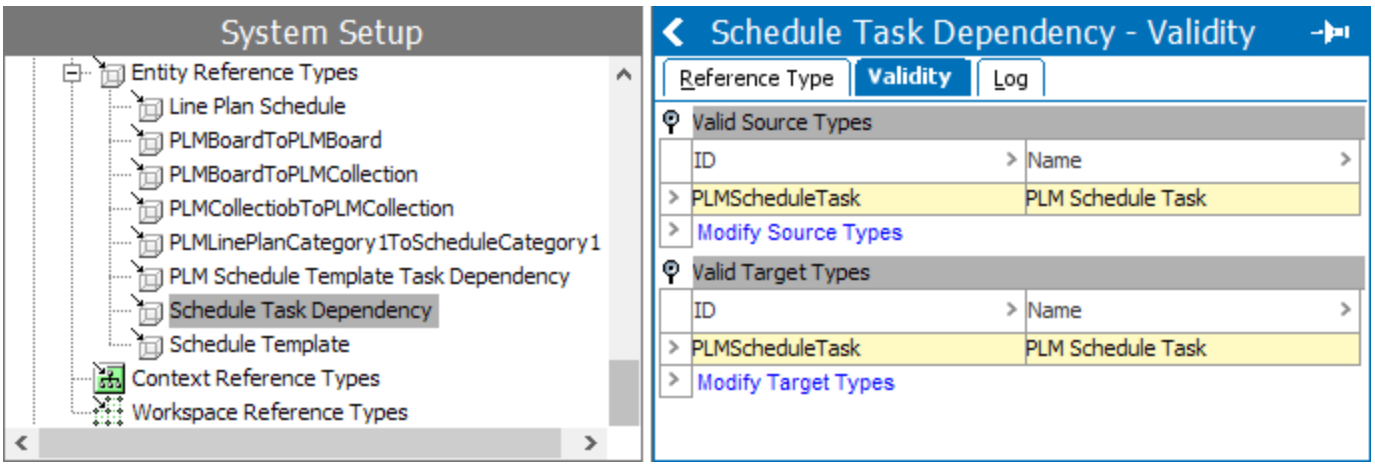
Schedule Task Dependency

This reference determines the order, or dependencies, of the tasks in the schedules. In the example below, the name of the reference is Schedule Task Dependency.

In this example, when looking at the task assigned to the manufacturing of a men's jacket, we can see that after the 'Design' phase takes place, the next task is to create 'Design Brief.'



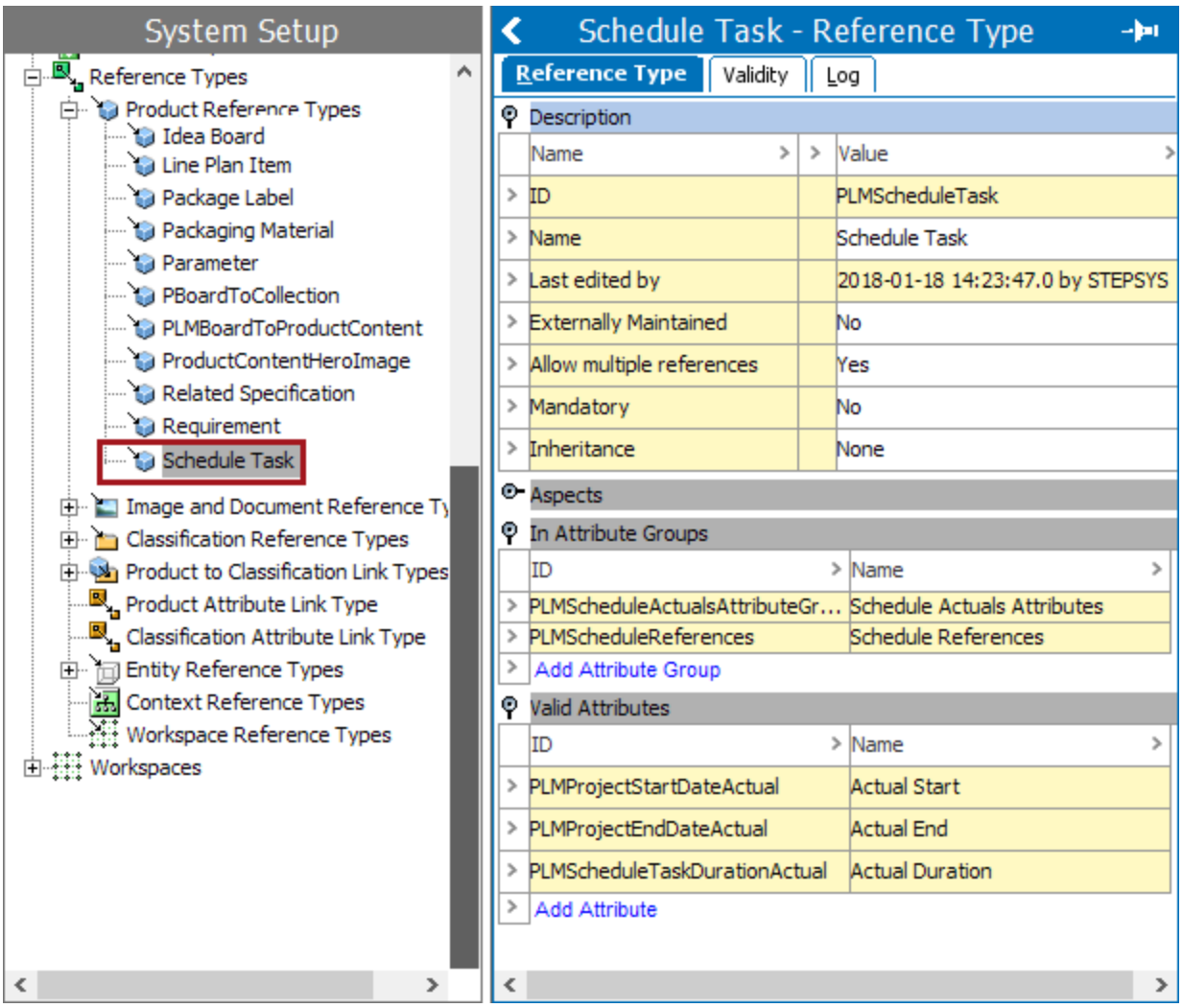
This entity reference is used to establish the order of tasks so that scheduled dates can be calculated, based on dependent tasks and their durations. Notice that the validity for the Valid Source Types and Valid Target Types are both the 'PLM Schedule Task' entity object type.



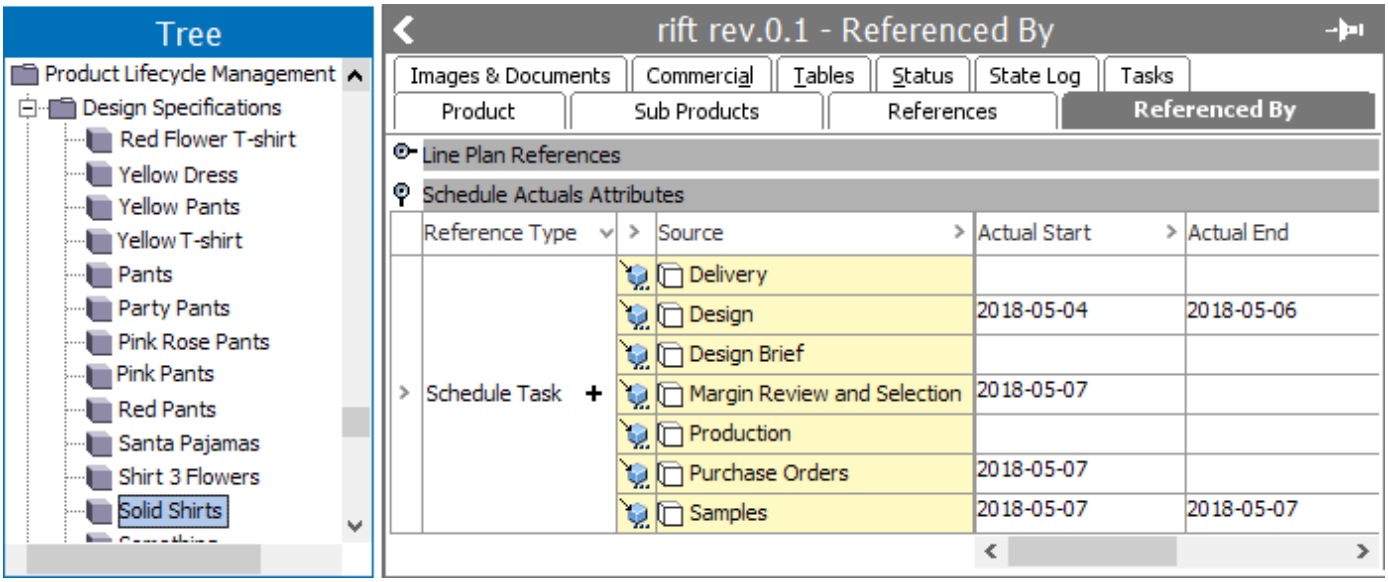
Product Reference Type

Schedule Task

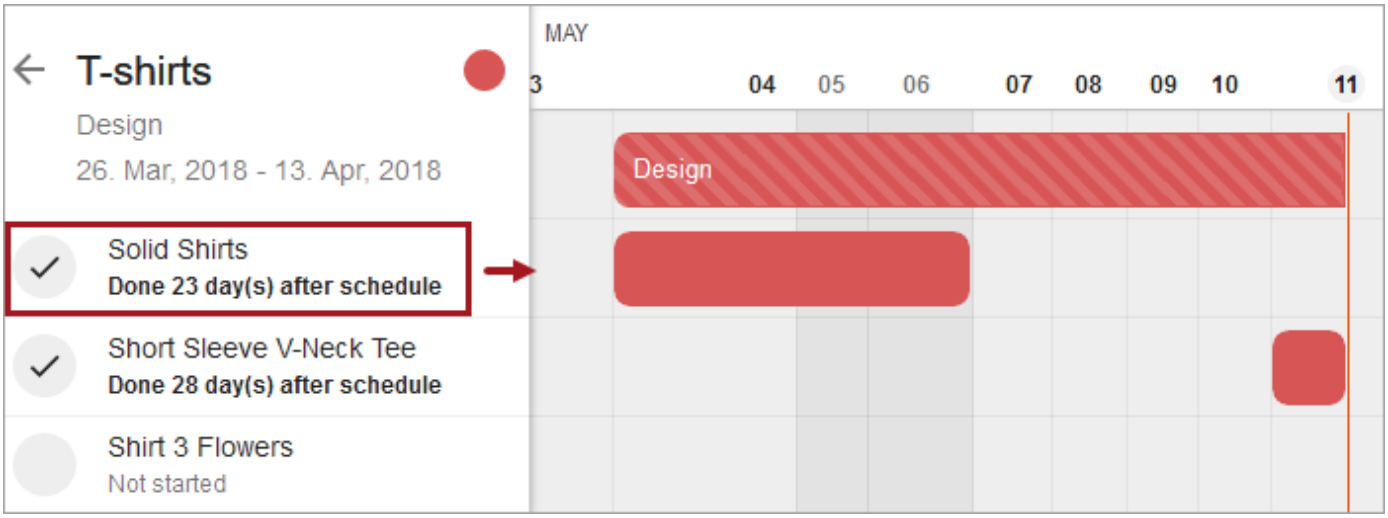
This reference enables schedules and design specifications to work together seamlessly. In the example below, the name of the reference is 'Schedule Task.'



When a design specification is finished with a task on a schedule, through business rules, the actual start and end dates of that task can be recorded on the Schedule Task reference via the 'PLMProjectStartDateActual' and 'PLMProjectEndDateActual' attributes.

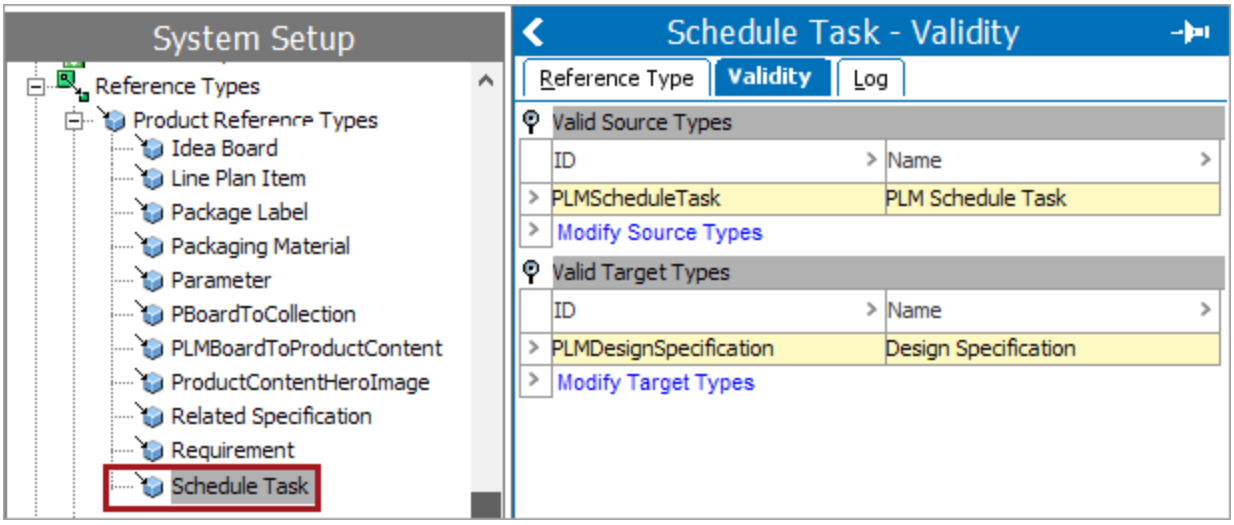


This then generates in the Web UI to show a complete picture of where a design specification is in relation to the schedule.



For more on attributes needed for schedules to work, see the **Setting Up Attributes for Schedules** topic in this documentation.

When creating the Schedule Task product reference type, make the Valid Source Types valid for the 'PLM Schedule Task' entity type. Make the Valid Target Type valid for the design specification object type.


System Setup
Reference Types
Product Reference Types
Idea Board
Line Plan Item
Package Label
Packaging Material
Parameter
PBoardToCollection
PLMBoardToProductContent
ProductContentHeroImage
Related Specification
Requirement
Schedule Task
Schedule Task - Validity
Reference Type
Validity
Log
Valid Source Types
ID
Name
PLMScheduleTask
PLM Schedule Task
Modify Source Types
Valid Target Types
ID
Name
PLMDesignSpecification
Design Specification
Modify Target Types

Setting Up Attributes for Schedules

When using schedules, there are numerous attributes that need to be configured. These attributes help schedules:

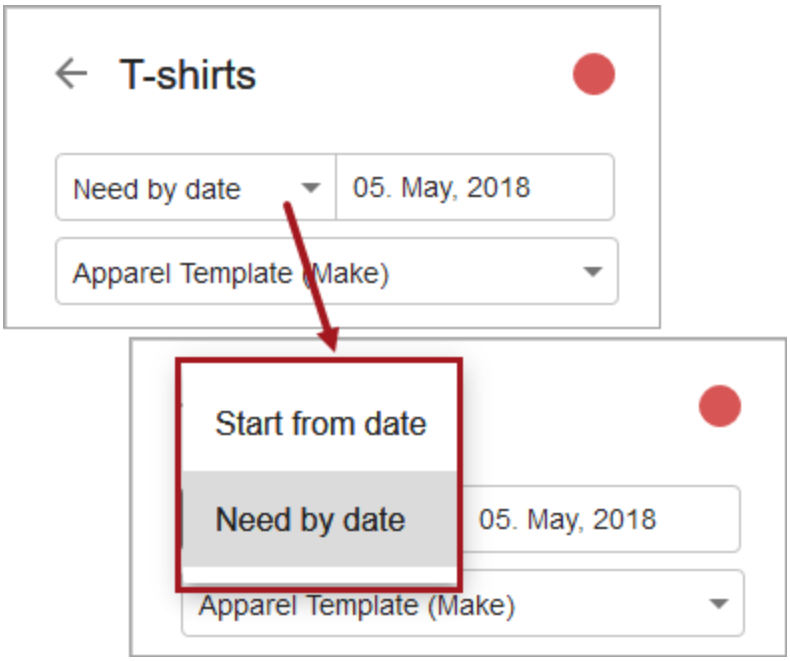
- Identify if the schedule being created is a 'Start from date' vs. 'Need by date'
- The planned duration a task should take
- After the schedule is submitted, what are the estimated planned start and planned end dates for each task
- The actual start and actual end dates a design specification takes to complete a task in a schedule
- Which workflow should be initiated for tasks in a schedule, if using workflows

The sections below detail what attribute setups are need. For more on how to create attributes, see the **Attributes** topic in the **System Setup / Super User** documentation.

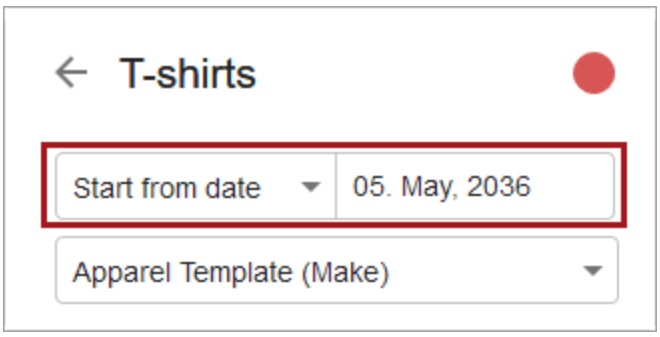
- Scheduling Method and Scheduling Date
- Planned Start and Planned End
- Planned Duration
- Schedule Is Submitted
- Actual Start and Actual End
- Schedule Deadline
- Workflow and State ID

Scheduling Method and Scheduling Date

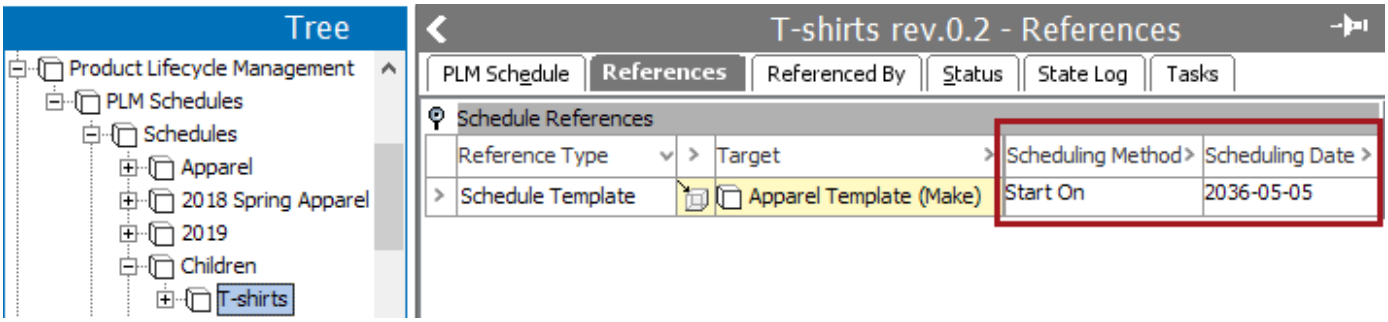
When creating a schedule in Web UI, a user is asked to select the Scheduling Method, indicating if the schedule being created is either a 'Start from date' or 'Need by date.'



Depending on the chosen selection, the date (Scheduling Date) next to the selection indicates either the start from or need by date. In the example below, a 'Start from date' was chosen, indicating that May 5, 2036, will be the date that this schedule starts.



In workbench, the attributes are recorded on the Schedule Template reference.

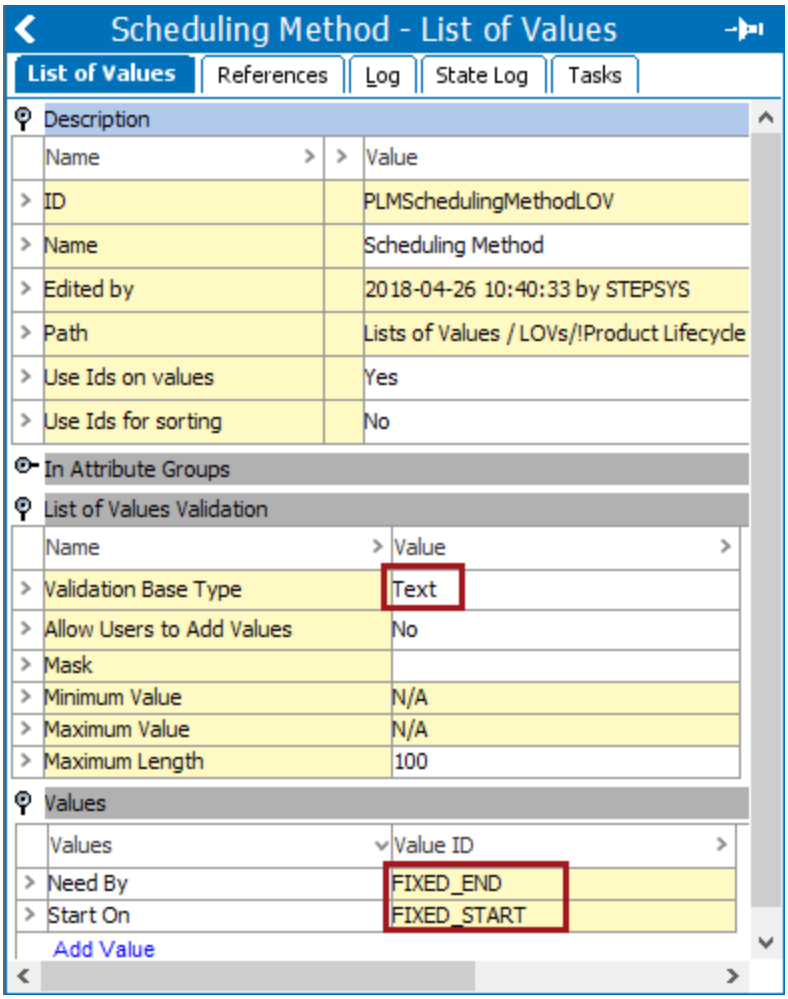


To configure these two attributes, see the direction below:

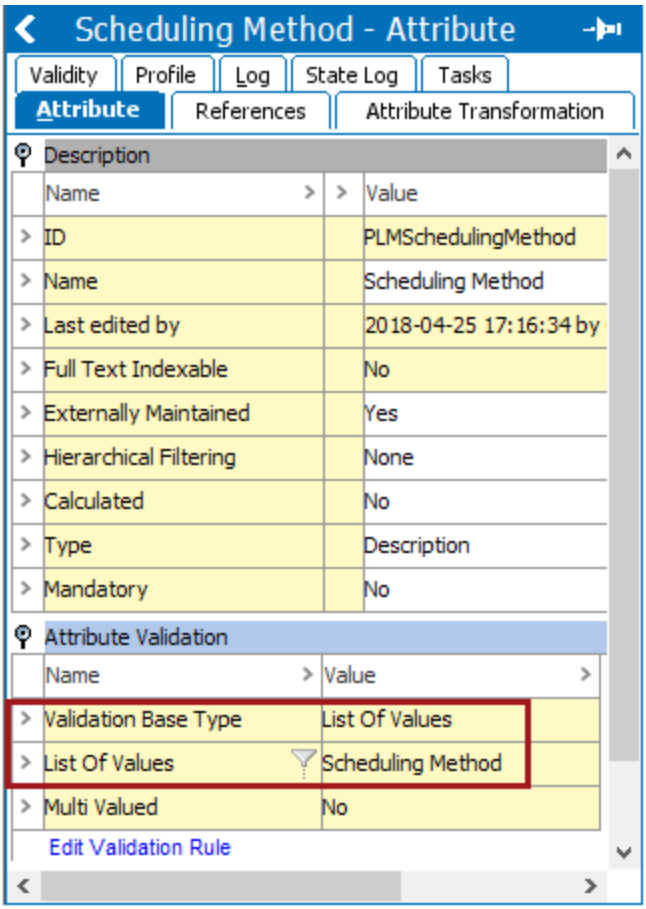
Scheduling method

1. Create a text-based List Of Value with the values of FIXED_END and FIXED_START in the Values field.

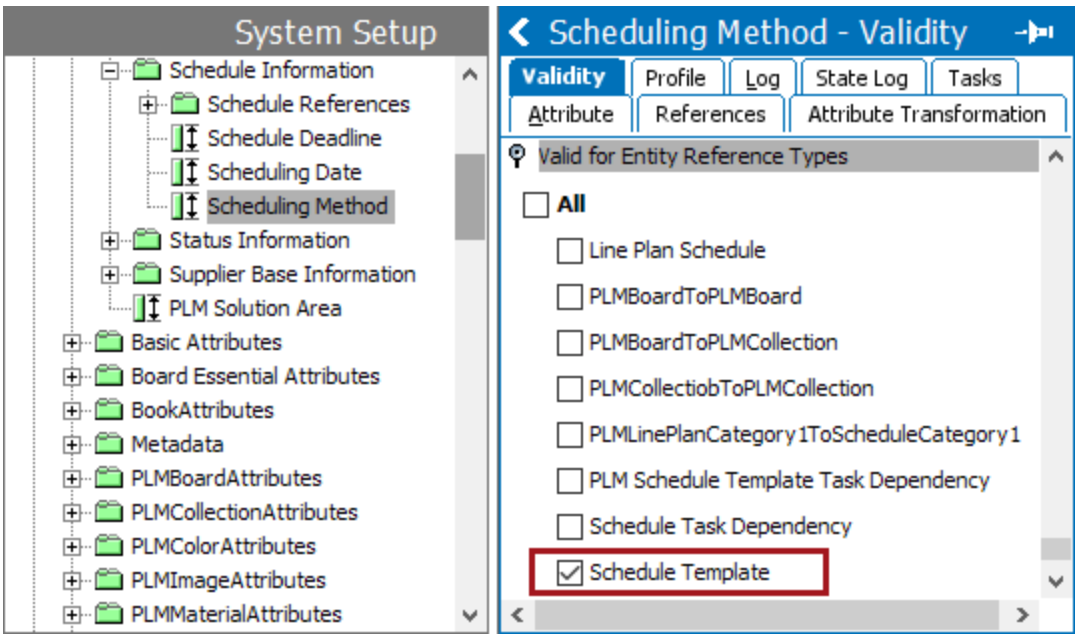
Note: The name and ID for this List Of Value can vary, but the values for the list of value must be FIXED_END and FIXED_START.



2. Under the desired parent folder, create a new description attribute to represent the scheduling method. This attribute is externally maintained with a 'List Of Values' validation base type. Make the List of Values created in the previous step the chosen List of Values for this attribute.

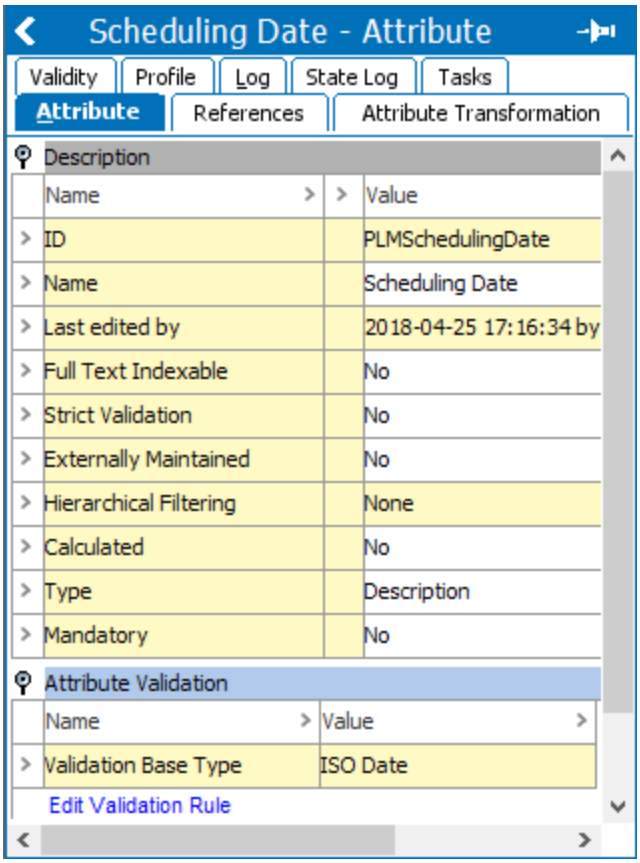


3. The attribute you just created should be valid for the reference type that represents the schedule template. In this example, the attribute is called Scheduling Method, and the reference type is Schedule Template.

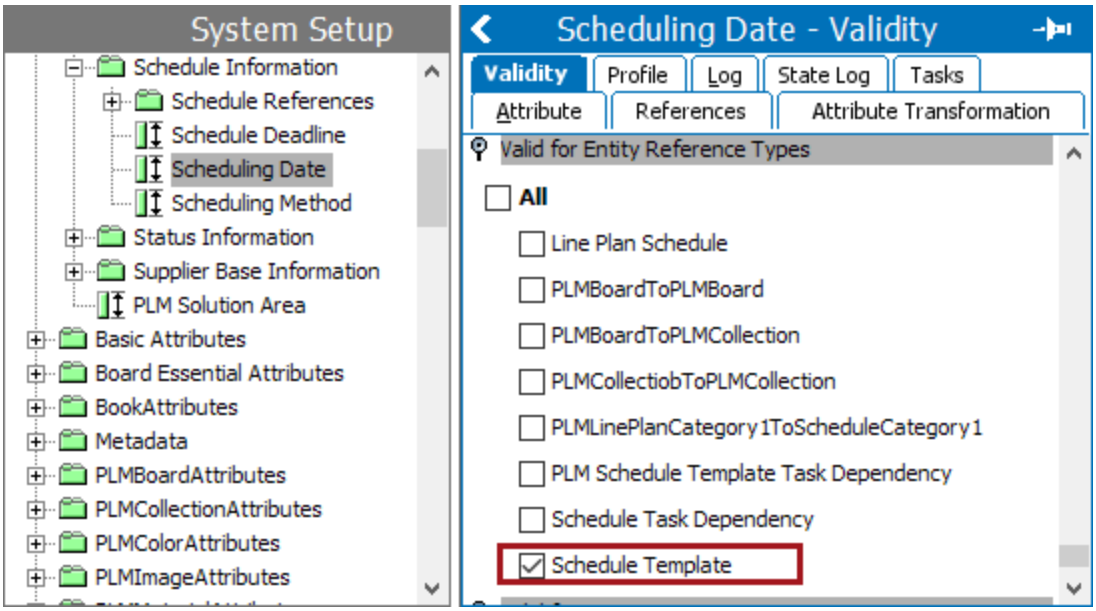


Scheduling date

1. Create a description attribute with an ISO Date validation base type.

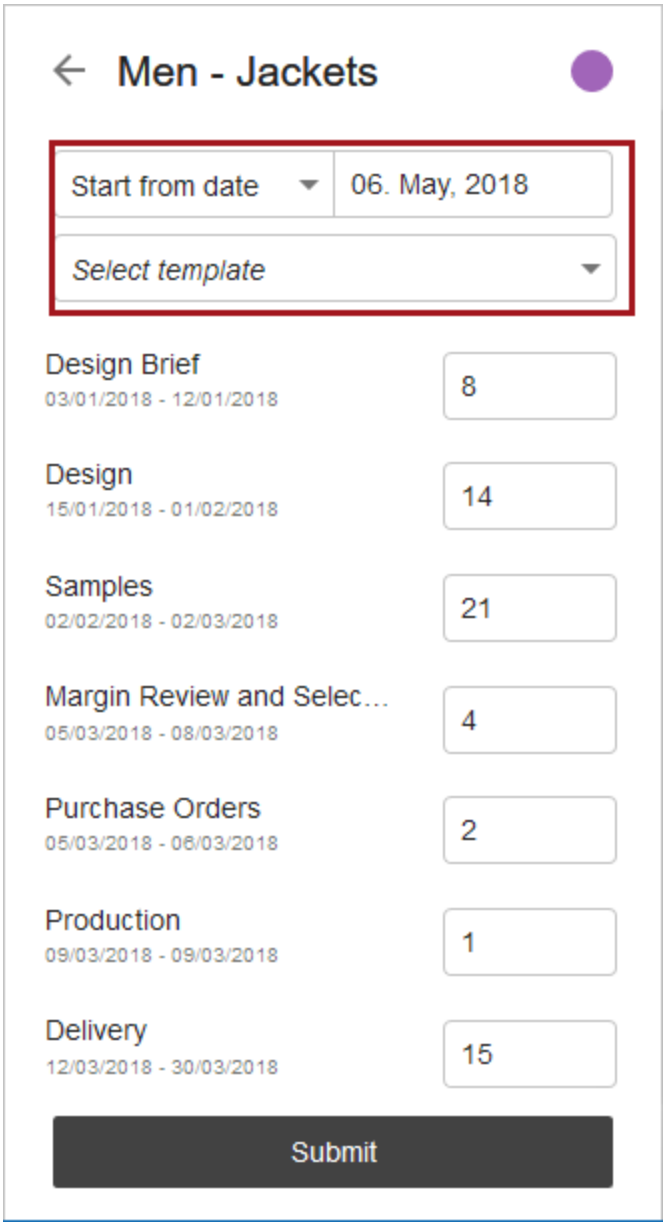


2. The attribute to represent the scheduling date should be valid for the reference type that represents the schedule template. In this example, the attribute is Scheduling Date and the reference type is Schedule Template.

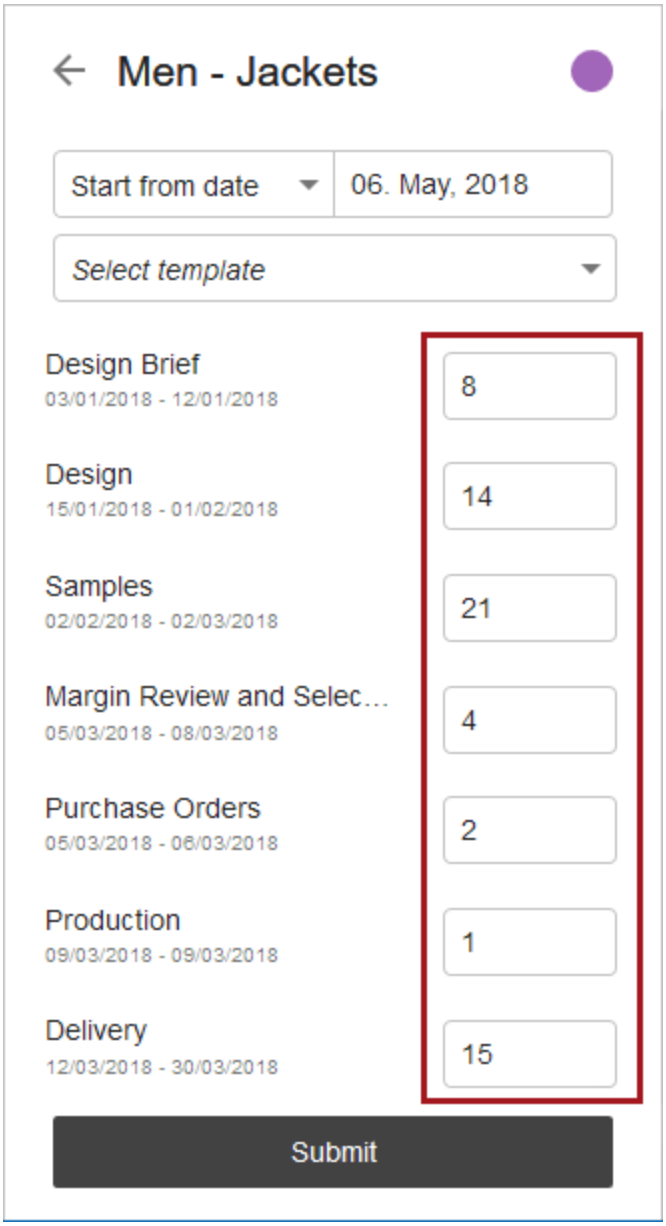


Planned Start and Planned End

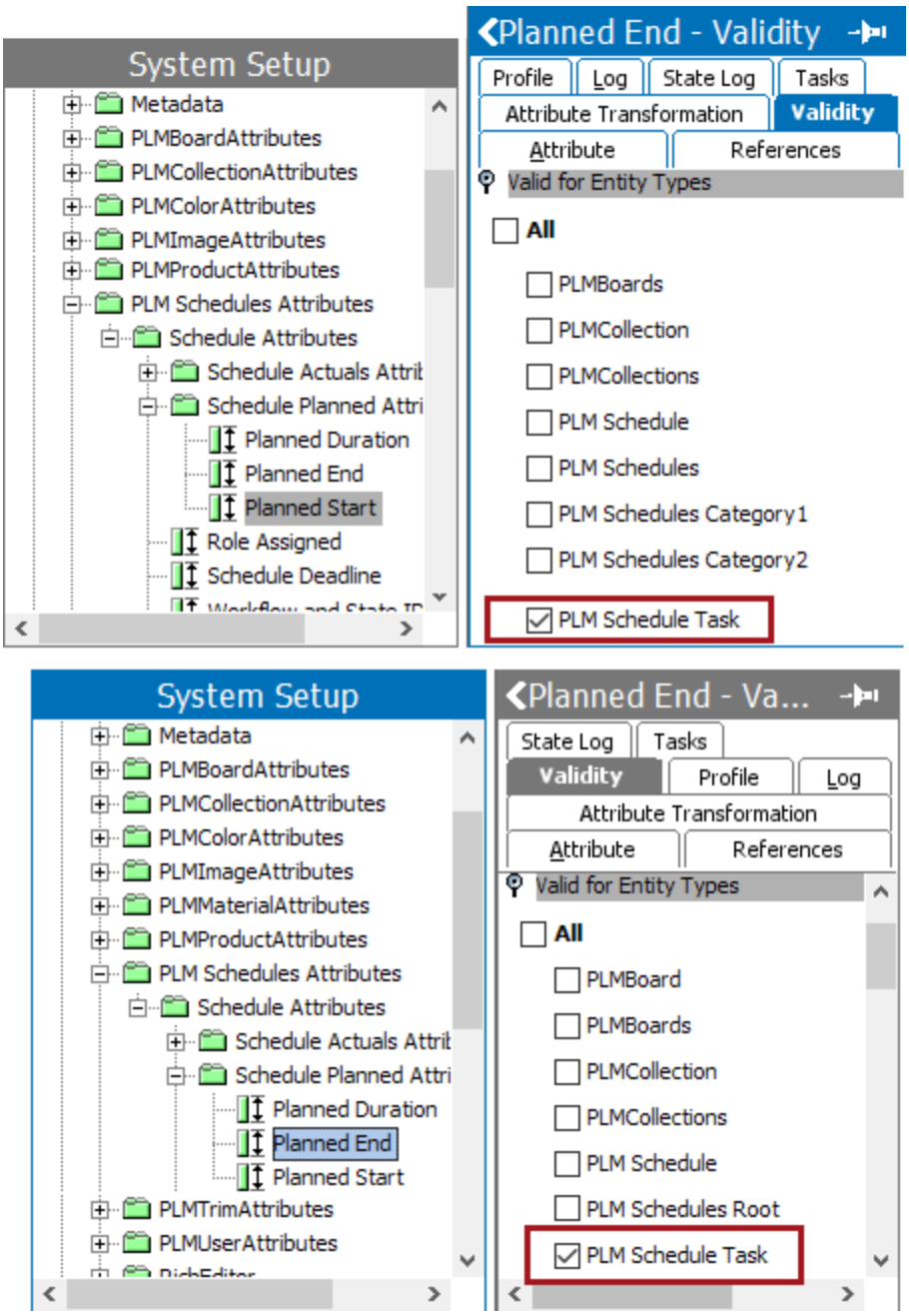
When creating a schedule, a planned start date and a planned end date for each schedule task needs to be defined. This is done when a user creating the schedule selects the attributes that represent the scheduling method, scheduling date, and the template type.



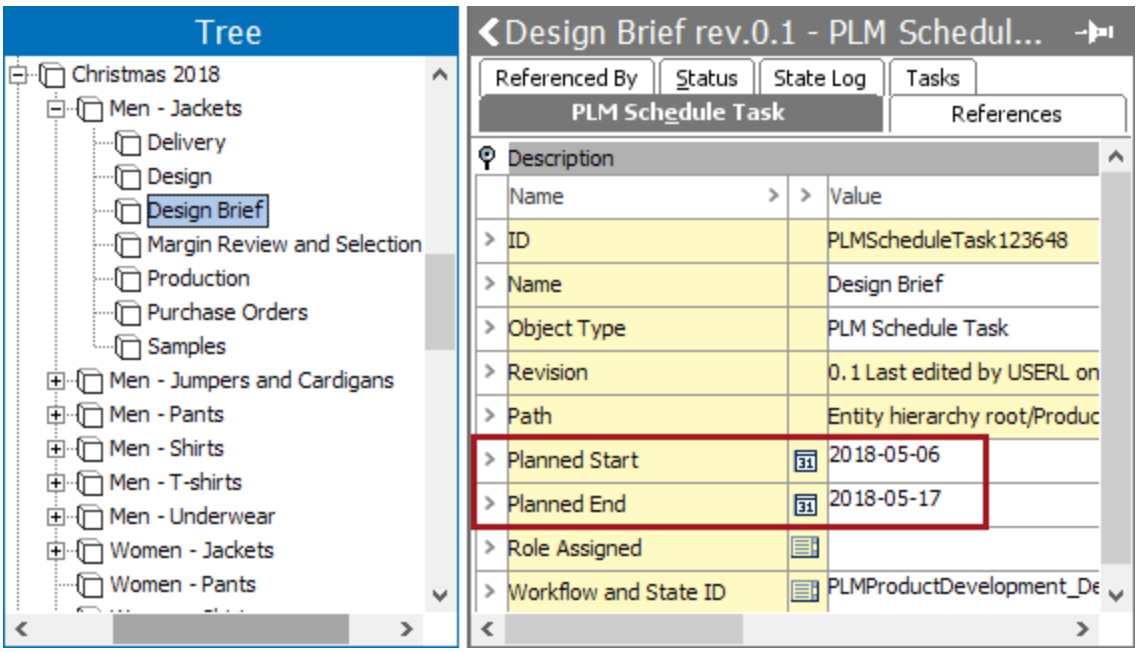
Additionally, each template has a set number of tasks associated with the template. Each template task has a defined duration of days allotted for completing the task. If a user wishes to change the default number of days for a task, they are able to do so when creating the schedule. For more on how to create schedule templates, see the **Creating Schedule Object Types** topic in this documentation.



Once the schedule is submitted, depending on the selections chosen for the attributes that represent the Scheduling Method, scheduling date, template type, the task dependencies, and task day durations, the planned start and planned end dates for the schedule are defined. In this example, these dates are recorded in the PLMProjectStartDateScheduled and PLMProjectEndDateScheduled attributes valid for entity type PLM Schedule Task.



In the example below, 'Men-Jackets' has been submitted as a schedule. 'Design Brief' is the first task, with nine days being determined as the duration of business working days needed to complete the task.

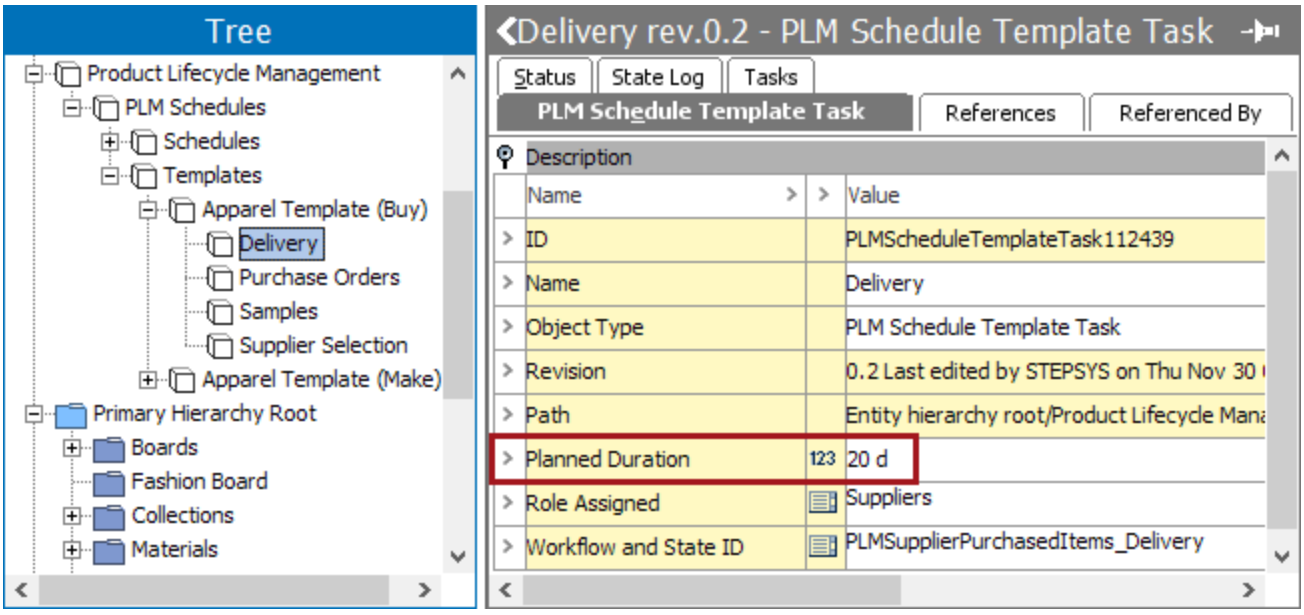


To create both the Planned Start and Planned End Date attributes:

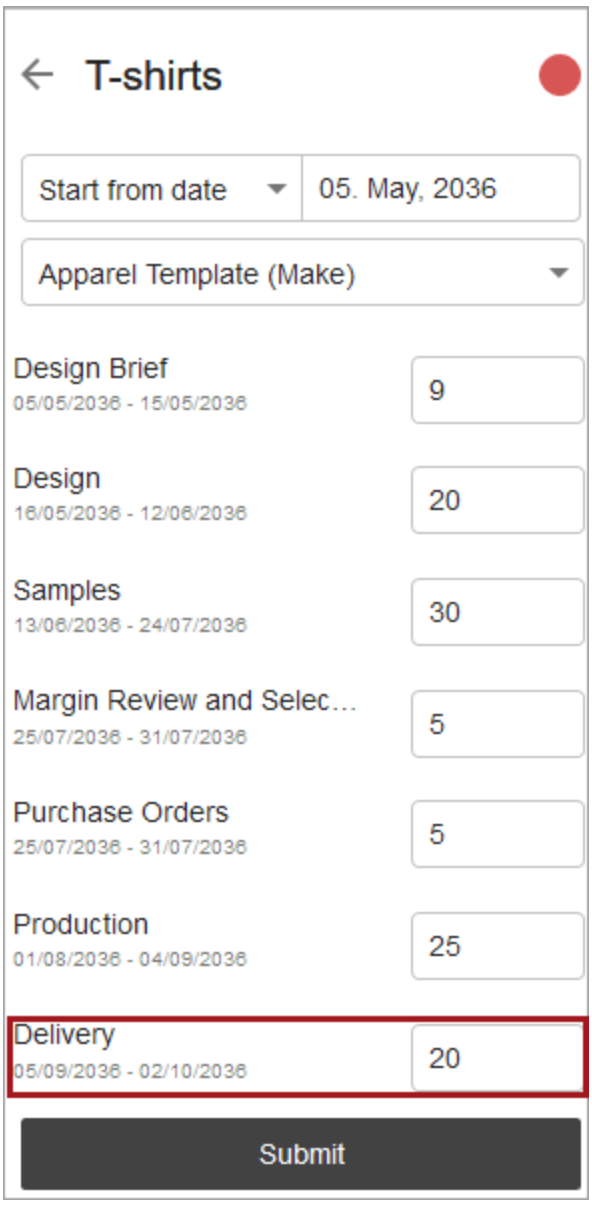
1. Go to System Setup, and create these attributes in the desired attribute group.
2. Make them both description attributes with a ISO Date validation base type, and a validity for the entity type PLM Schedule Task.

Planned Duration

The attribute to represent the planned duration's value determines the baseline number of days that a particular template task should take. For example, in the Apparel Template (Buy), the template task 'Delivery' has a planned duration of 20 days as its baseline.



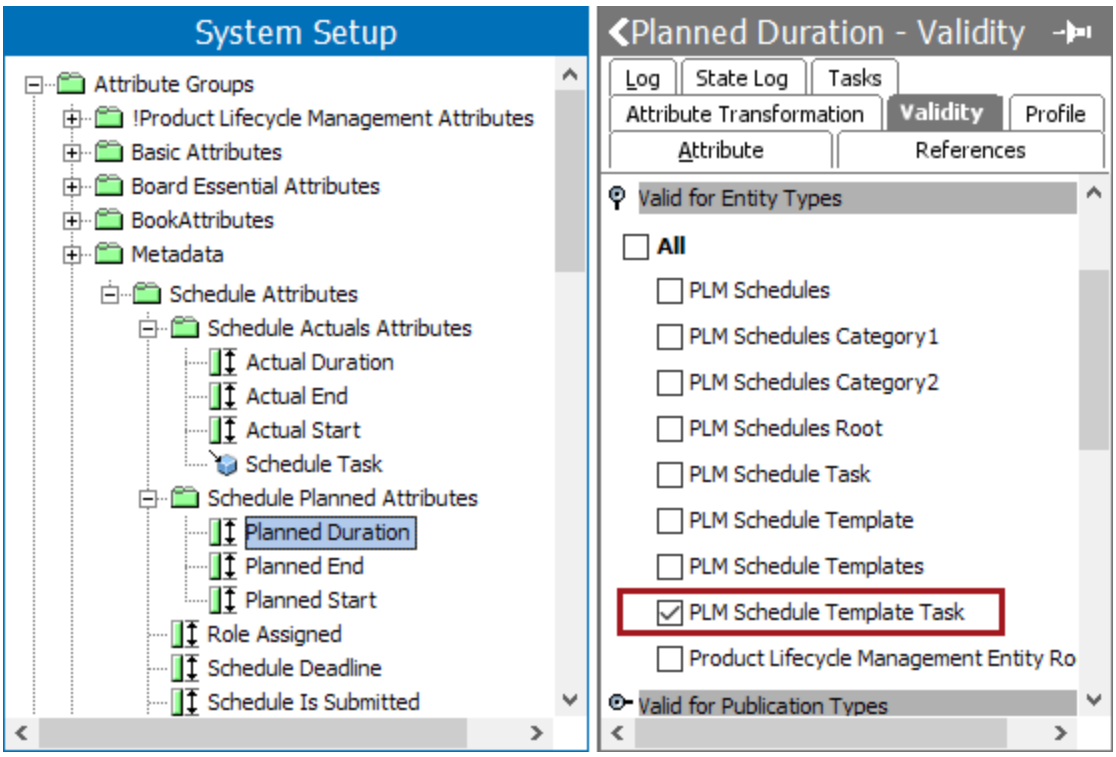
When a user creates a schedule in Web UI, and picks the 'Apparel Template (Buy)' schedule template to use, the tasks associated with the template populate with their values pre-populated from the attribute that represents the Planned Duration attribute.



Should the user wish to alter these pre-populated values when they are creating the schedule, they are able to do so before clicking 'Submit.'

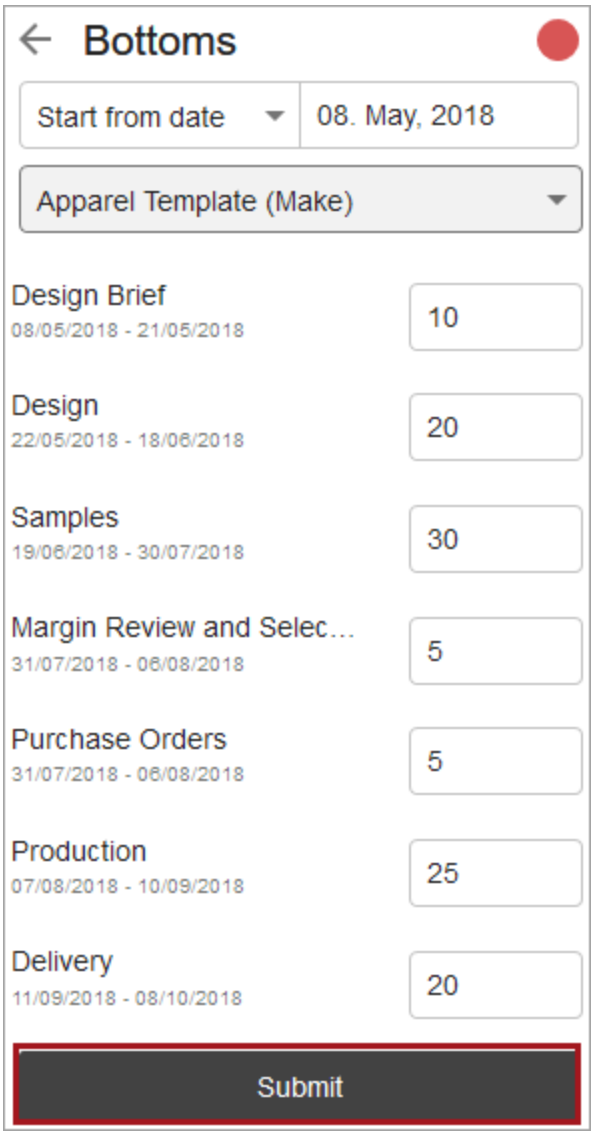
To create the attribute to represent the Planned Duration:

1. Go to System Setup and create the attribute in the desired attribute folder.
2. Make the attributes a description attribute, with a Number validation base type, that is valid for the PLM Schedule Template Task Entity type. In the example below, the attribute created is called 'Planned Duration.'


System Setup
Attribute Groups
!Product Lifecycle Management Attributes
Basic Attributes
Board Essential Attributes
BookAttributes
Metadata
Schedule Attributes
Schedule Actuals Attributes
Actual Duration
Actual End
Actual Start
Schedule Task
Schedule Planned Attributes
Planned Duration
Planned End
Planned Start
Role Assigned
Schedule Deadline
Schedule Is Submitted
Planned Duration - Validity
Log
State Log
Tasks
Attribute Transformation
Validity
Profile
Attribute
References
Valid for Entity Types
All
PLM Schedules
PLM Schedules Category1
PLM Schedules Category2
PLM Schedules Root
PLM Schedule Task
PLM Schedule Template
PLM Schedule Templates
PLM Schedule Template Task
Product Lifecycle Management Entity Ro
Valid for Publication Types

Schedule Is Submitted

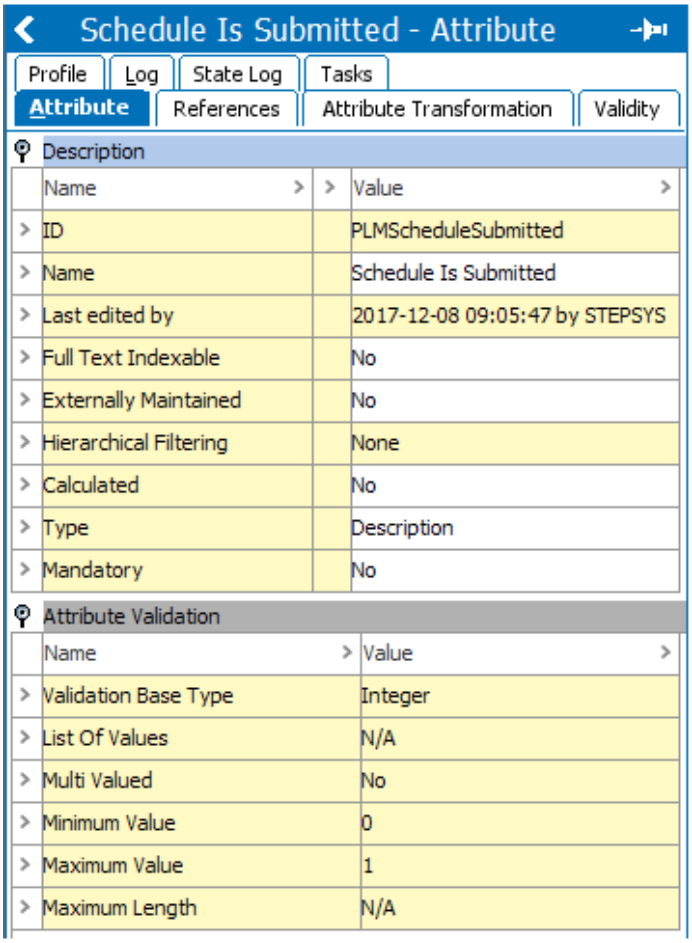
When a schedule is submitted in the Web UI, the schedule is no longer able to be edited and is ready for use.

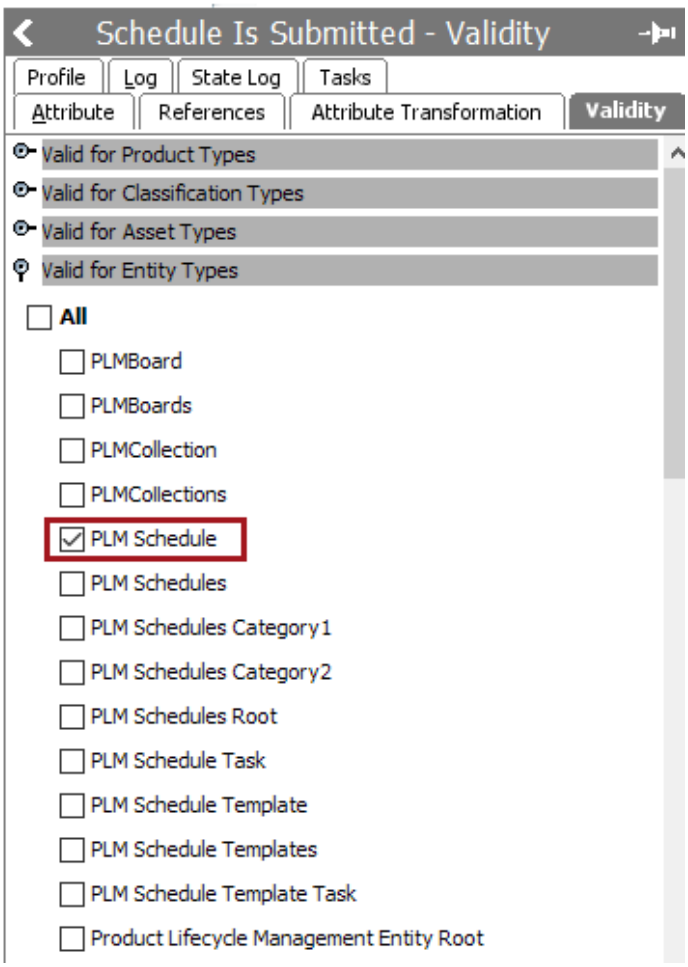


The ability to submit a schedule is due to the Schedule Is Submitted attribute.

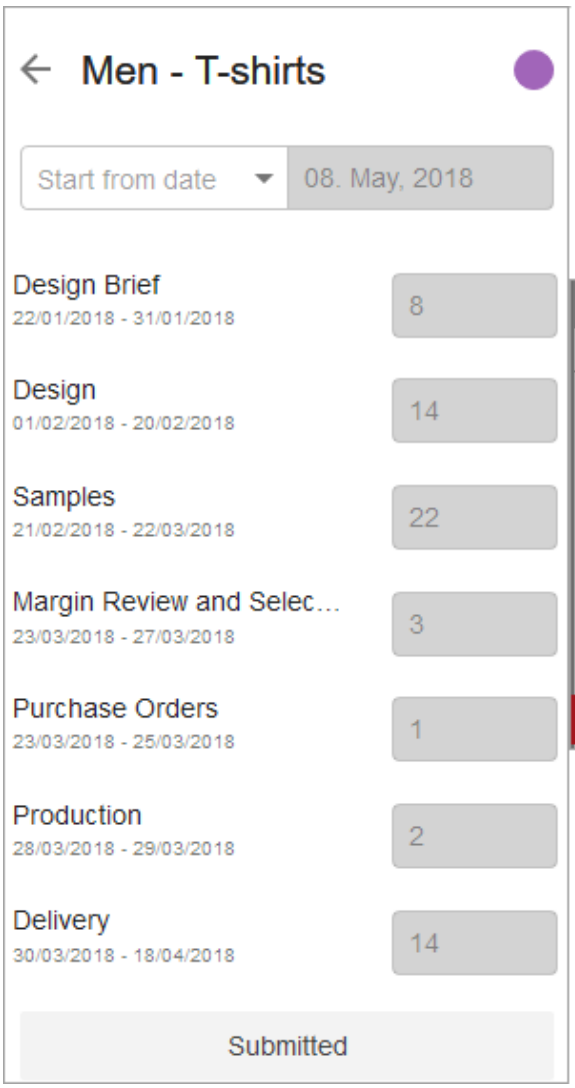
To create this attribute:

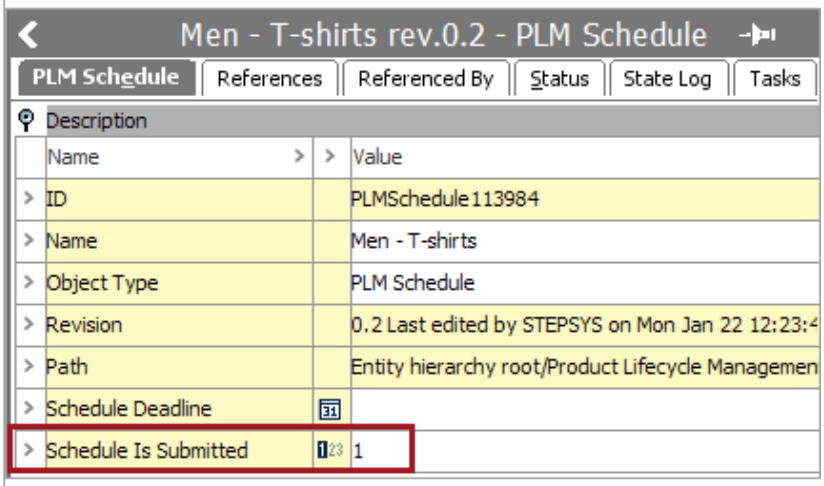
1. Go to System Setup and create the an attribute to represent the Schedule Is Submitted attribute in the desired attribute group.
2. Make the attribute a description attribute with an Integer as a validation base type.
3. The minimum value should be zero, and the maximum value should be one.
4. The validity for the Schedule Is Submitted attribute is for the PLM Schedule entity type.





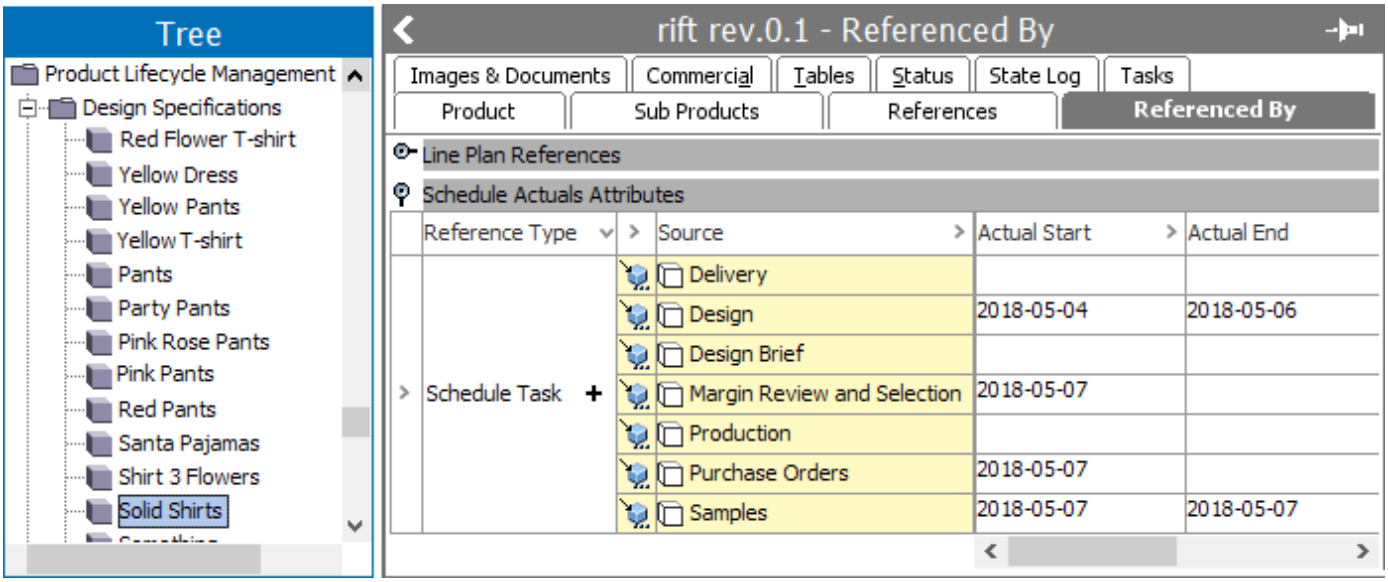
If a schedule has been submitted, the fields in Web UI are not able to be edited, and if looked at in the workbench, the value of '1' is in the Schedule Is Submitted field. If a change to the schedule needs to be made, you will need to delete the value of '1' in the Schedule Is Submitted attribute field. This will activate the schedule again, where the user is able to make any needed corrections.


Men - T-shirts
Start from date
08. May, 2018
Design Brief
22/01/2018 - 31/01/2018
8
Design
01/02/2018 - 20/02/2018
14
Samples
21/02/2018 - 22/03/2018
22
Margin Review and Selec...
23/03/2018 - 27/03/2018
3
Purchase Orders
23/03/2018 - 25/03/2018
1
Production
28/03/2018 - 29/03/2018
2
Delivery
30/03/2018 - 18/04/2018
14
Submitted

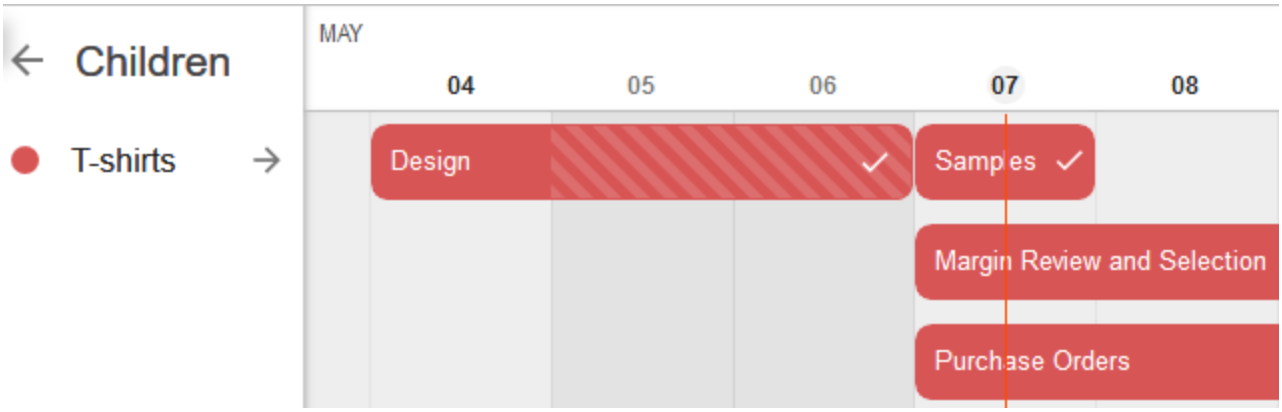

Men - T-shirts rev.0.2 - PLM Schedule
PLM Schedule
References
Referenced By
Status
State Log
Tasks
Description
Name
Value
ID
PLMSchedule 113984
Name
Men - T-shirts
Object Type
PLM Schedule
Revision
0.2 Last edited by STEPSYS on Mon Jan 22 12:23:4
Path
Entity hierarchy root/Product Lifecycle Managemen
Schedule Deadline
Schedule Is Submitted
1

Actual Start and Actual End

Through business rules, the Actual Start and Actual End attributes record when a design specification genuinely starts and finishes with a task in a schedule. The dates are recorded on the Schedule Task reference via the attributes that represent the Actual Start and Actual End dates.



When looking at the schedules in Web UI, you can then see a complete visual picture of what deadlines are being met or are running over.



For more on the Schedule Task reference type, see the **References Needed for Schedules** topic in this documentation.

To create the attributes to represent the Actual Start and Actual End:

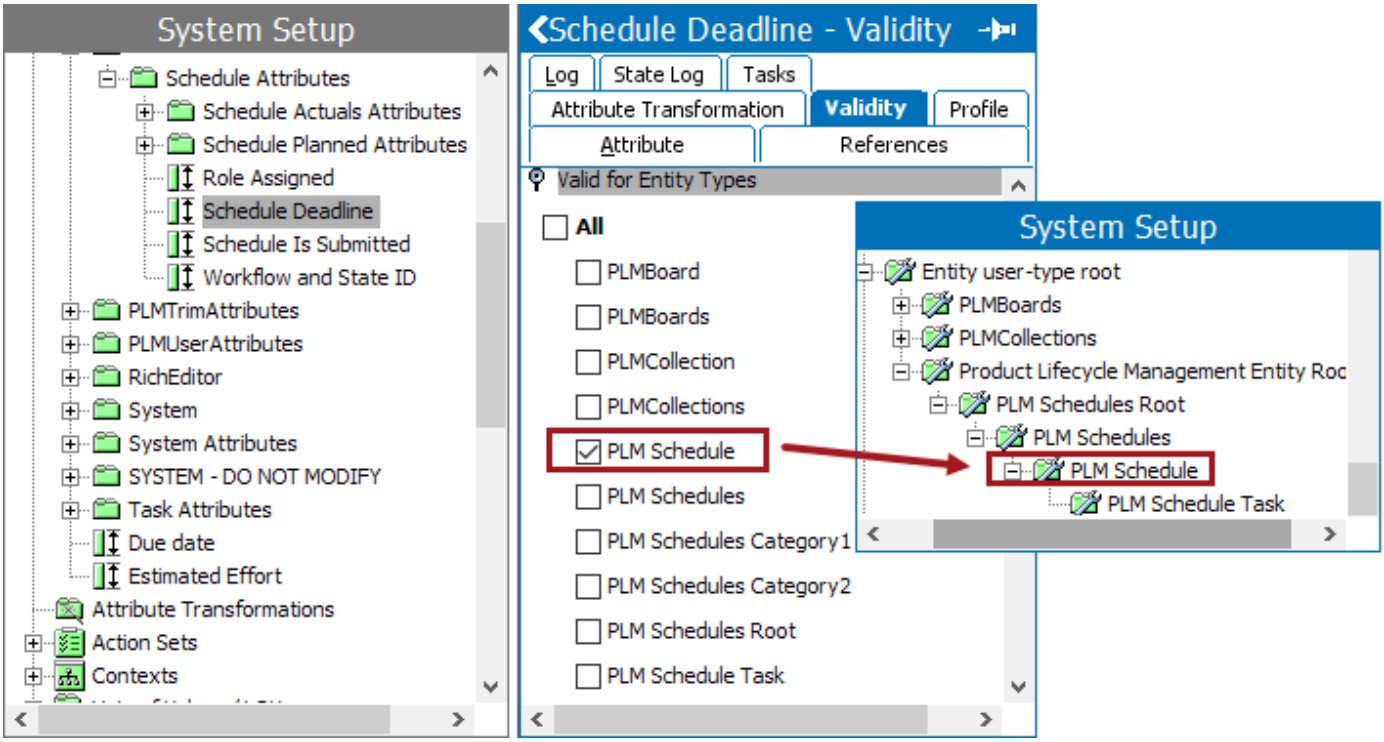
1. Go to System Setup and create the attribute in the desired attribute group.
2. Create the Actual Start and Actual End attributes as description attribute, with an ISO Date validation base type, that is valid for the product reference type Schedule Task.

For more on business rules, see the **Business Rules** documentation.

Schedule Deadline

This attribute is used to represent the last date of the schedule.

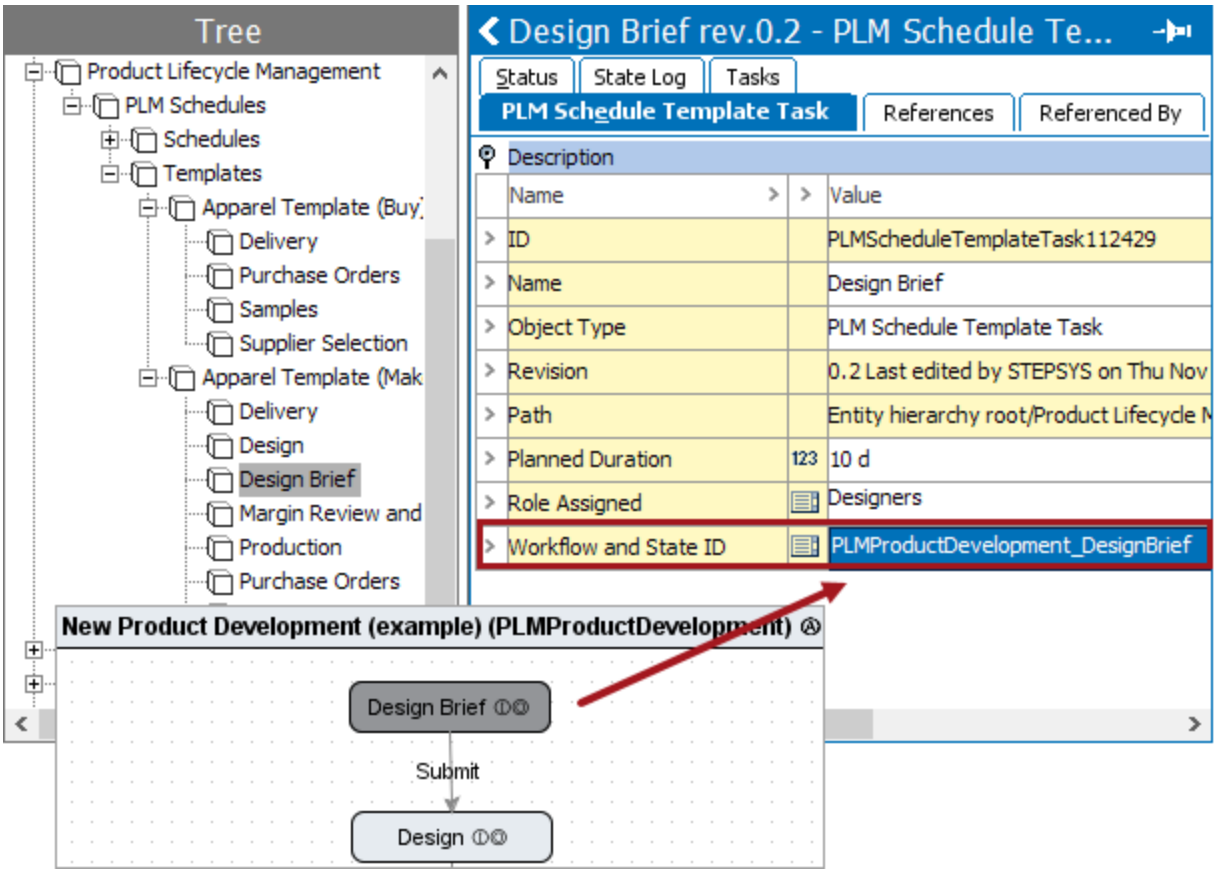
In this example, it is called Schedule Deadline. It is a description attribute, with a Validation Base Type for an ISO Date. It is valid for the entity type that represents the PLM Schedule.



Workflow and State ID

While it is not required to have workflows when using schedules, it is possible to use workflows in conjunction with schedules. When a design specification goes through the tasks in a schedule, the design specification is often also progressing through a workflow. As the design specification enters and exits each workflow state and transitions to the next state, business rules applied to states and transitions can capture the actual start and actual end dates of each task. These actual start and actual end dates can then recorded on attributes on the Schedule Task reference and also display visually on the schedule. See the above topic in this documentation for more on actual start and actual end date attributes. For more on workflows see the **Workflows** topic in the **Workflows** documentation. For more on business rules see the **Business Rules** topic in the **Business Rules** documentation.

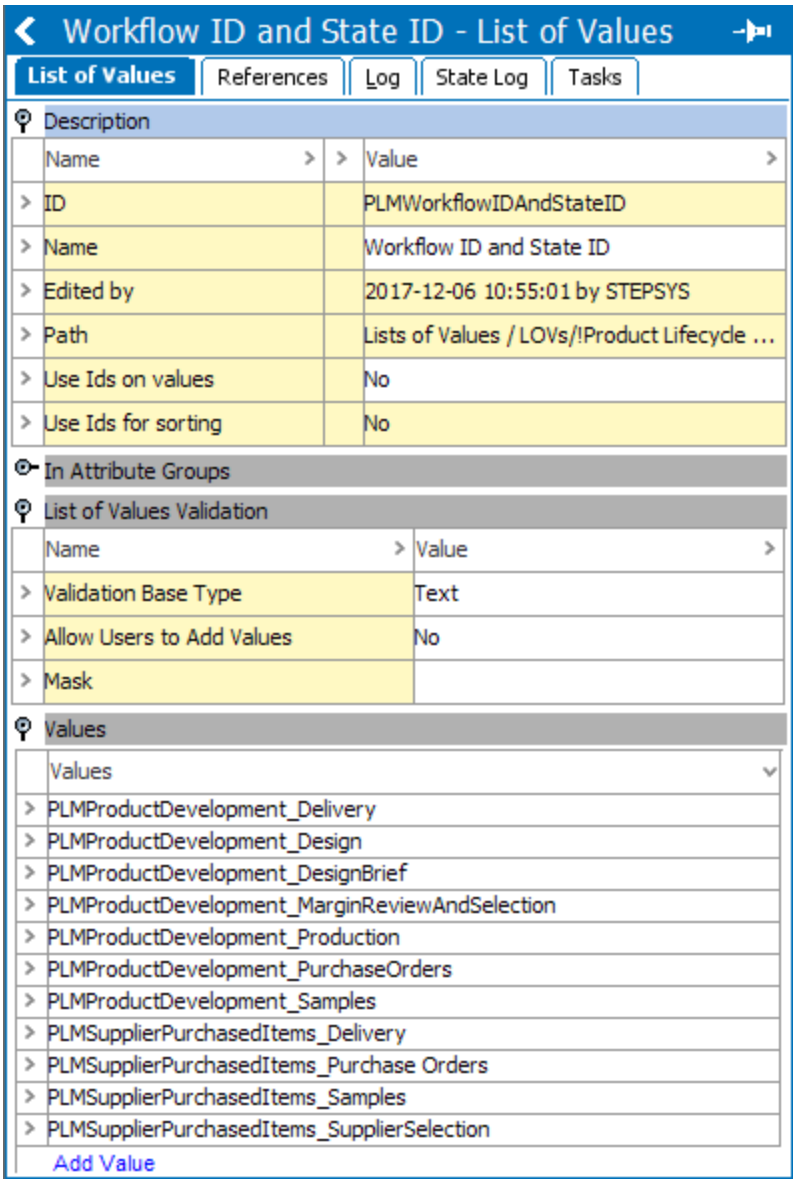
In order for schedule template tasks and workflows to work together seamlessly, the schedule task template needs to be told what workflow and state ID to look at for the entry and exit of tasks in workflow states, thus helping to provide the actual start and actual end dates. This is accomplished via the attribute that represents the Workflow and State ID.



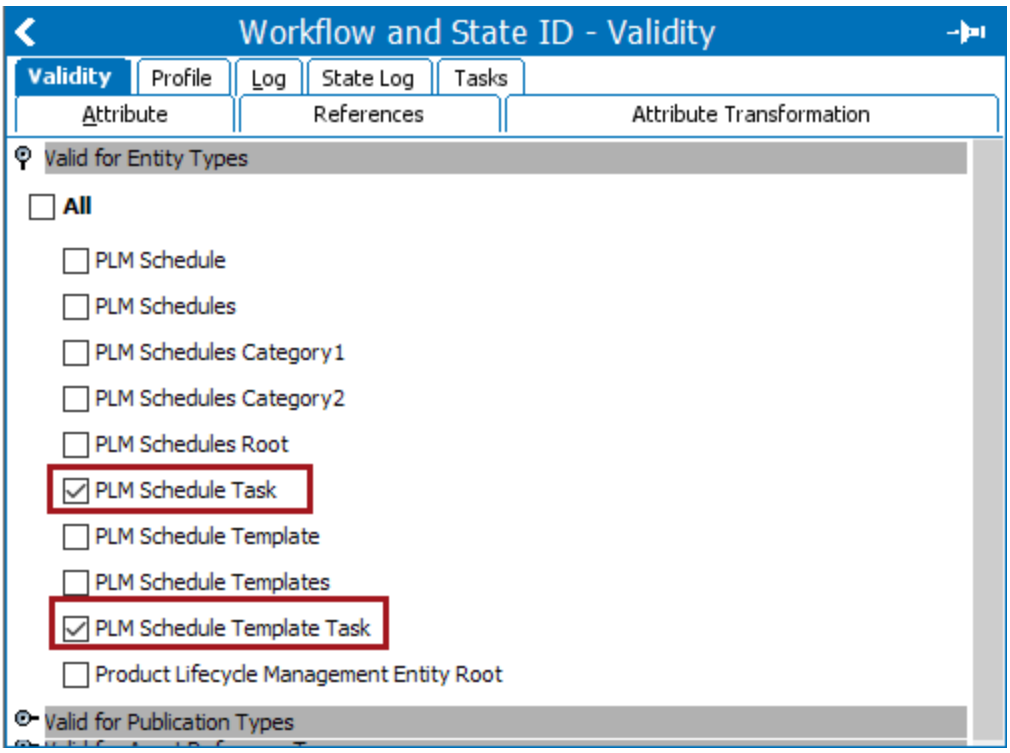
To configure the Workflow and State ID attribute:

1. Go to System Setup and create an attribute to represent the Workflow ID and State ID List of Values in the desired folder.

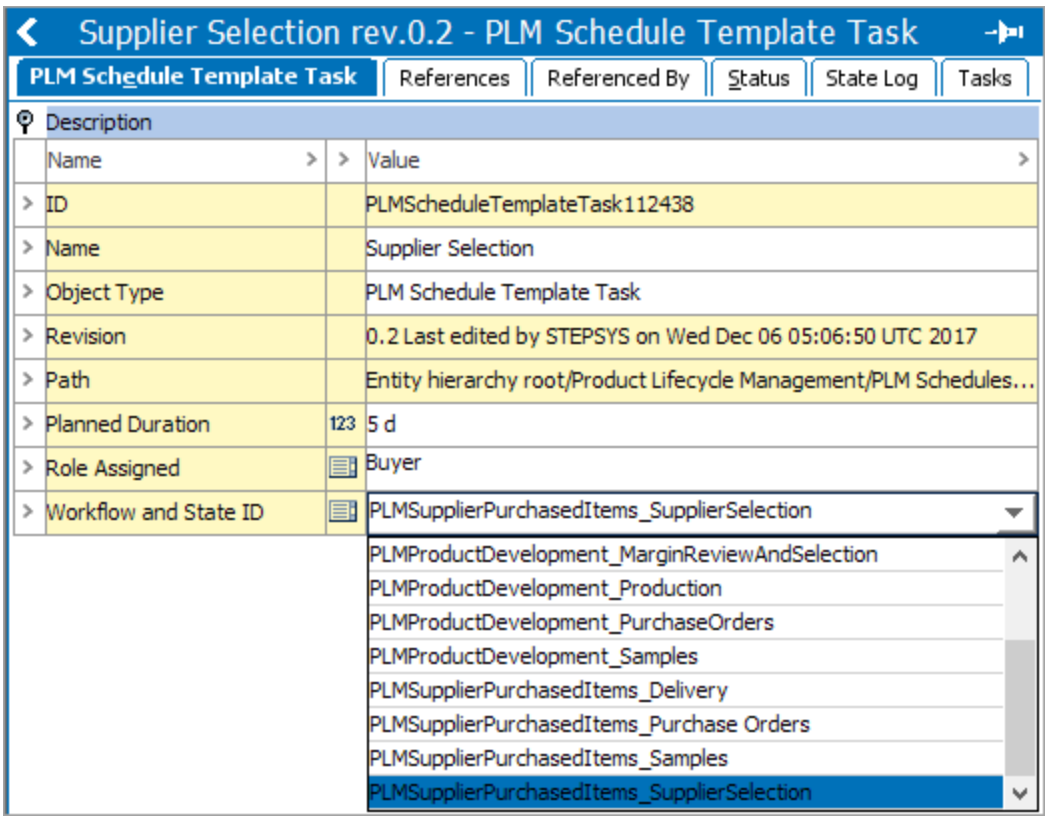
2. Make the Workflow ID and State ID List of Values a Text validation base type and add the values. The values need to be the workflow ID in accompaniment to every workflow state ID that needs to be captured. The ID pattern 'Workflow ID_State ID' is used for the values in this example.



3. Next, in the desired attribute group, create a description attribute with a 'List Of Values' validation base type.
4. Select the List of Values created to hold the workflow ID and state ID that you want the attribute to refer to.
5. Make the validity for the Workflow and State ID attribute valid for the PLM Schedule Task and PLM Schedule Template Task entity object types.



6. To apply the Workflow and State ID after creating a schedule template, click on one of the tasks in the schedule template.
7. Navigate to the Workflow and State ID attribute, and select the desired workflow and state ID from the dropdown menu.


Supplier Selection rev.0.2 - PLM Schedule Template Task
PLM Schedule Template Task
References
Referenced By
Status
State Log
Tasks
Description
Name
Value
ID
PLMScheduleTemplateTask112438
Name
Supplier Selection
Object Type
PLM Schedule Template Task
Revision
0.2 Last edited by STEPSYS on Wed Dec 06 05:06:50 UTC 2017
Path
Entity hierarchy root/Product Lifecycle Management/PLM Schedules...
Planned Duration
123
5 d
Role Assigned
Buyer
Workflow and State ID
PLMSupplierPurchasedItems_SupplierSelection
PLMProductDevelopment_MarginReviewAndSelection
PLMProductDevelopment_Production
PLMProductDevelopment_PurchaseOrders
PLMProductDevelopment_Samples
PLMSupplierPurchasedItems_Delivery
PLMSupplierPurchasedItems_Purchase Orders
PLMSupplierPurchasedItems_Samples
PLMSupplierPurchasedItems_SupplierSelection

Schedule Setup in Web UI

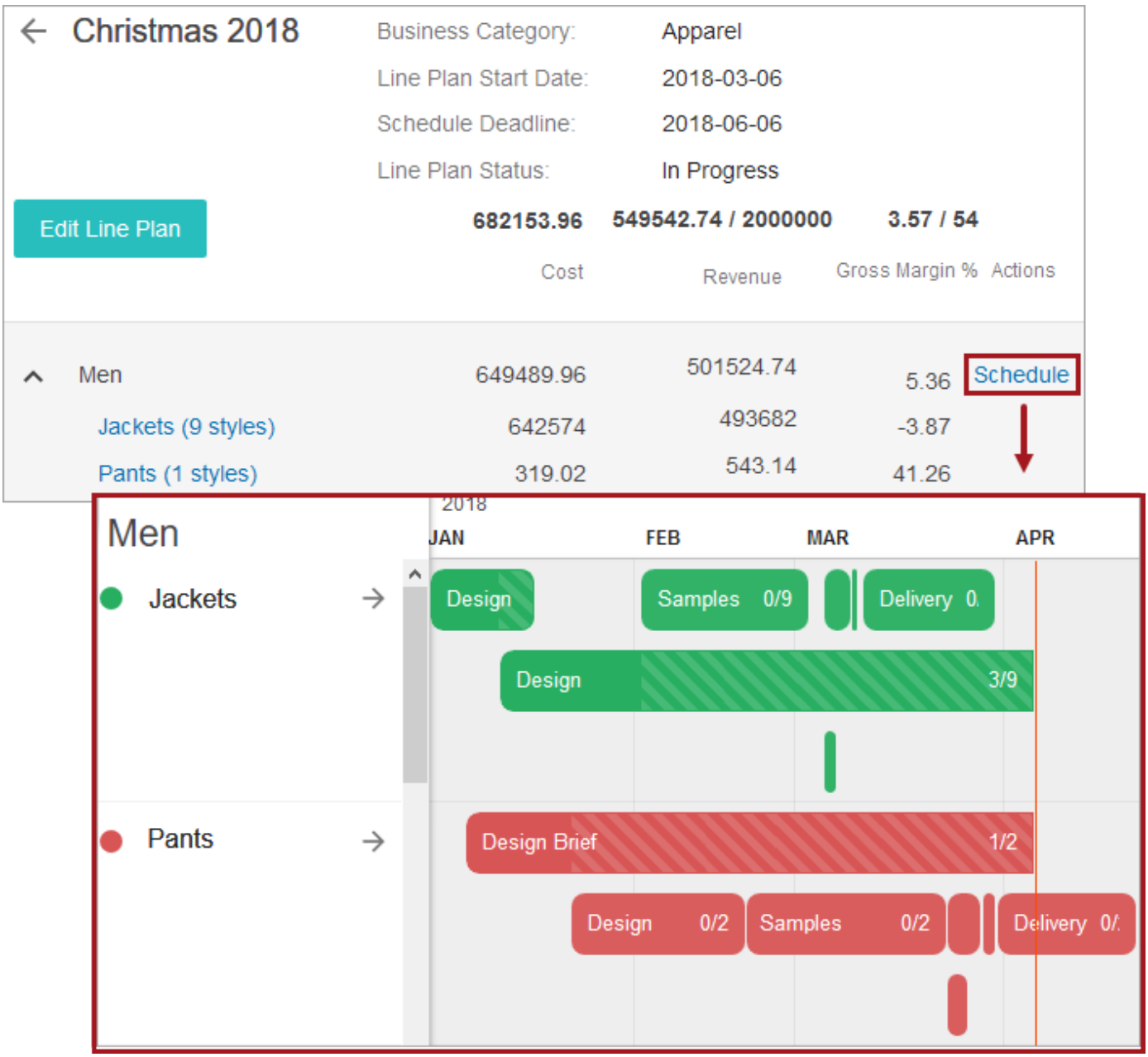
Users interact with schedules only in the Web UI, thus it is important to have proper configuration so that the user has a seamless experience.

Prerequisite

Before any Web UI setup can occur, proper configuration in workbench must be in place. Be sure to read through all of the setup schedule topics for workbench in this documentation before attempting to configure schedules in Web UI.

PLM Schedule Template

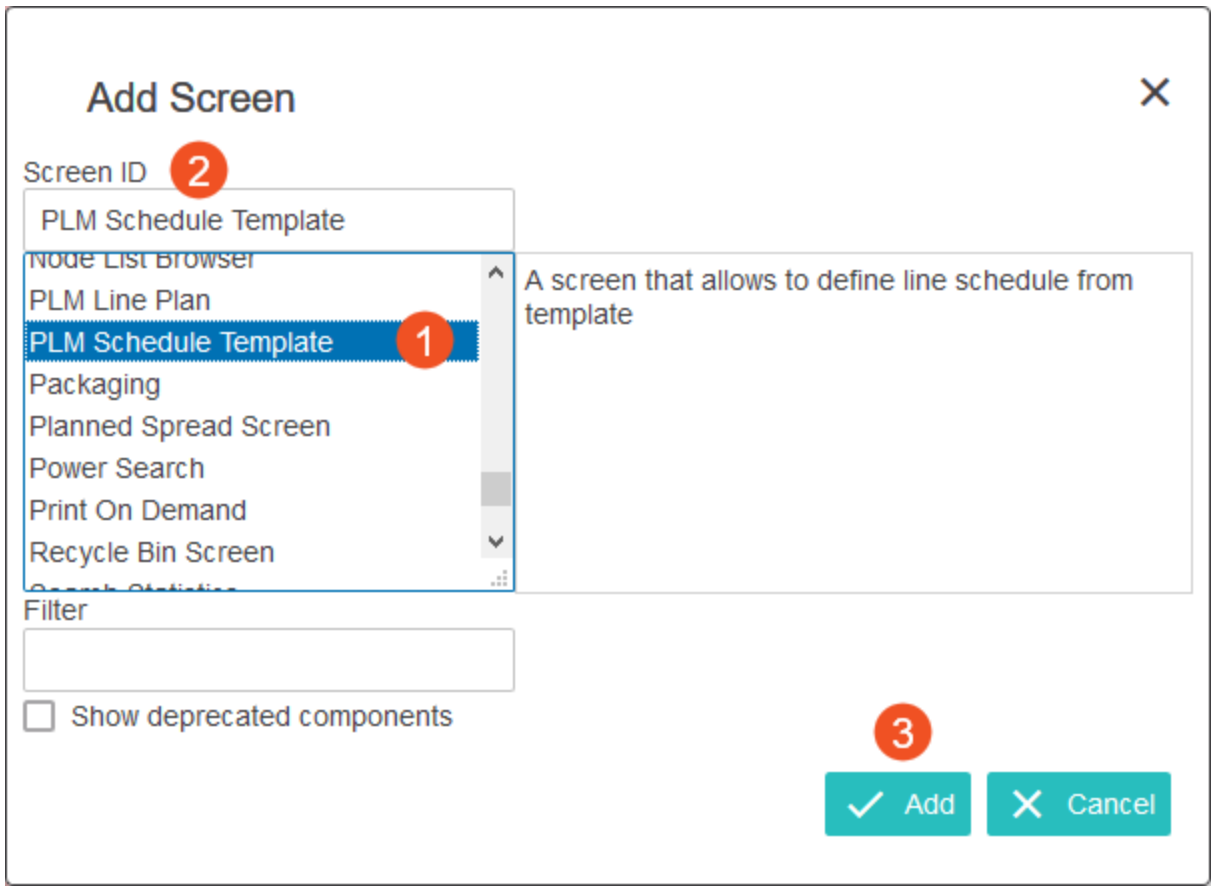
The PLM Schedule Template screen is the landing page for schedules after a user clicks on the '**Schedule**' hyperlink in the approved line plan.



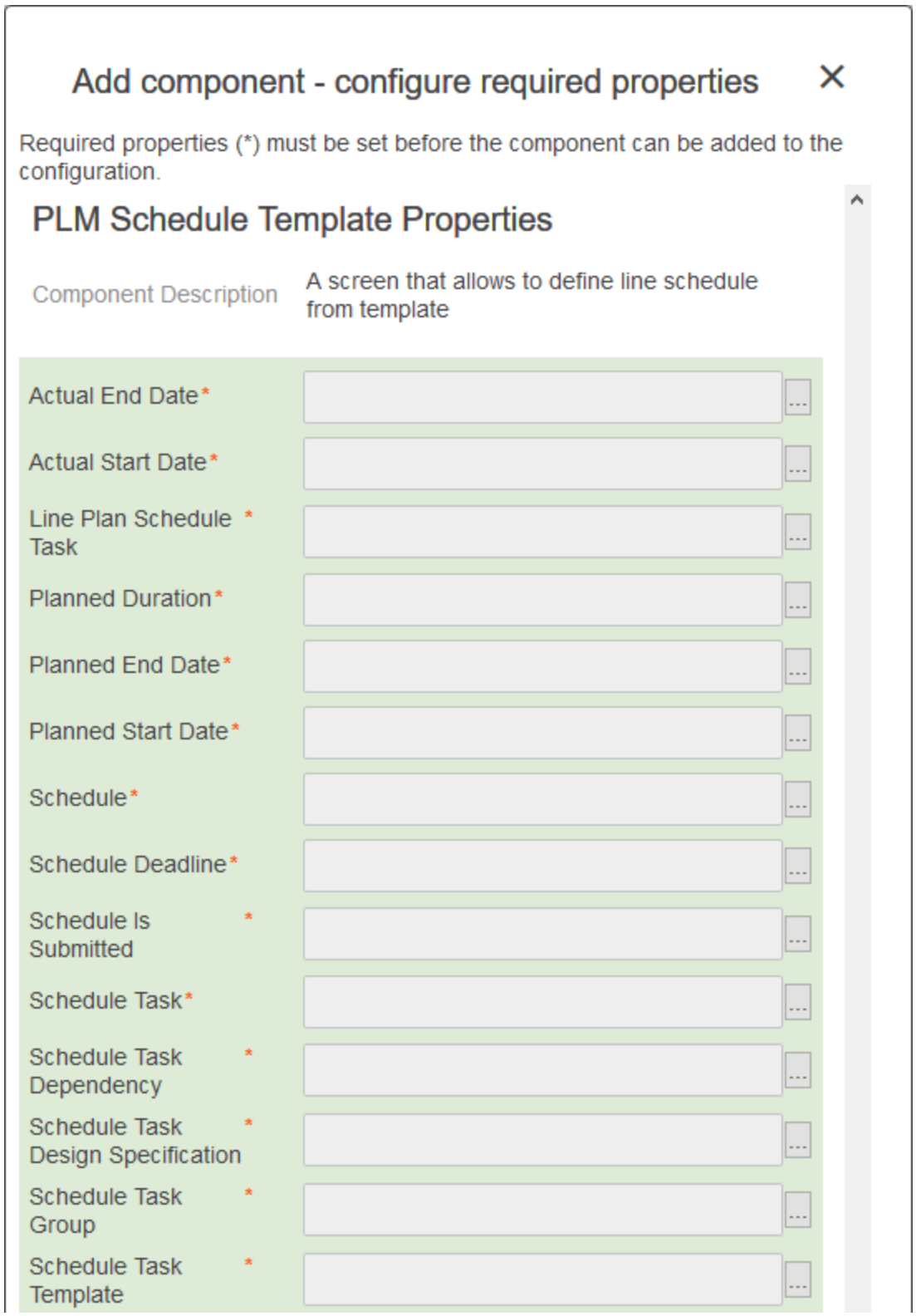
This screen displays the approved line plan in a schedule format, with all of its subcategories, and any task bar graphs for submitted subcategory schedules.

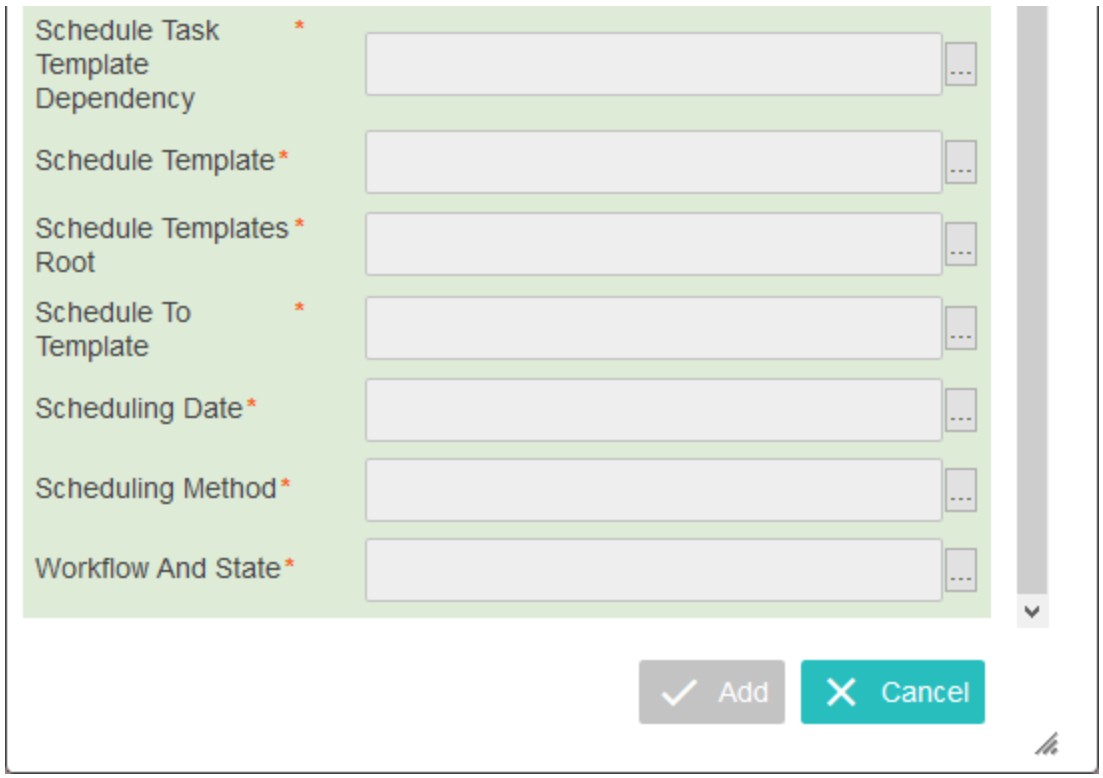
To create this PLM Schedule Template screen, follow the directions below:

1. In Web UI, open the designer and create a new PLM Schedule Template screen. Enter in a recognizable Screen ID, and click **Add**.



2. In the PLM Schedule Template Properties, click the ellipsis button (...) to the right of each parameter field to select the appropriate attributes, object types, and references. A complete list of what is needed is labeled below.

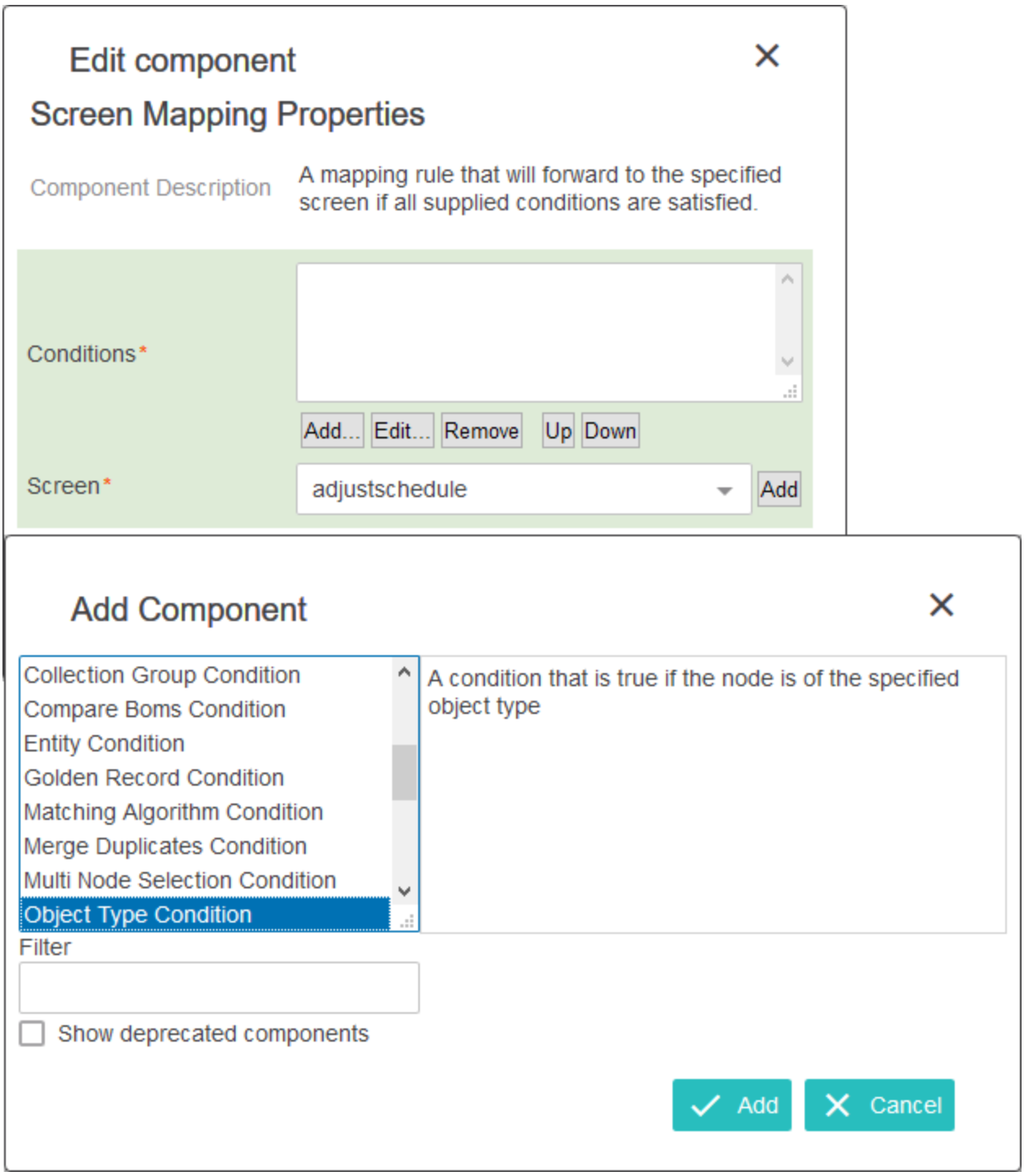

Add component - configure required properties
Required properties (*) must be set before the component can be added to the configuration.
PLM Schedule Template Properties
Component Description
A screen that allows to define line schedule from template
Actual End Date*
Actual Start Date*
Line Plan Schedule Task *
Planned Duration*
Planned End Date*
Planned Start Date*
Schedule*
Schedule Deadline*
Schedule Is Submitted *
Schedule Task*
Schedule Task Dependency *
Schedule Task Design Specification *
Schedule Task Group *
Schedule Task Template *



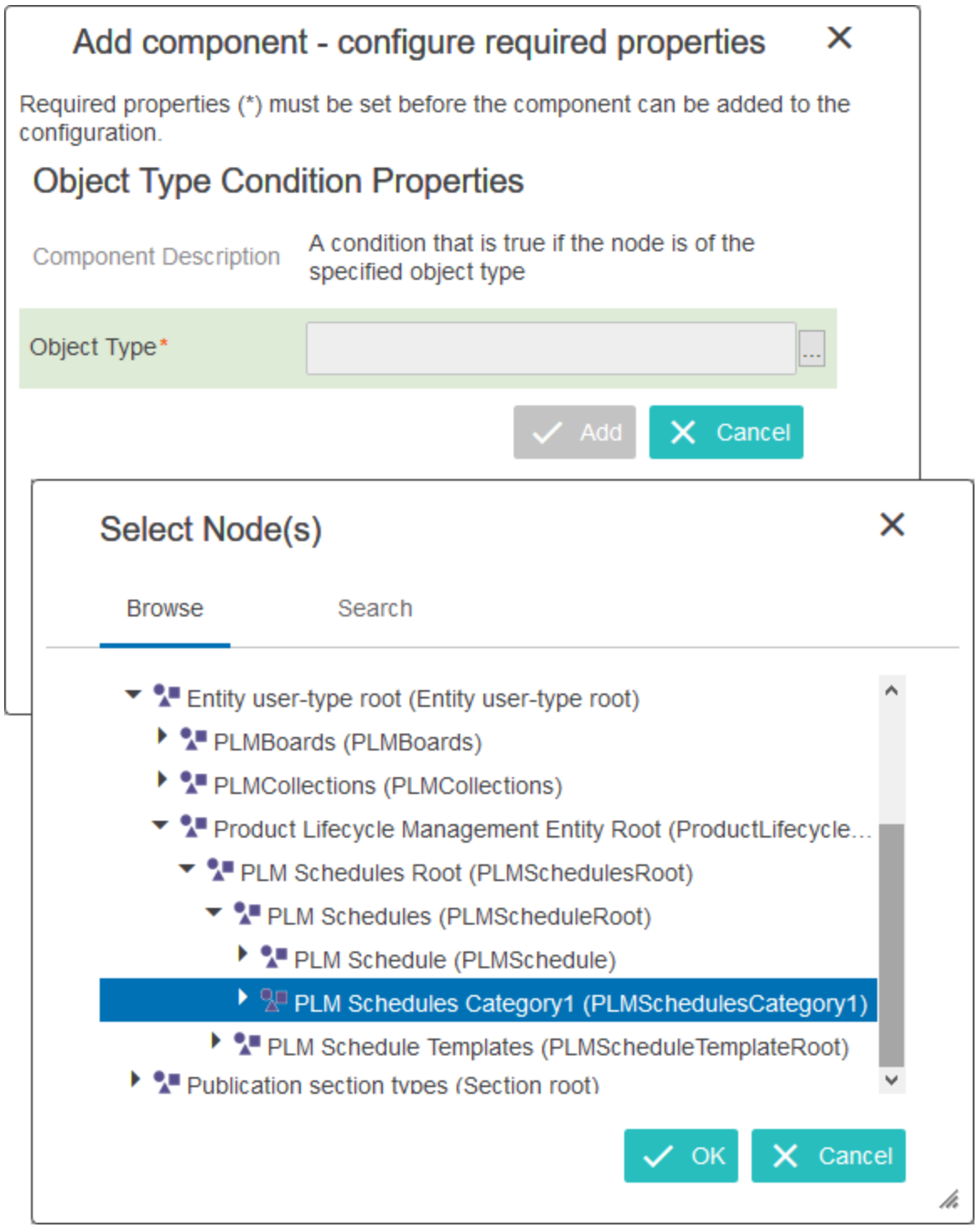
- **Actual End Date**: Through business rules, this is the attribute that records when a design specification genuinely finishes with a task in a schedule.
- **Actual Start Date**: Through business rules, this is the attribute that records when a design specification genuinely starts with a task in a schedule.
- **Line Plan Schedule Task**: The reference that connects the classification object type for line plan category level 2 to entity type schedule level 2.
- **Planned Duration**: The attribute that represents the baseline number of days that a particular template task should take.
- **Planned End Date**: The attribute created to hold the value for the planned end date that a task in a schedule should have.
- **Planned Start Date**: The attribute created to hold the value for the planned start date that a task in a schedule should have.
- **Schedule**: The alternate classification object type for line plan category level 1.
- **Schedule Deadline**: The attribute used to represent the last date of the schedule.
- **Schedule Is Submitted**: The attribute created for when the schedule is submitted.
- **Schedule Task**: The object type of the tasks in the schedule.
- **Schedule Task Dependency**: The entity reference type created that determines the order, or dependencies, of the tasks in the schedules.
- **Schedule Task Design Specification**: The reference type created that enables schedules and design specifications to work together.
- **Schedule Task Group**: The entity type that represents the second level in the schedule.
- **Schedule Task Template**: The entity type created to represent the third level of the schedule task templates.

- **Schedule Task Template Dependency**: The entity reference type that determines the order, or dependencies, of the schedule template tasks for the schedules.
- **Schedule Template**: The entity type created to represent the second level of the schedule task templates.
- **Schedule Templates Root**: The entity type created to be the root node for templates.
- **Schedule To Template**: The entity reference used between the schedule and the schedule templates.
- **Scheduling Date**:The attribute created to indicate the actual date that is either the start from or need by date.
- **Scheduling Method**: The attribute that indicates if the schedule being created is either a 'Start from date' or 'Need by date.'
- **Workflow And State**: The attribute that is used to point to what workflow and state IDs should be used in conjunction with schedules.

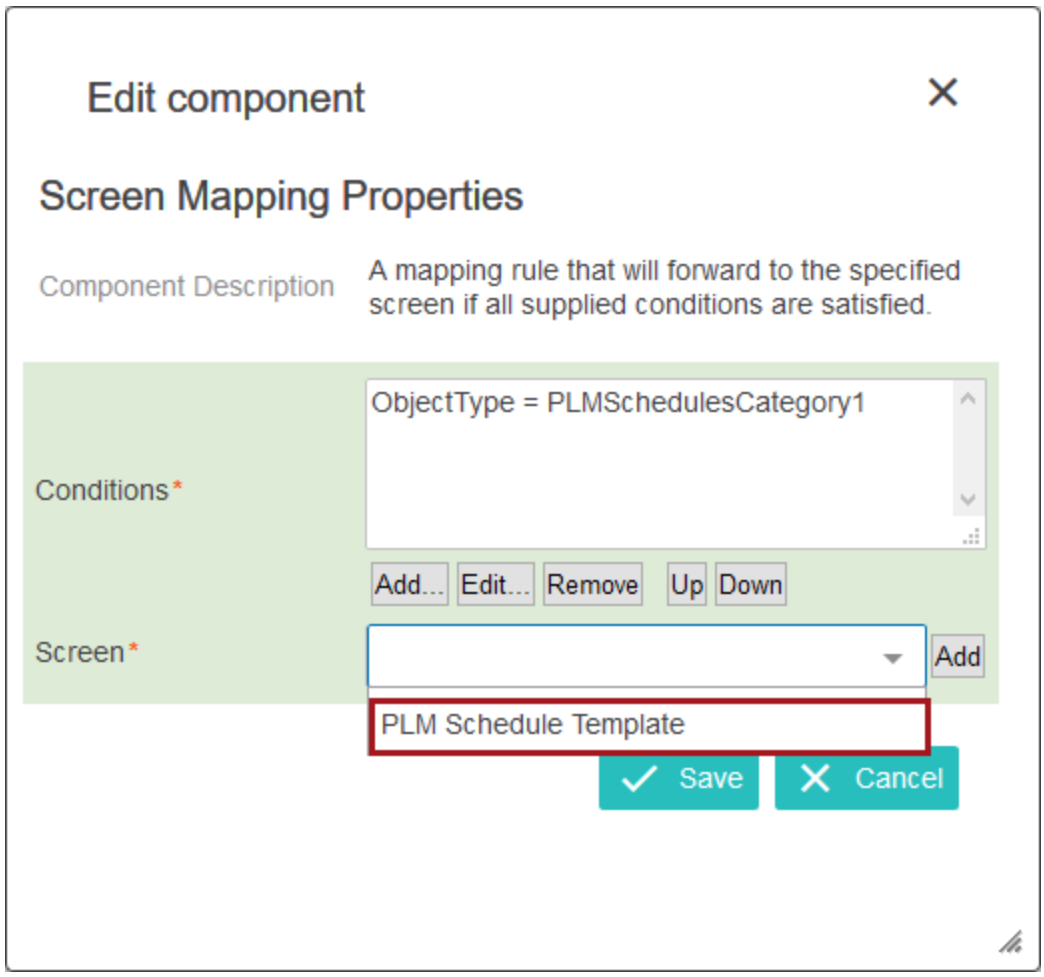
3. Once all configurations are set, click Add.
4. Now that the PLM Schedule Template Screen is configured, it needs to be saved and mapped. Click **Save** and go to --[MAIN]-- in the designer.
5. Under Mappings, click **Add...** to add a new screen mapping.
6. In Screen Mapping Properties, add an Object Type Condition.



7. In the Object Type Condition, add the first level entity type for schedules, and click **OK** then **Add**.



8. In the Screen dropdown field, select the screen for PLM Schedule Template, and click Save.



9. Adjust the screen up or down in the mappings as needed.
10. Click **Save** in the designer before closing it out.

For more information on attributes, object types, and references needed for schedule setup in the PLM Schedule Template screen, see the following topics in this documentation:

- Creating Schedule Object Types
- References Needed for Schedules
- Setting Up Attributes for Schedules
- References Needed for Line Plans

For more on how to set up and use schedules after configuring the PLM Schedule Template screen, see the **Creating Schedules** topic in the **PLM for Users** documentation.

Private Label Food Solution

The private label food solution enables companies to create products from the ground up. They can create a product idea, decide upon the flavors of the product, and create and agree upon a recipe with their suppliers for the regions they plan to sell the product.

There are a number of object types, attributes, and reference types that need to be created and properly set up in workbench, and a number of component tabs needed in Web UI for the private label food solution to function properly. For more information, see the following sections below on how to properly set up the private label food solution in workbench and Web UI.

- Private Label Food Solution Setup in Workbench
- Private Label Food Solution Setup in Web UI

Once proper set up of the private label food solution has been established, it is also possible to set up Change Reports. This allows users to see a report of changes to data between a specific event and the current data. For more information on how to set up Change Reports, see the **Change Reports** topic in this documentation.

Note: When a finalized PLM project is awarded, it is now possible to transform each label within the awarded project to a PMDM product through the use of business rules. For more information see the **PLM to PMDM Transformation Overview** topic in the **PLM Solution Enablement** section of the **Solution Enablement** documentation.

The following licenses and components are needed for the private label food solution to work:

Required License	Components needed
X.FlexTableHeader	N/A
N/A	spire-plm
N/A	private-label-food

Change Reports

Users can use Change Reports to see a report of changes to data between a specific event and the current data. Change Reports are populated via highly configurable 'snapshots'. These snapshots can take place when there is a change in a workflow state, a trigger by an inbound or outbound integration endpoint, or a change by derived events through an Event Processor. Change reports can be added on a Node Details screen via a Product Summary Card.

For more on Product Summary Cards, see the **Below Title Component** topic in the **Web User Interfaces / Web UI Setup and User Guide** documentation.

Change Reports highlight any changes that have been made during user-defined events so important changes are not overlooked accidentally. This is different than revision history in that administrators have full control of when Change Reports are created, and what they want to capture, such as data that was added, deleted, or changed on the object, the reference target of an object, or on reference metadata. Snapshots have the added benefits of not being impacted by changes to the data model. All of this helps product teams notice important changes to the data that may otherwise be overlooked while collaborating with other users.

Change Report Limitations

- Change Reports do not support snapshots of publications, assets, data containers, children, or data model (set up) changes.
- Only one version of the snapshot will be kept.
- Sort order of the target of the changes within the report is alphanumeric and cannot be changed.

Note: To access and use the full set of Change Report functionality, including snapshot configuration, a 'change-reports' add-on component must both be activated on your system. See your Stibo Systems representative for details.

Configuring Change Reports requires set up in both workbench and Web UI.

Set up performed in Workbench

The following topics explain the setup and configurations needed in workbench for Change Reports.

- Object, References, and Attributes for Change Reports
- Snapshot Configurations
- Snapshot Recorders
- Business Rules and Snapshots

Set up performed in Web UI

When implementing Change Reports in Web UI, Change Reports can be added on a Node Details screen via a Product Summary Card. The following topics explain the setup, configuration, and use of Change Reports.

- For more information on how to add and configure the Product Summary Card, see the **Below Title Component** topic in the **Web User Interfaces / Web UI Setup and User Guide** documentation.
- Using Change Reports

The following licenses and components are needed for change reports to work:

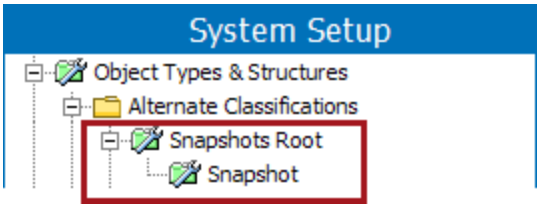
Required License	Components needed
X.ChangeReport	change-reports
N/A	spire-plm
N/A	private-label-food

Object Types, References, and Attributes for Change Reports

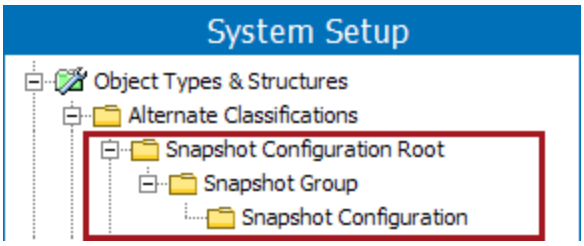
There are a number of object types, references, and attributes needed for Change Reports to work. An XML file is available for implementation purposes. Please talk to your Stibo Systems representative for more information on the XML file. After implementation, all IDs and ID patterns should be exactly like the ones provided bellow.

Note: While Change Reports are used in Web UI, set up for Change Reports in the creation of object types, references, and attributes can only be done in workbench.

Classifications

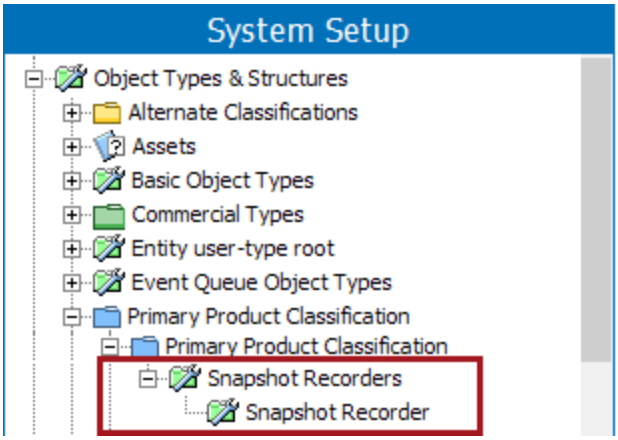


Object Type ID	ID Pattern	Purpose
SnapshotsRoot	SnapshotsRoot	Root level for storage of snapshots
Snapshot	ss-[id]	Stores a snapshot in JSON format



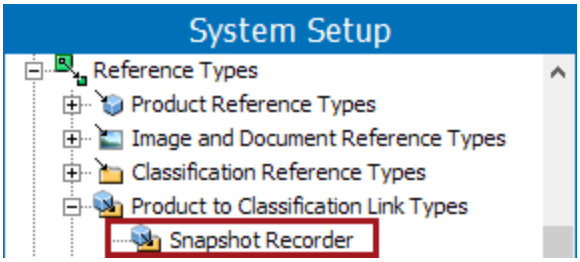
Object Type ID	ID Pattern	Purpose
SnapshotConfigurationRoot	SnapshotConfigurationRoot	Root level for snapshot configuration
SnapshotGroup	ssg-[id]	A self-referenced object type, allowing for organization of Snapshot Configurations
SnapshotConfiguration	sscnf-[id]	Defines the context and event ID

Products



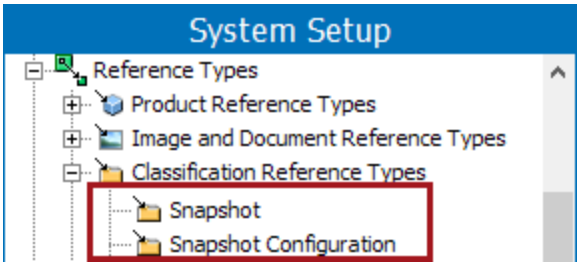
Object Type ID	ID Pattern	Purpose
SnapshotRecorderRoot	SnapshotRecorderRoot	Stores the recorder and tab name for the Change Report
SnapshotRecorder	ssrec-[id]	Stores the recorder and tab name for the Change Report

Reference Types



Object Type ID	ID Pattern	Valid Target	Purpose
SnapshotRecorder	SnapshotRecorder	SnapshotConfiguration	Link a Snapshot Recorder to one of many Snapshot Configuration types

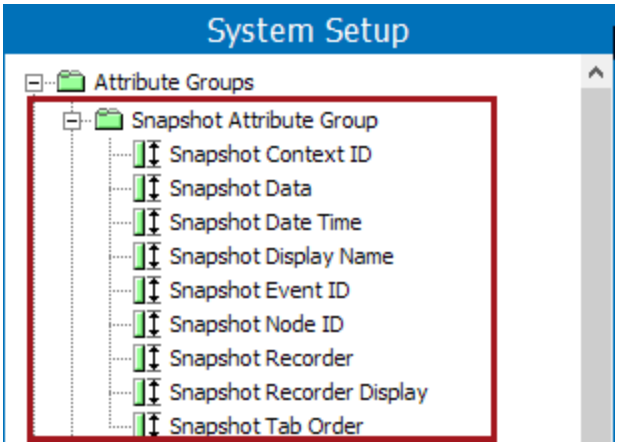
Classification Reference Types



Object Type ID	Valid Source	Valid Target	Purpose
Snapshot	Valid from any object that a snapshot is taken of	Snapshot	Relates the object that has a snapshot to its snapshot
SnapshotConfiguration	Snapshot	SnapshotConfiguration	Links the Snapshot Configuration with the snapshot

Attributes

All attributes are description attributes.



Attribute ID	Type	Valid For	External	Purpose
SnapshotContextID	LOV with ID Multi Valued	SnapshotConfiguration	Yes	Which context(s) the snapshot should be taken in

Attribute ID	Type	Valid For	External	Purpose
SnapshotData	Text	Snapshot	Yes	Store the JSON snapshot
SnapshotEventID	LOV with ID	Snapshot, SnapshotConfiguration	Yes	Event ID for the Snapshot
SnapshotNodeID	Text	Snapshot	Yes	Node ID the snapshot was done for
SnapshotRecorder	Text	SnapshotRecorder	Yes	Specifies which values to store for the snapshot
SnapshotDataTime	ISO Date and Time	Snapshot	Yes	When the snapshot was taken
SnapshotDisplayName	Text	Link Type: SnapshotRecorder	No	Name of the tab in the change report, to be translated
SnapshotRecorderDisplay	LOV (values Yes or No)	Link Type: SnapshotRecorder	Yes	Indicates if the recorder tab should be included in the change report
SnapshotTabOrder	Number	Link Type: SnapshotRecorder	Yes	Order of the tab in the change report

Snapshot Configurations

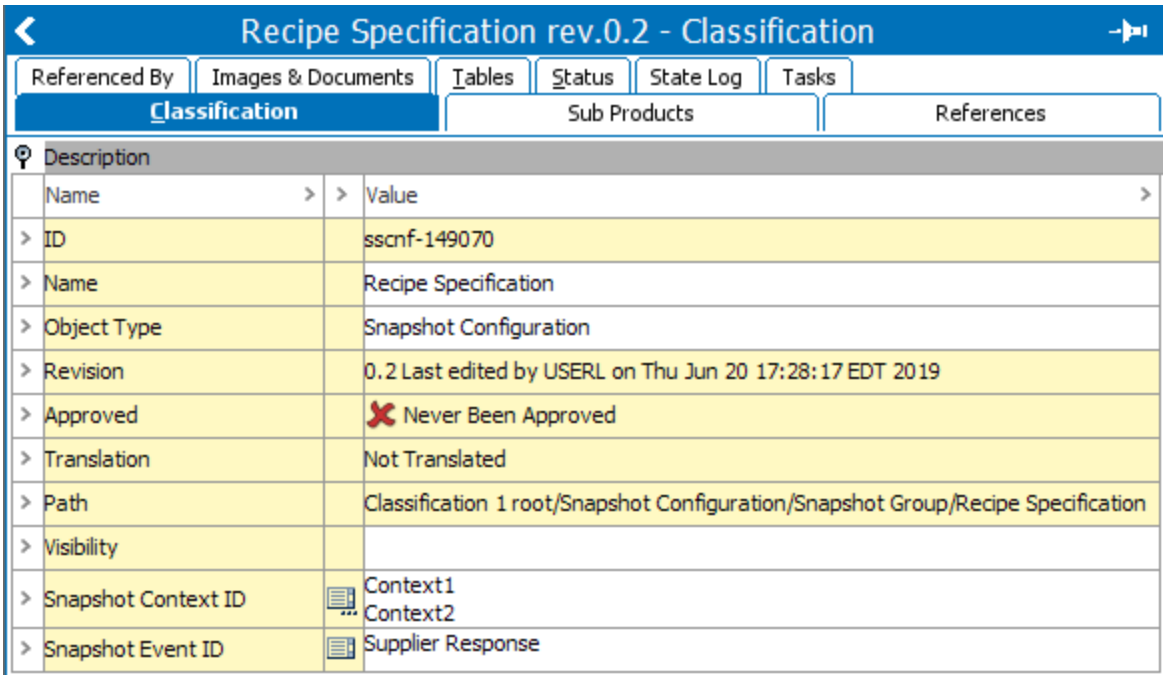
Snapshot Configurations are used in the Change Reports data model to help capture changes to data that were made at specific events. Change Reports are populated via highly configurable 'snapshots'.

Snapshot Configurations are set up as classifications in workbench and used for screens in Web UI. They determine which contexts to capture data from (take a snapshot), and any customer-defined change in events. This could be a change in a workflow state, a trigger by an inbound or outbound integration endpoint, or a change by derived events through an Event Processor. When the event takes place, the Snapshot Recorder captures the data at that point in time if configured by the Snapshot Configuration.

For more on Snapshot Recorders, see the **Snapshot Recorders** topic in this documentation.

For more information on Change Reports, see the **Change Reports** topic in this documentation.

Important: While Change Reports are used in Web UI, set up for Snapshot Configurations can only be done in workbench.



Snapshot Configurations store context IDs (SnapshotContextID), a mandatory attribute that indicates which contexts the snapshots will be taken in.

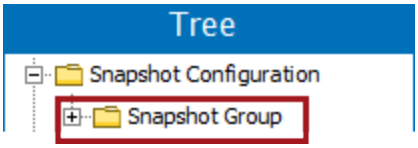
Additionally, an event ID (SnapshotEventID) is stored on the Snapshot Configuration, also a mandatory attribute. This attribute determines what event will trigger a snapshot. Snapshots compare the data at the time of the event with the current data. For example, as seen pictured above, the event ID could be the 'Supplier Response'.

For a list of all data scenarios that can be in a snapshot, see the **Elements in a Snapshot** topic in this documentation.

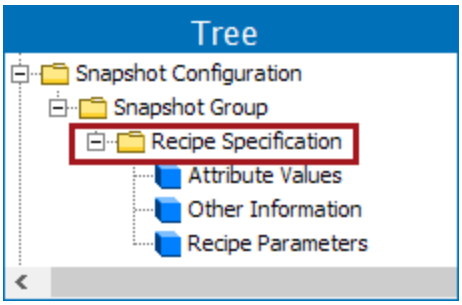
Create Snapshot Configurations

Below are the steps to create a Snapshot Configuration.

1. In Tree, in Classifications, under the parent 'SnapshotConfigurationRoot', add a Snapshot Group to hold all Snapshot Configurations for a needed project.



2. Under your Snapshot Group, create as many child Snapshot Configurations as needed. A Snapshot Configuration will hold all needed Snapshot Recorders.



For more on Snapshot Recorders, see the **Snapshot Recorders** topic in this documentation.

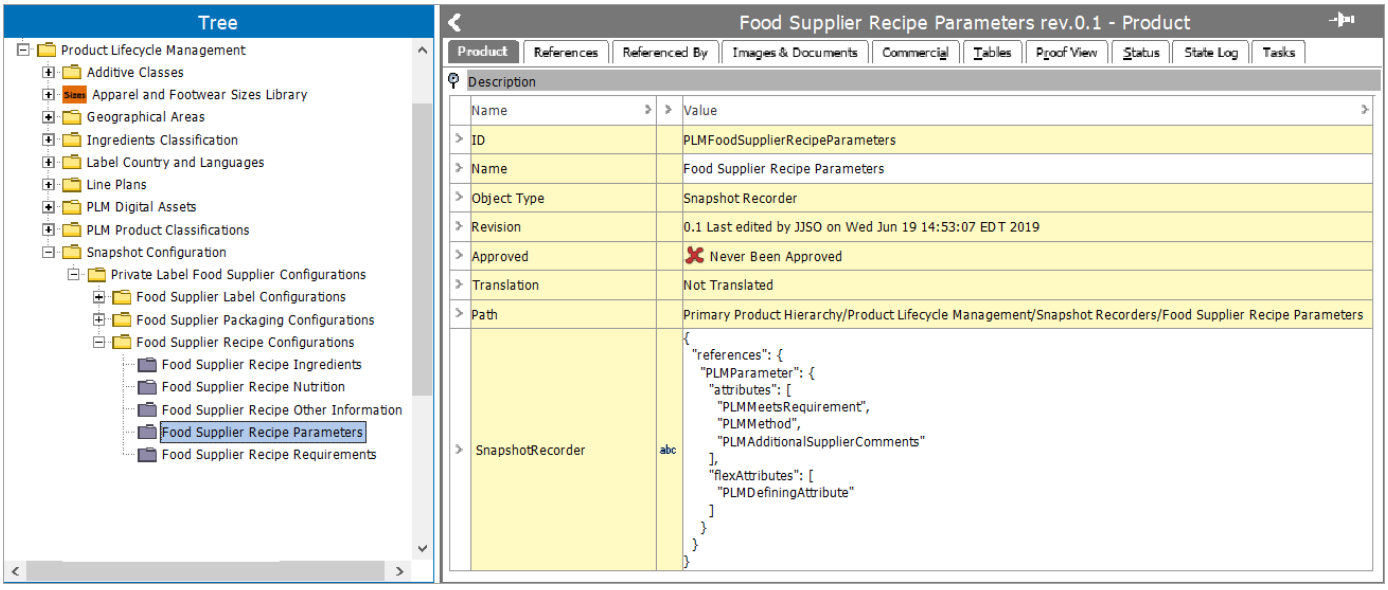
Snapshot Recorders

Snapshot Recorders are used in the Change Reports data model to help capture data at a specific event. Change Reports are populated via highly configurable 'snapshots,' where the Snapshot Recorders aid in capturing the change for the Change Report.

Snapshot Recorders are Product object types that store a recorder text in the format of a JSON string that defines which data should be captured in the snapshot.

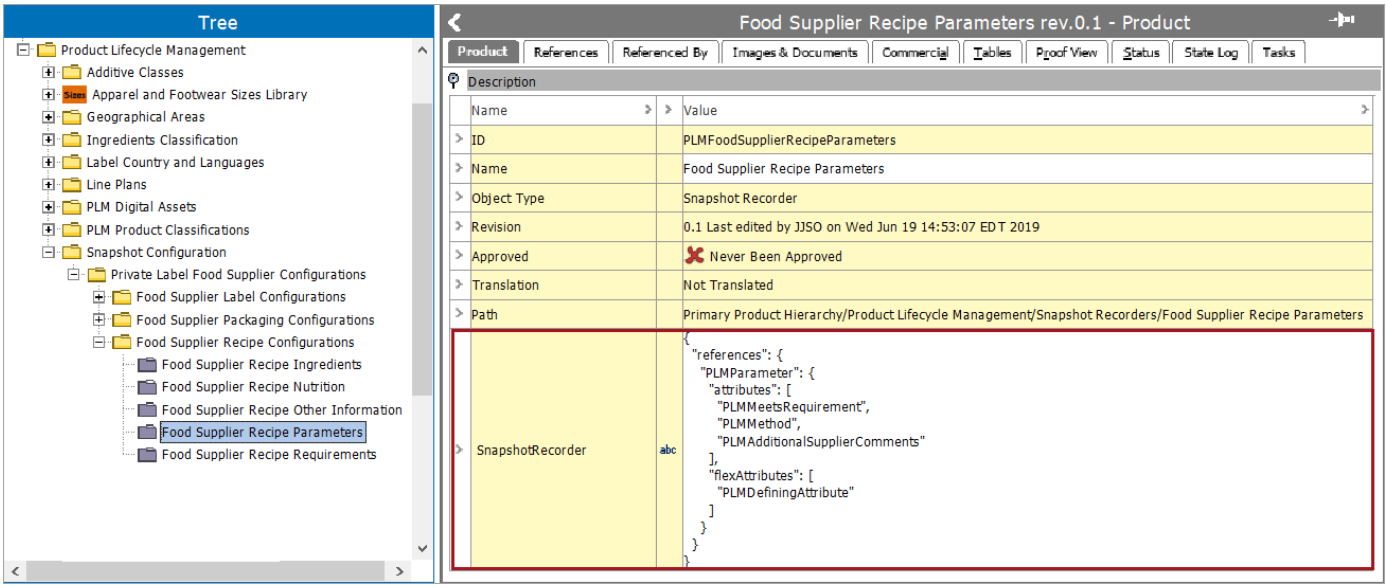
For more information on Change Reports, see the **Change Reports** topic in this documentation.

Note: While Change Reports are used in Web UI, setup for Snapshot Recorders can only be done in workbench.



They can be re-used for multiple Web UI tabs or multiple Web UIs where the same information should be captured by linking them into one or more Snapshot Configurations via the classification link type 'SnapshotRecorder'. See below in this topic on how to configure Snapshot Recorders and link to Snapshot Configurations.

For more information on Snapshot Configurations, see the **Snapshot Configurations** topic in this documentation.

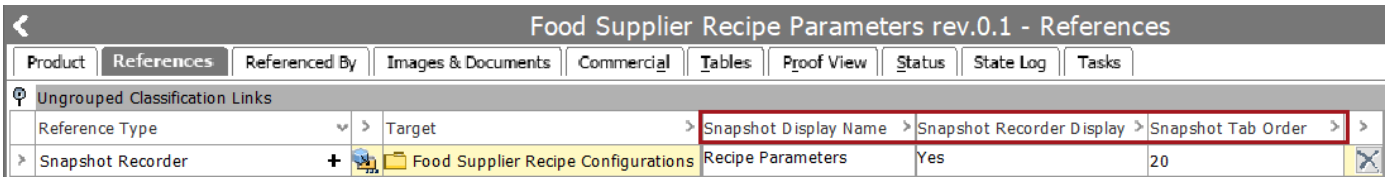


Snapshot Recorders can be created for each Web UI tab or for processing logic, such as in a workflow, and are configured by each customer as customer needs differ.

On each Snapshot Recorder, on the Product to Classification Link Type 'SnapshotRecorder,' there are metadata attributes maintained. These determine factors about the Change Report so that each time the snapshot recorder is re-used, the information can be different.

The necessary attributes used as metadata are:

- **Snapshot Display Name** (SnapshotDisplayName): Contains the value that will be displayed in the change comparison dialog. It can be translated into multiple languages using the standard processes for translating products if needed.
- **Snapshot Recorder Display** (SnapshotRecorderDisplay): Is a 'Yes / No' LOV which determines if the Snapshot Recorder should be displayed in the Web UI.
- **Snapshot Tab Order** (SnapshotTabOrder): Determines the display order that the tab should appear in Web UI.

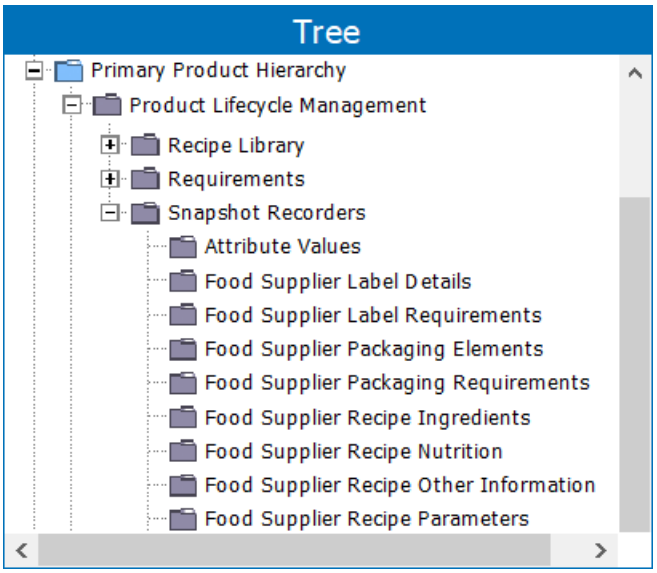


For more information on attributes needed for Snapshot Recorders and for Change Reports see the **Objects Types, References, and Attributes for Change Reports** topic in this documentation.

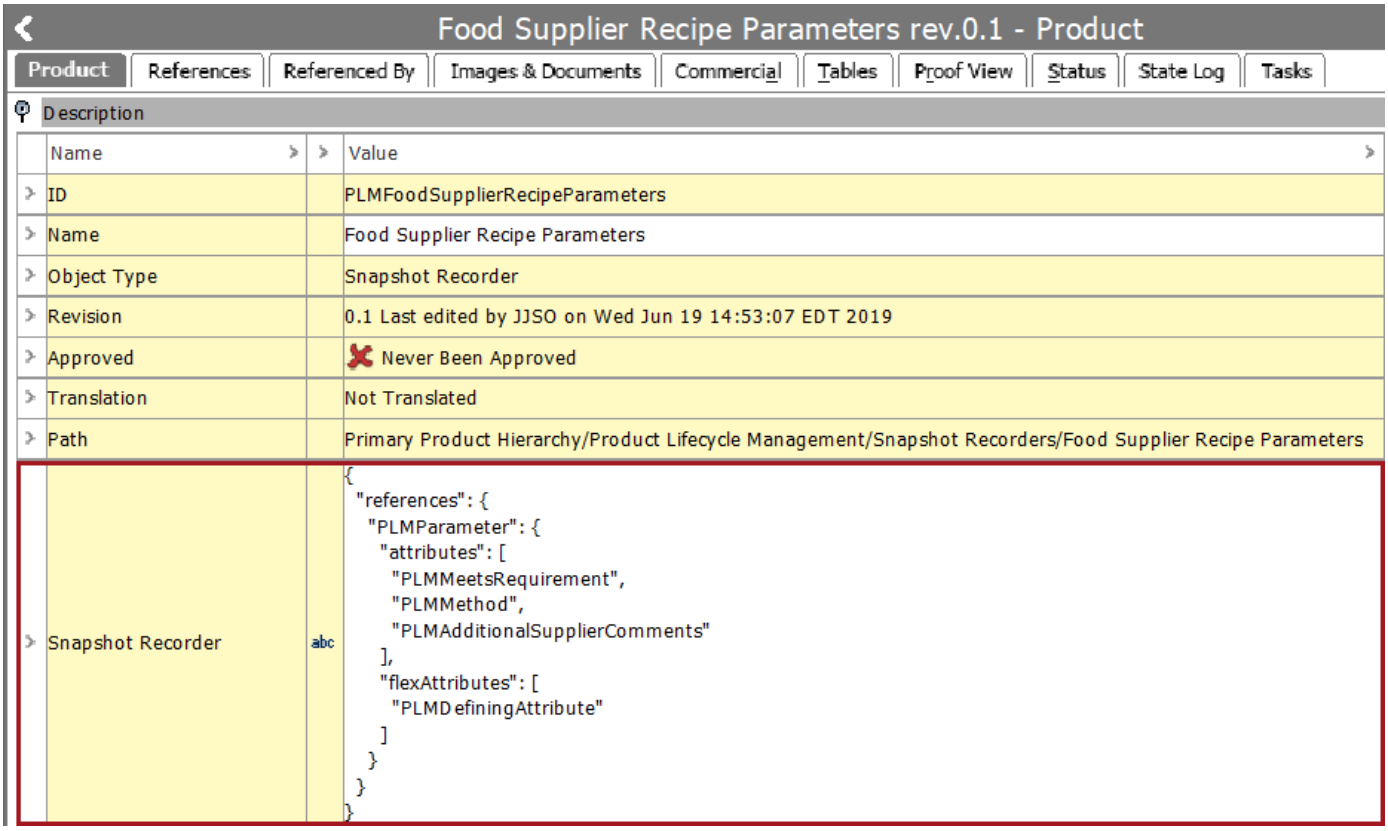
Create Snapshot Recorders

Below are the steps to create a Snapshot Recorder.

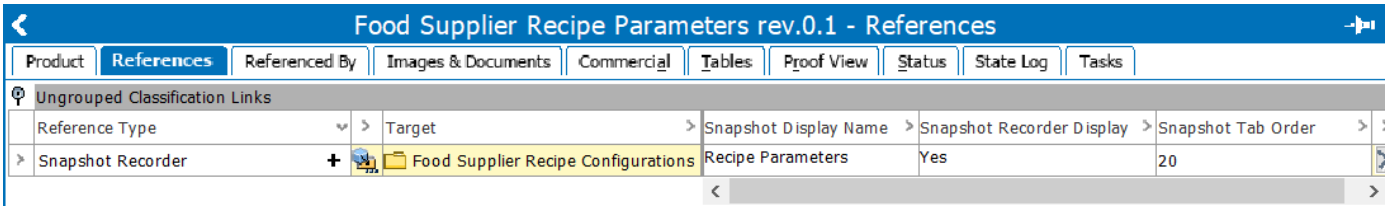
1. In Tree, in the Primary Product Hierarchy, under the parent 'SnapshotRecordersRoot,' create as many children Snapshot Recorders as needed.



2. Create the needed recorder text, in the format of a JSON string, for the Snapshot Recorders attribute.

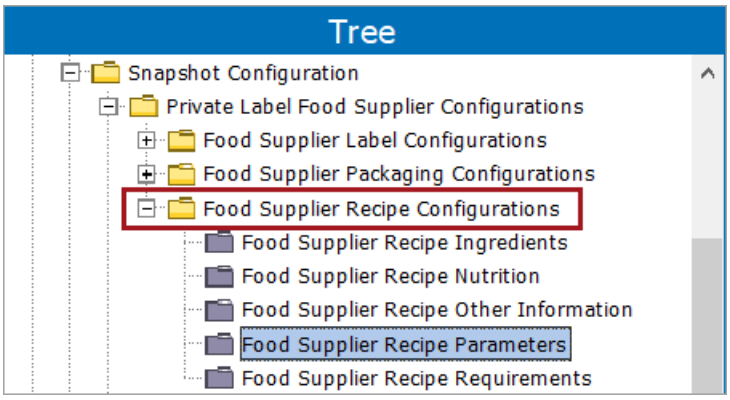


3. On the Reference tab, select the target Snapshot Configuration, and fill out the metadata attributes: Snapshot Display Name, Snapshot Recorder Display, and Snapshot Tab Order.



For more information on attributes needed for Change Reports, see the **Object Types, References, and Attributes for Change Reports** topic in this documentation.

When configured correctly, the Snapshot Recorder will display under the specified Snapshot Configuration.



For more information on Snapshot Configurations, see the **Snapshot Configurations** topic in this documentation.

Business Rules and Snapshots

Change Reports are used to see a report of changes to data that were made between a specific event and the current data. Change Reports use snapshots and business rules to determine these changes.

Prerequisites

All object types, references, and attributes for Change Reports need to be created first before business rules for snapshots can be used. Additionally, all configurations need to be in place before business rules can work. See the **Change Reports** topic in this documentation for more details.

Snapshot Bind

Business rules for snapshots are created by customers and will differ depending on customer needs. They determine when snapshots for Change Reports should take place and can be applied on workflow transitions, or any other event that supports executing business rules.

For more on business rules in general, see the **Business Rules** documentation.

All business rules used for setup need to include the 'snapshot' bind so that it is possible to obtain a bind to the instance of a snapshot. This bind is applicable for Business Actions, Business Conditions, and Business Functions. With this 'snapshot' bind, the configured business rule has access to the public methods for creating a snapshot and to flag changes.

This bind has two public methods that can be used in a business rules. These methods are:

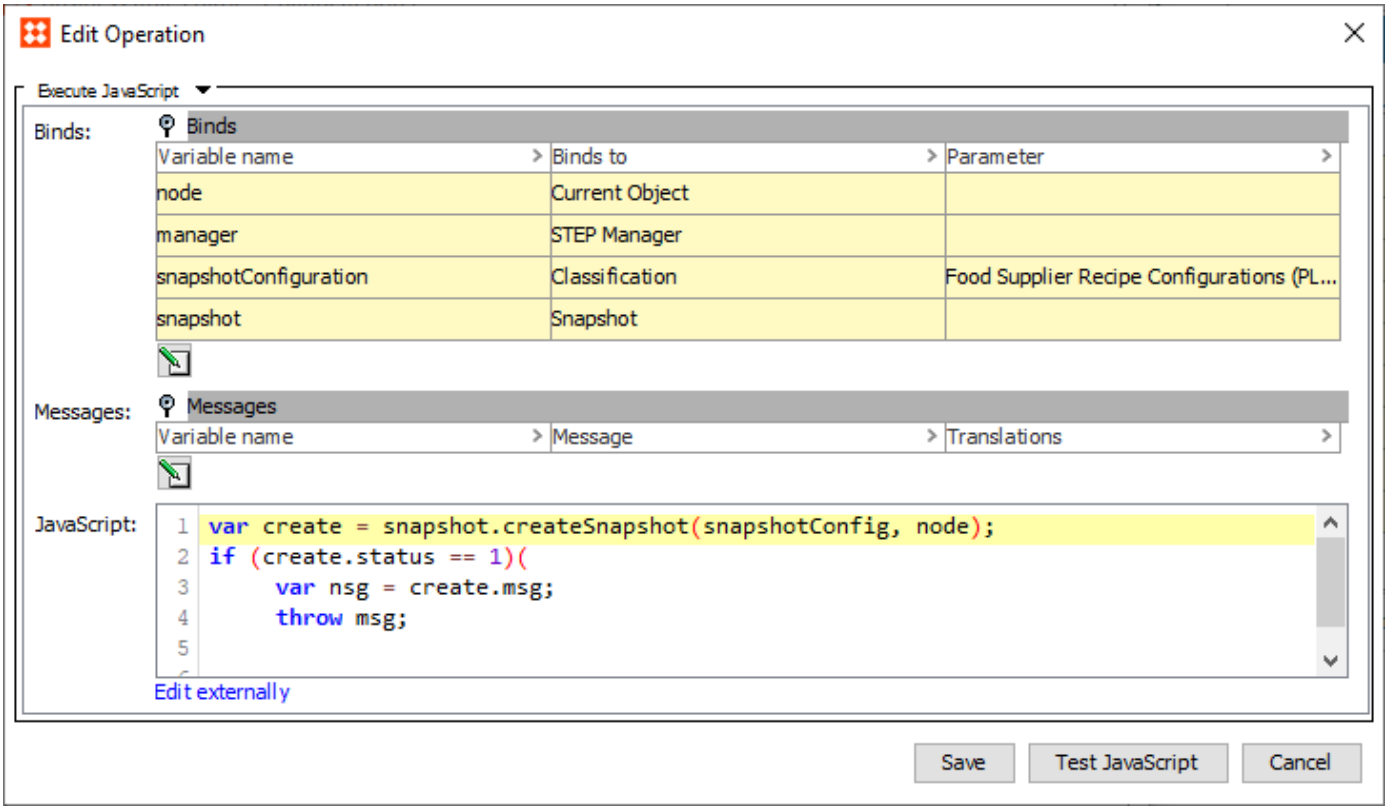
- Create Snapshot (createSnapshot)
- Flag Changes (hasChanges)

Important: While Change Reports are used in Web UI, the configuration outlined in this topic can only be done in workbench.

Creating Snapshots

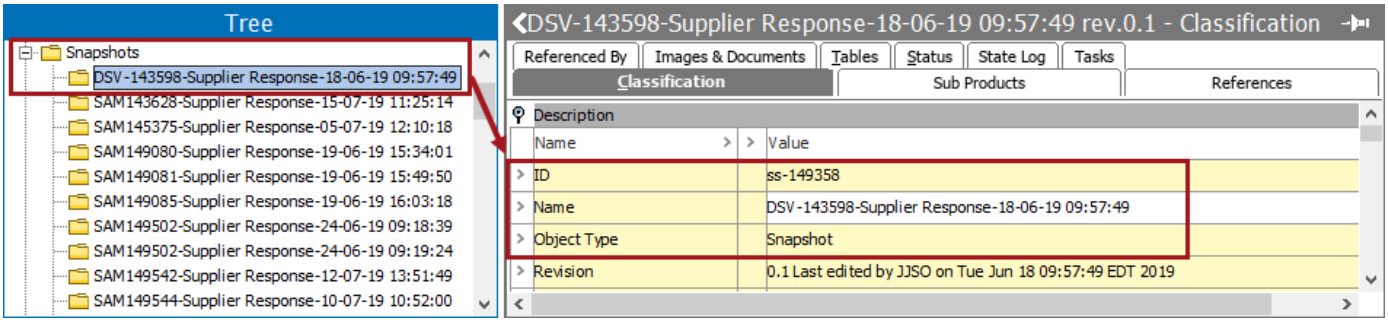
The public method for creating a snapshot, 'createSnapshot', has two arguments:

- A classification bind to the desired Snapshot Configuration.
- An instance of the node the snapshot should be taken of the object of interest that will have changes.

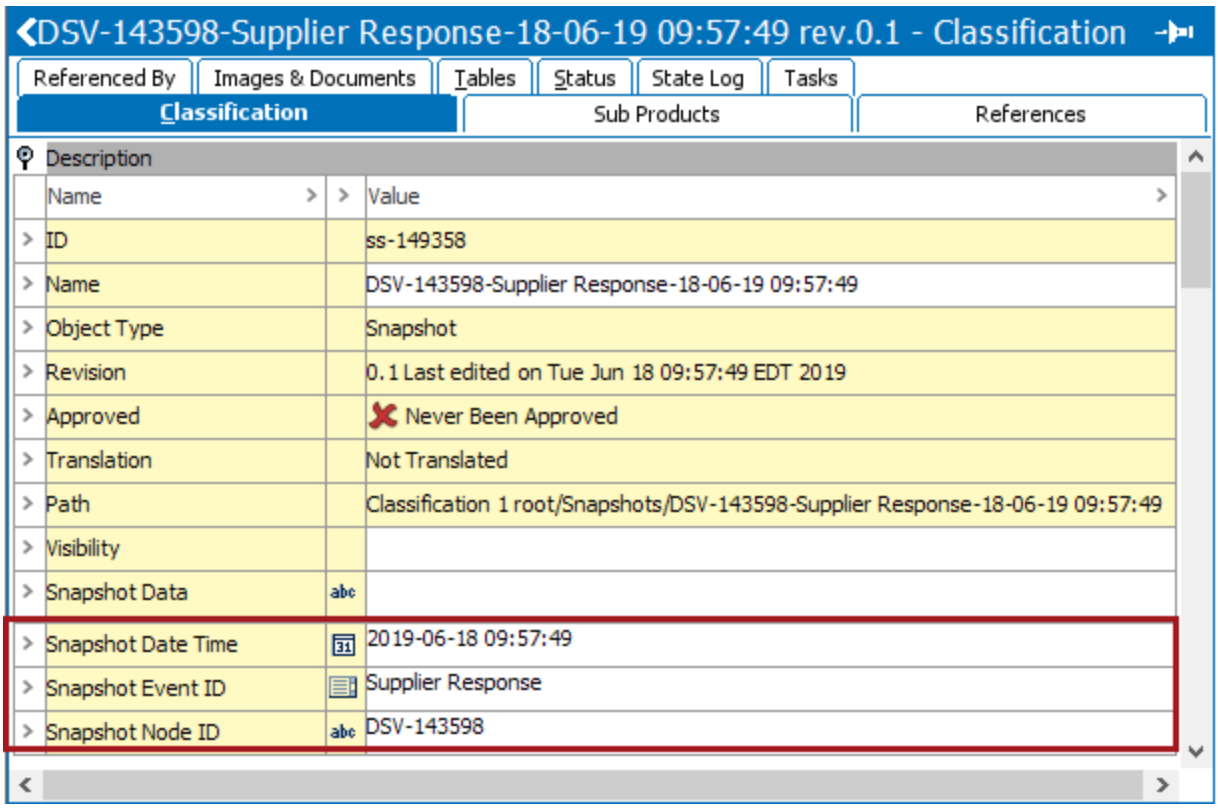


When using this method, not only is a snapshot created, but also the following will occur:

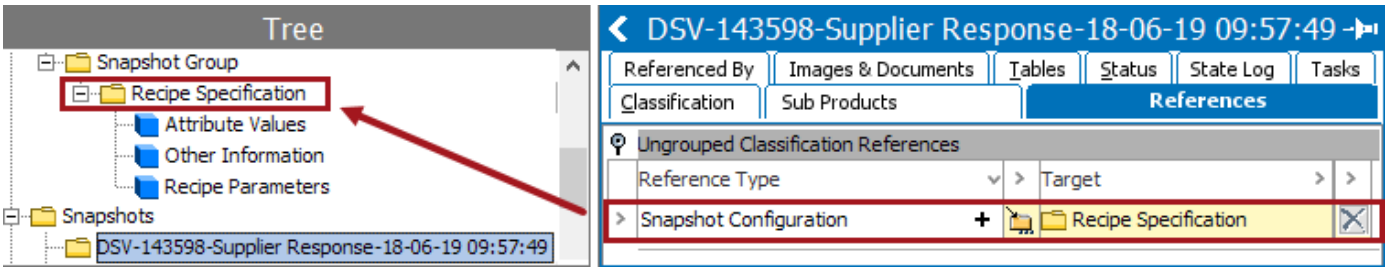
1. In Tree, under the 'Snapshots Root' classification folder, a new child with the object type 'Snapshot' is created. This child classification is named using the standard naming conventions of 'node ID + Event ID + Date / Time,' where the 'node ID' is the ID of the object that is being monitored for a snapshot. See image below.



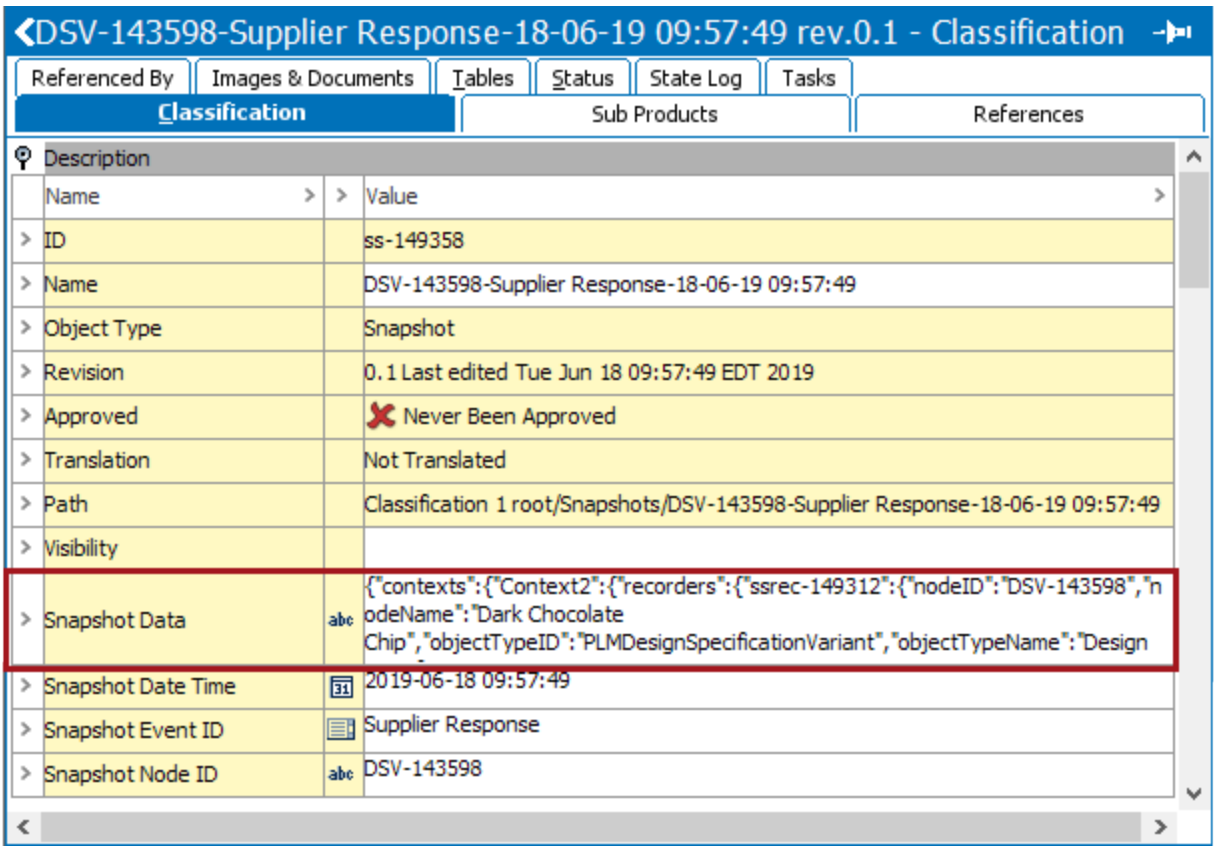
2. The attribute Event ID 'SnapshotEventID' is both valid for the 'Snapshot' and 'SnapshotConfiguratin'. During the snapshot, the Event ID 'SnapshotEventID' is populated by copying the value from the desired Snapshot Configuration's Event ID, 'SnapshotEventID'.
3. The attribute Node ID 'SnapshotNodeID' is populated with the ID of the node that is being monitored for changes.
4. The Date Time attribute, 'SnapshotDateTime', is populated with the current date and time in the ISO Date and Time format.



5. A 'SnapshotConfiguration' reference is created from the snapshot classification to the desired Snapshot Configuration.



6. Existing snapshot with the same Event ID and for the current Node ID will be deleted. Only one snapshot is stored for an Event ID / Node ID combination.
7. Snapshot data will be captured in the 'SnapshotData' attribute on the snapshot.



8. The 'createSnapshot' method will return a JSON status message of either:
   - **Successful Snapshot**: {"status":0;"msg": "Snapshot created successfully"}

     A status field marked with a 0 (zero) indicates that the snapshot was created successfully, and the 'msg' field will have the success message.

   - **Snapshot with Errors**: {"status": 1; "msg": "An error message"}

     A status field marked with a 1 (one) signals that an error occurred while the snapshot was being created. The 'msg' field will contain the error message. No snapshot was created.

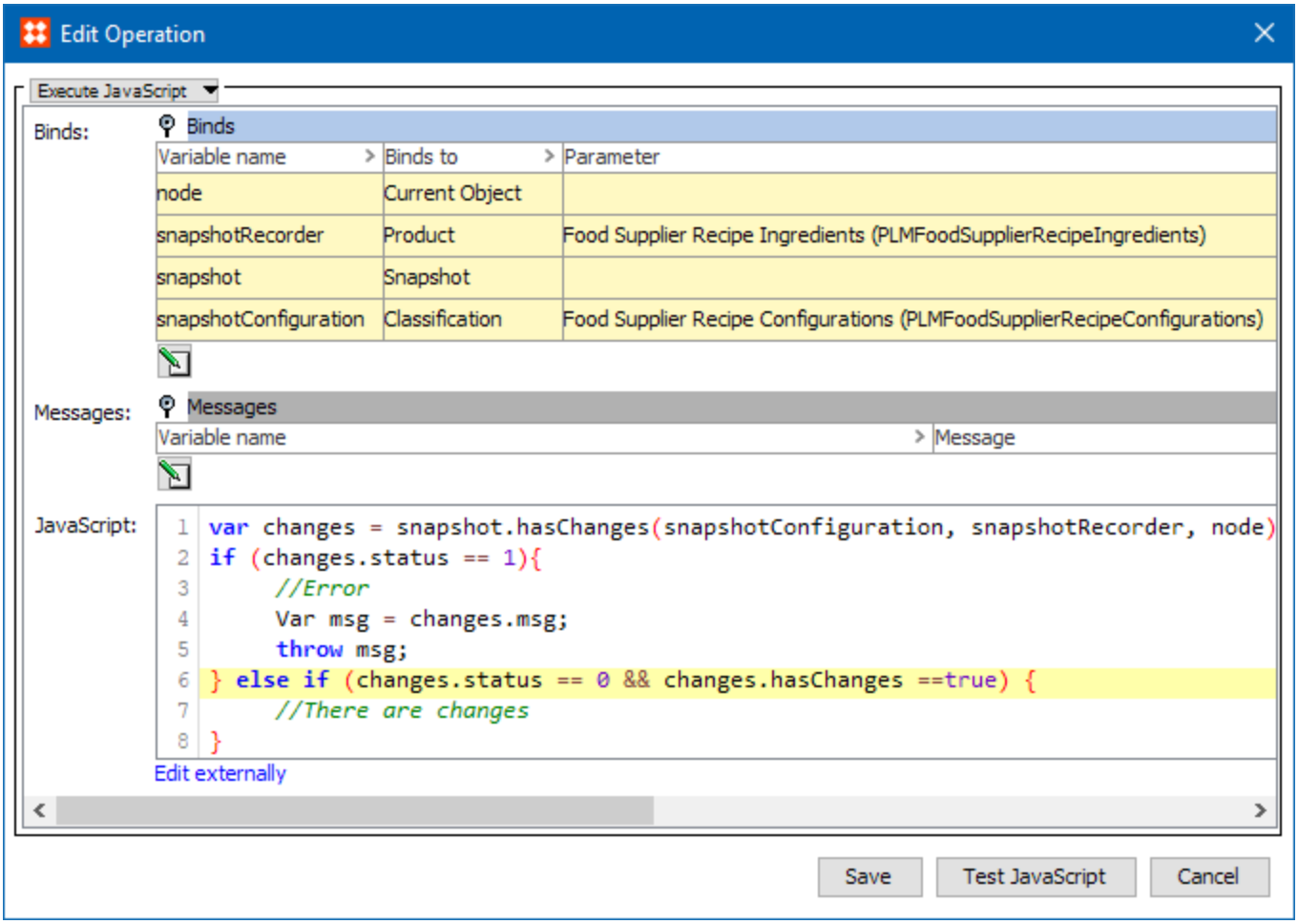
Flagging Changes

This public method flags if there are any changes based on what the Snapshot Recorder has defined. Using the defined Event ID for the specified node, it compares the current values with the values of the last snapshot.

Note: If there are no previous snapshots, then there are no changes.

The name of the method is 'hasChanges,' and it has three arguments:

- A classification bind to the Snapshot Configuration
- A product bind to a Snapshot Recorder node
- An instance of the node where flag changes are executed



Note: The Event ID is defined in the Snapshot Configuration instance and from the specified node in which there are references to snapshots.

The following actions take place when this is being executed to see if there are any Flag Changes:

1. A check is made to the specified Snapshot Recorder to see if it is linked to the selected Snapshot Configuration. If it is not, an error occurs.
2. The Event ID is retrieved from the Snapshot Configuration instance.
3. From the node, all the snapshots being referenced are:
    - filtered by Event ID
    - retrieved for comparison
4. The snapshot is then compared with the current values on the node, with only the values specified in the Snapshot Recorder being compared. The following outcomes could occur and return the corresponding JSON strings:
    - **No Changes**: {"status": 0, "msg": "No Changes", "hasChanges: false}

      The 0 (zero) indicates that the method was executed successfully, the msg has a 'No changes' message, and the 'hasChanges' result is false, indicating that there were no changes.
    - **Has Changes**: {"status": 1, "msg": "Has changes", "hasChanges: true}

The 1 (one) indicates that the method was executed successfully, the msg has a 'Has changes' message, and the 'hasChanges' result is true, indicating that there were changes.

- **Node does not have any snapshots**: {"status": 0, "msg": "No snapshots exists", "hasChanges: false}

  This JSON string returns when the node being monitored does not have a snapshot for the Event ID.

- **Errors**: {"status": -1, "msg": "Description of the error"}

  A status field marked with a -1 (minus one) signals that an error occurred while executing the hasChanges method. The 'msg' field will contain the error message.

Elements in a Snapshot

Below is a list of all data scenarios that can be monitored via a snapshot:

STEP Element	Example of Recorder
STEP Object ID	The STEP object ID is stored but not shown in report. It is not part of the recorder.
STEP Object Name	”name”: ”true”
STEP Object Type ID	The Object Type ID is stored but not shown in report. It is not part of the recorder.
STEP Object Type Name	The Object Type Name is stored but not shown in report. It is not part of the recorder.
STEP Reference Type ID	The Reference Type Name is stored but not shown in report. It is not part of the recorder.
STEP Reference Type Name	"referenceTypeName": ”true”
STEP Name of the attribute	The Attribute Name is stored but not shown in report. It is not part of the recorder.
Attribute value on a node, plus its language Dimension Dependency	{ "attributes": ["PLMDesignSpecificationDescription", "PLMSpecificationName"] }
Attribute value on a Reference, plus its language dimension dependency	{ "references": { "PLMParameter": { "attributes": ["PLMMethod", "PLMSuppliersExplanation"] } } }
Attribute value on a Referenced By plus its language dimension dependency	{ "referencedBy": { "PLMRelatedRecipe": { "objectTypeName": "true", "source": { "name": "true", "attributes": ["PLMSpecificationName"] } } } }
Attribute value on a parent plus its language dimension dependency	{ "parent": { "attributes": ["PLMProductName"] } }
Attribute value on a Classification Link	{ "classificationLinks": { "SnapshotRecorder": { "attributes": ["SnapshotDisplayName", "SnapshotRecorderDisplay", "SnapshotTabOrder"] } } }

STEP Element	Example of Recorder
Attribute value on a referenced target node plus its language dimension dependency	{ "classificationLinks": { "PLMProductCategory": { "target": { "attributes": ["PLMCategoryName", "PLMGlobalProductClassificationCode"] } } } }
Attribute value with units of measure plus its language dimension dependency	{ "attributes": [" PLMPlannedPackagingSizes"] }
Multi Valued Attributes plus its language dimension dependency	{ "attributes": [" PLMPlannedFlavorVariations"] }
Attributes with LOV ID's plus its language dimension dependency	LOV IDs are not captured. Only the values are captured.
Be able to follow a reference from a target node, for example: Capture data points on a node any number of nested levels away from the current node by following a reference (or reverse reference).	{ "referencedBy": { "PLMRelatedRecipe": { "objectTypeName": "true", "source": { "name": "true", "attributes": ["PLMSpecificationName"], "referencedBy": { "PLMLabelVariantSample": { "source": { "attributes": ["PLMSpecificationName"] } } } } } } }

Private Label Food Solution Setup in Workbench

There are a number of object types, attributes, and reference types that need to be created and properly set up in workbench in order for the private label food solution to function properly in Web UI. For more information, see the following sections below on how to properly set up the private label food solution object types, reference types, and attributes in workbench.

- Creating Private Label Food Solution Object Types
- References Needed for Compare Tabs
- Attributes Needed for Compare Tabs

Note: Suppliers can get a record of their specification response that they submit to the customer when they respond to a bid for a private label product. If chosen for production, the supplier's response is the basis for contractual agreements. This record outlines the bill of materials used to fulfill the private label product, and provides explanations on how the supplier will meet the customer's requirements. For more information see the Private Label Food Solution segment of the Product Lifecycle Management section in the Solution Enablement documentation.

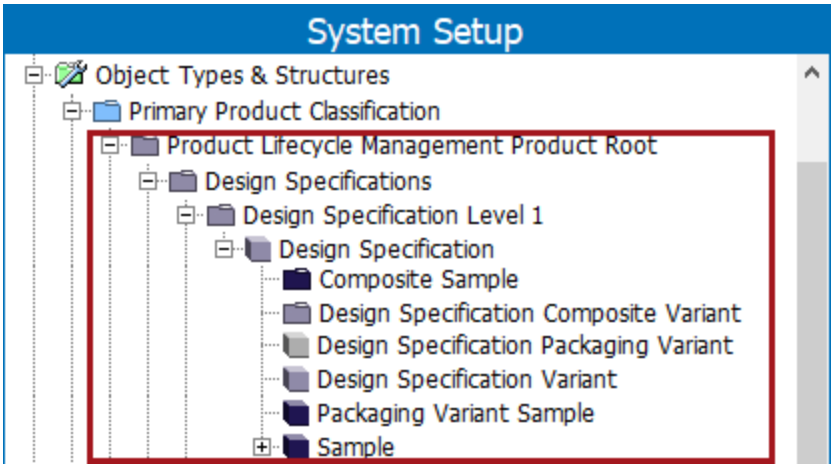
Creating Private Label Food Solution Object Types

The following sections describe what Primary Product Classifications and Alternative Classifications object types are needed for the private label food solution to function properly in Web UI.

Creating Primary Product Classification Object Types

Design Specification Variants and Samples are in the Primary Product Classification object type structures and have the same Design Specification parent object type.

In System Setup, there should be a structure created like the one pictured below. The created object types should use the following IDs and names in the table below.



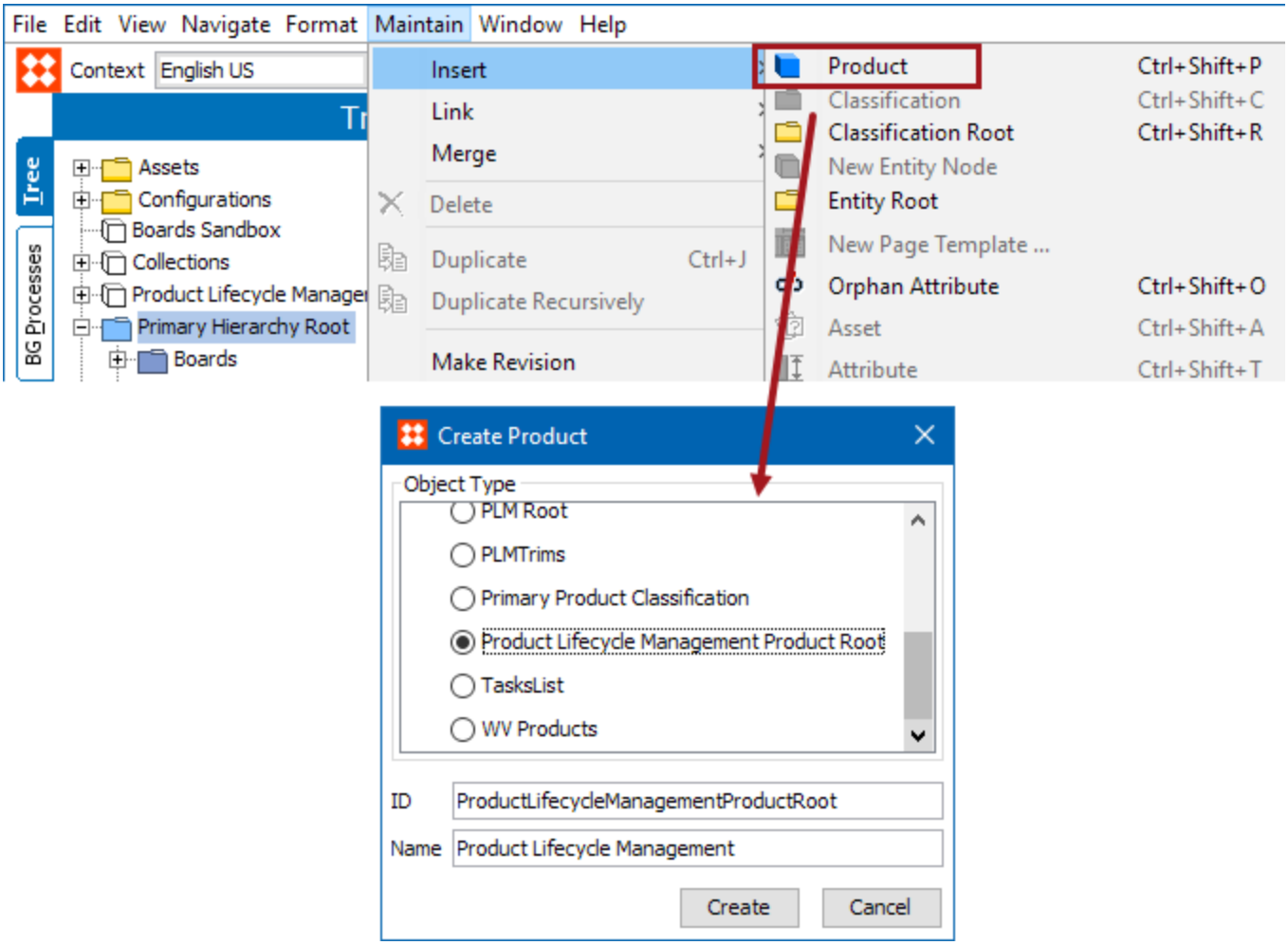
- **Design Specification**: Represents the entire project and is a high-level place to gather input for new products.
- **Composite Sample**: Represents a supplier's response to a variation that is made up of more than one PLMSample.
- **Design Specification Composite Variant**: Represents a specification variant that is made up of more than one PLMDesignSpecificationVariant.
- **Design Specification Packaging Variant**: Represents a package size variation for one or more new products. All description and requirements are collected on this object. Additionally, relates to one or more packaging elements where specifications and requirements are managed for each element.
- **Design Specification Variant**: Represents a customer's recipe variations for one or more products.
- **Packaging Variant Sample**: A grouping object that represents the supplier's responses to the packaging specification.
- **Sample**: The supplier's response that is provide back to the customer.
- **Packaging Elements Root**: A product root level for organizing the packaging elements library, specified packaging elements and supplier response packaging elements.
- **Packaging Elements**: A product category for grouping packaging elements in a library.
- **Packaging Element**: A library object that represents a type of packaging element.
- **Specified Packaging Elements**: A product category for grouping specified packaging elements.

- Specified Packaging Element: A copy of the Packaging Element that is saved as a Supplier Response Packaging Element so that the supplier can respond to packaging specifications and not requirements for each element.
- **Supplier Response Packaging Elements**: A product category for grouping Supplier Response Packaging Elements.
- **Supplier Response Packaging Element**: A copy of the Packaging Elements, so that suppliers can respond to packaging specifications and requirements for each element.
- **Packaging Requirement**: Holds the default content for a Packaging Requirement.

ID	Name
ProductLifecycleManagementProductRoot	Product Lifecycle Management Product Root
PLMDesignSpecificationsRoot	Design Specifications
PLMDesignSpecificationLevel1	Design Specification Level 1
PLMDesignSpecification	Design Specification
PLMCompositeSample	Composite Sample
PLMDesignSpecificationCompositeVariant	Design Specification Composite Variant
PLMDesignSpecificationPackagingVariant	Design Specification Packaging Variant
PLMDesignSpecificationVariant	Design Specification Variant
PLMPackagingVariantSample	Packaging Variant Sample
PLMSample	Sample
PLMPackagingElementsRoot	Packaging Elements Root
PLMPackagingElements	Packaging Elements
PLMPackagingElement	Packaging Element
PLMSpecified Packaging Elements	Specified Packaging Elements
PLSupplierResponsePackagingElements	Supplier Response Packaging Elements

ID	Name
PLMSupplierResponsePackagingElement	Supplier Response Packaging Element
PLMPackagingRequirement	Packaging Requirement

After the structure has been created in System Setup, it needs to be instantiated in Tree. In Tree, click on a Primary Product Classification folder and, go to Maintain > Insert > Product > select the object type to hold the **Design Specification Variants** and **Samples**.

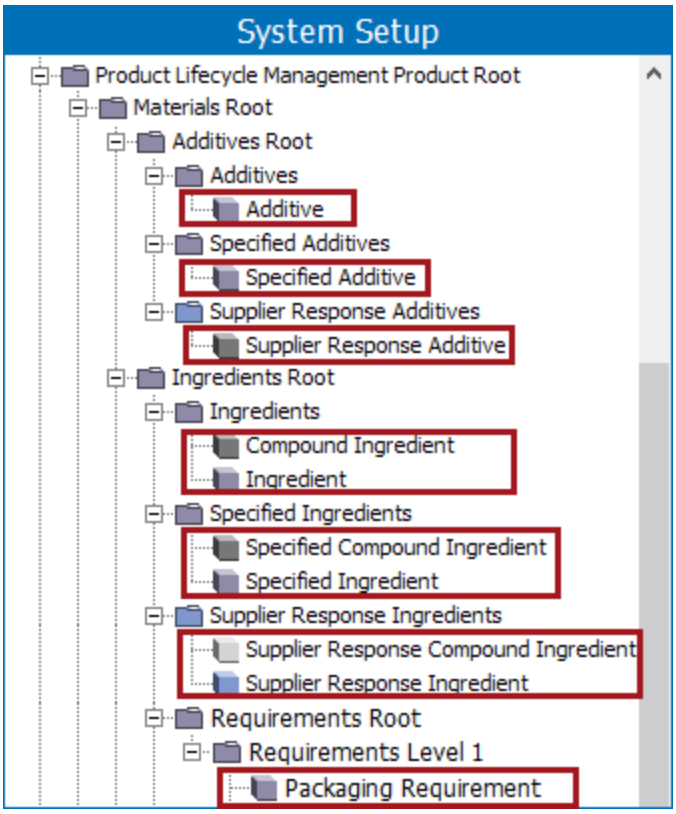


Once the hierarchy structure for the PLMDesignSpecificationVariant and PLMSample has been created and added to Tree, references need to be created between design specification variants and sample object types. See the **References Needed for Private Label Food Solution** topic in this documentation.

In Tree, when a recipe specification is created, it will be a **Design Specification Variant** object type. The Design Specification Variant object type holds the requirements for the recipe specification being created. Each supplier recipe option is created as a **Sample** object type.

Additional Primary Product Hierarchy Object Types

When working with design specification variants, there are a number of additional object types needed when creating recipes. They allow for companies to communicate with their suppliers about ingredients, compound ingredients, additives, and packaging, and provides a way for suppliers to communicate back with the companies.



- **Additive**: Represents the library of substances that are added to recipes to improve or preserve.
- **Specified Additive**: Copy of an additive that is used in a specification that provides instruction about the additive.
- **Supplier Response Additive**: Represents the supplier's response to the substances that are added to improve or preserve the specification recipe.
- **Compound Ingredient**: An ingredient used in the recipe that has sub-ingredients that is part of the ingredient library. The developed component will copy this as specified ingredient or supplier response ingredient.
- **Ingredient**: Foods or substances used in a recipe that is part of the library. The developed component will copy this as specified ingredient or supplier response ingredient.
- **Specified Compound Ingredient**: A copy of a compound ingredient that has sub-ingredients used in a specification that provides instruction about the compound ingredient.
- **Specified Ingredient**: A copy of an ingredient, such as a foods or substance, that is used in a specification recipe that provides instruction about the ingredient.

- **Supplier Response Compound Ingredient**: An ingredient that has sub-ingredients used in a recipe provided by the supplier.
- **Supplier Response Ingredient**: Foods or substances used in a recipe provided by the supplier.
- **Packaging Requirement**: Represents the requirement for the packaging specification.

The following IDs and names need to be used when creating these object types:

Important: The following IDs need auto IDs entered into the ID Pattern field:

- PLMSpecifiedAdditive
- PLMSpecifiedIngredient
- PLMSpecifiedCompoundIngredient
- PLMSupplierResponseAdditive
- PLMSupplierResponseIngredient
- PLMSupplierResponseCompoundIngredient

Auto IDs are needed when adding ingredients to the Design Specification Variant and Sample object types. For more on how to add auto IDs see the **Autogenerate Using Name Pattern and ID Pattern** topic in the **Object Types and Structures** section of the **System Setup / Super User Guide** documentation.

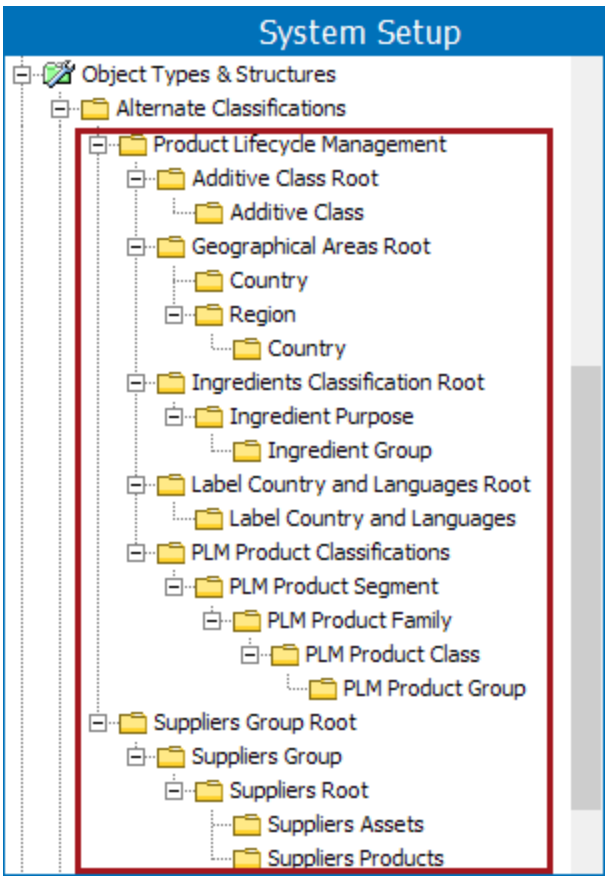
ID	Name
PLMMaterialsRoot	Materials Root
PLMAdditivesRoot	Additives Root
PLMAdditives	Additives
PLMAdditive	Additive
PLMSpecifiedAdditives	Specified Additives
PLMSpecifiedAdditive	Specified Additive
PLMSupplierResponseAdditives	Supplier Response Additives
PLMSupplierResponseAdditive	Supplier Response Additive
PLMIngredientsRoot	Ingredients Root

ID	Name
PLMIngredients	Ingredients
PLMCompoundIngredient	Compound Ingredient
PLMIngredient	Ingredient
PLMSpecifiedIngredients	Specified Ingredients
PLMSpecifiedCompoundIngredient	Specified Compound Ingredient
PLMSpecifiedIngredient	Specified Ingredient
PLMSupplierResponseIngredientRoot	Supplier Response Ingredients
PLMSupplierResponseCompoundIngredient	Supplier Response Compound Ingredient
PLMSupplierResponseIngredient	Supplier Response Ingredient
PLMPackagingRequirement	Packaging Requirement

Creating Alternative Classification Object Types

Alternative Classifications are where the private label food solution object types are categorized. These categorizations enable recipes to be created for multiple regions or product categories, and through business rules, automatically acquire any region, category, parameter, or requirement specifications needed. The Product Lifecycle Management Classification root folder will need to be created for all private label food solution root object types to live under.

When finished, the private label food solution classification structure will look similar to the one pictured below.



- **Additive Class**: A way of indicating what the additives are used for in a food product. It is used by developed components to capture the purpose for using the additive.
- **Region**: A broad geographic area distinguished by similar features.
- **Country**: Indicates which countries a product is planned for sale. Also used to classify requirements and parameters that should be applied to products through business rules that will be sold in that country.
- **Ingredient Purpose**: A number of ingredients that are all related to one another in some way. It also controls where ingredients are searched from.
- **Ingredient Group**: A number of ingredients that are all related to one another in some way.
- **Ingredient Specification Group**: A grouping of ingredients and compound ingredients that are linked into one or more classifications for organizational purposes.
- **Label Country and Languages**: Different labels with the various languages the labels support.
- **PLM Product Group**: A product classification that holds default requirements and parameters that can be applied via business rules when ingredients are added to recipes.
- **Suppliers Products**: All recipes samples, responses, ingredients, additives, compound ingredients, etc. that are created by a particular supplier.

ID	Name
ProductLifecycleManagementClassifRoot	Product Lifecycle Management
PLMAdditiveClassRoot	Additive Class Root
PLMAdditiveClass	Additive Class
PLMGeographicalAreasRoot	Geographical Areas Root
PLMCountry	Country
PLMRegion	Region
PLMIngredientsClassificationRoot	Ingredients Classification Root
PLMIngredientPurpose	Ingredient Purpose
PLMIngredientGroup	Ingredient Group
PLMIngredientSpecificationGroups	Ingredient Specification Groups
PLMIngredientSpecificationGroup	Ingredient Specification Group
PLMLabelCountryAndLanguagesRoot	Label Country and Languages Root
PLMLabelCountryAndLanguages	Label Country and Languages
PLMProductClassificationsRoot	PLM Product Classifications
PLMProductSegment	PLM Product Segment
PLMProductFamily	PLM Product Family
PLMProductClass	PLM Product Class
PLMProductGroup	PLM Product Group
SupplierGroupRoot	Suppliers Group Root

ID	Name
SuppliersGroup	Suppliers Group
SuppliersRoot	Suppliers Root
SuppliersAssets	Suppliers Assets
SuppliersProducts	Suppliers Products

References Needed for Private Label Food Solution

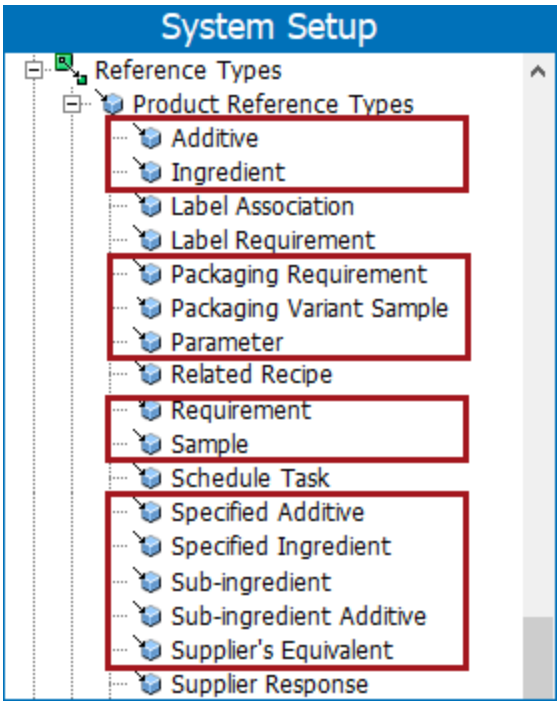
The following reference types are required for the private label food solution to work properly:

- Product Reference Types
- Classification Reference Types
- Product to Classification Link Types

See the above mentioned topics for more information on how to create the necessary reference types.

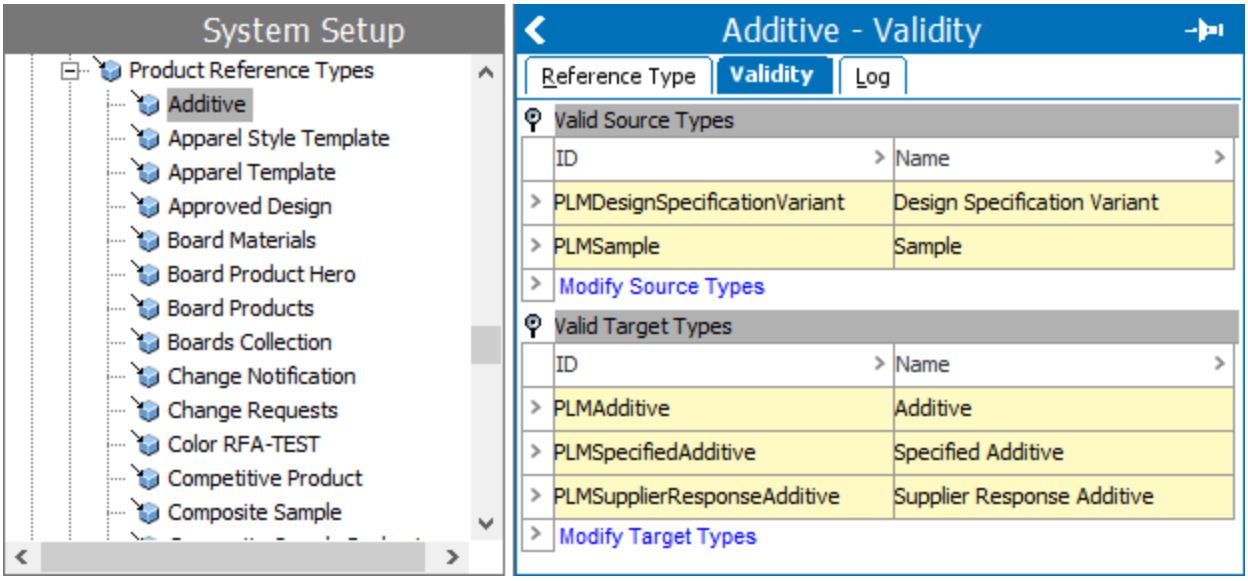
Product Reference Types

There are a number of Product Reference Types needed for private label tabs to work. The references needed are pictured below and described in further detail in this section.



Additive

PLMAdditive is used as a reference to connect a PLMAdditive to a PLMDesignSpecificationVariant object type or a PLMSupplierResponseAdditive to a PLMSample object type. The PLMAdditive reference should have the following Valid Source Types and Valid Target Types as seen in the picture below:

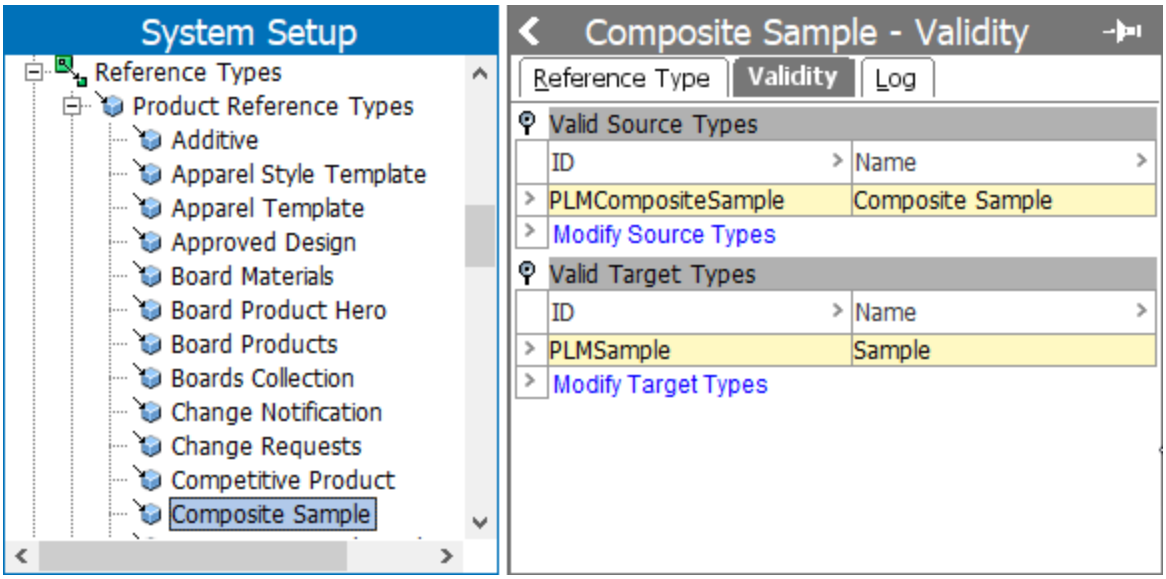


Note: While PLMAdditive is mandatory, it is possible to have more than one additive reference type. However, each additional additive reference type still must have the same attributes as PLMAdditive.

Composite Sample

PLMCompositeSample is a reference type that is used to relate to a PLMCompositeSample or more than one PLMSample.

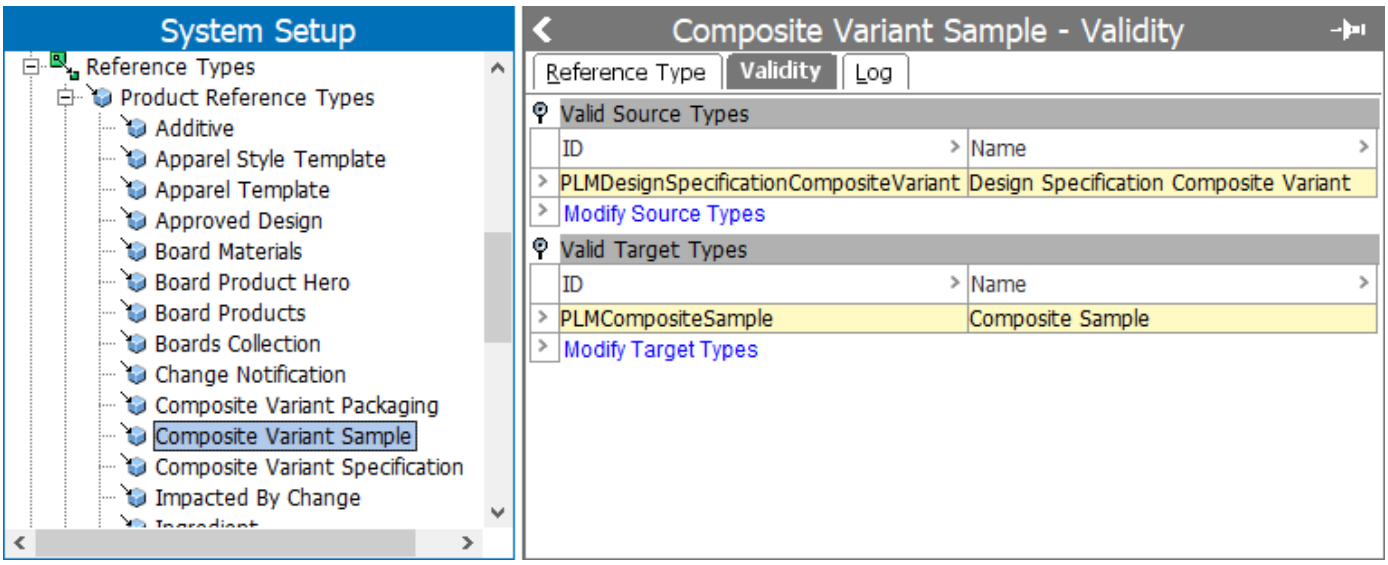
The PLMCompositeSample reference should have the following Valid Source Types and Valid Target Types as seen in the picture below:



Composite Variant Sample

PLMCompositeVariantSample is a reference type used to relate the PLMDesignSpecificationCompositeVariant to the PLMCompositeSample.

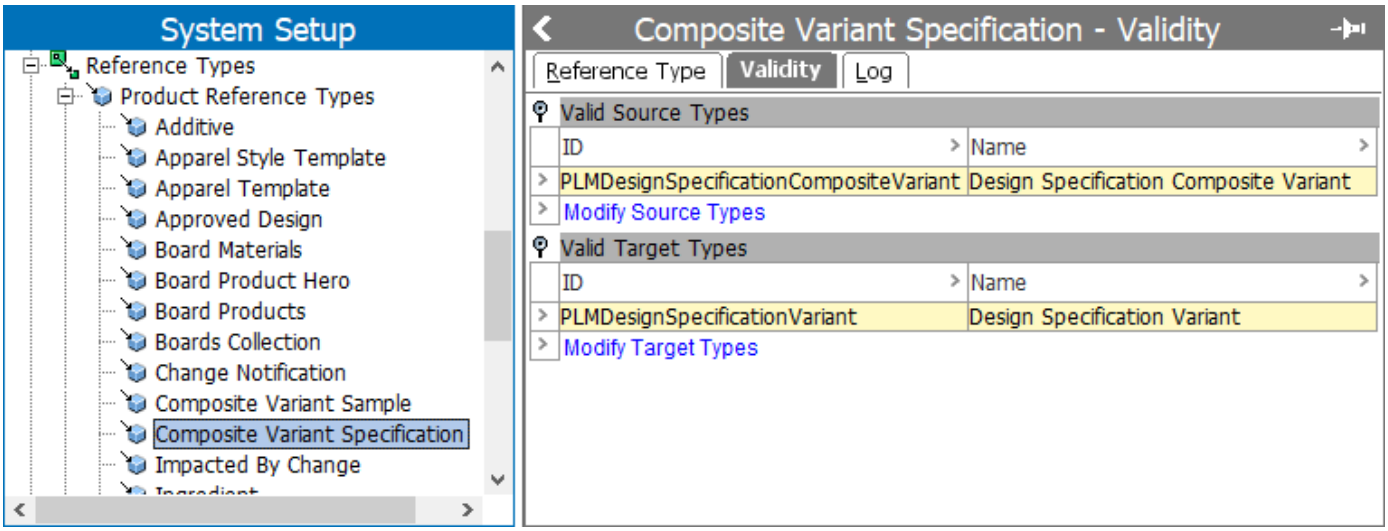
The PLMCompositeVariantSample reference should have the following Valid Source Types and Valid Target Types as seen in the picture below:



Composite Variant Specification

PLMCompositeVariantSpecification is a reference type that is used to relate the PLMDesignSpecificationCompositeVariant to more than one PLMDesignSpecificationVariant that makes up the single product variation.

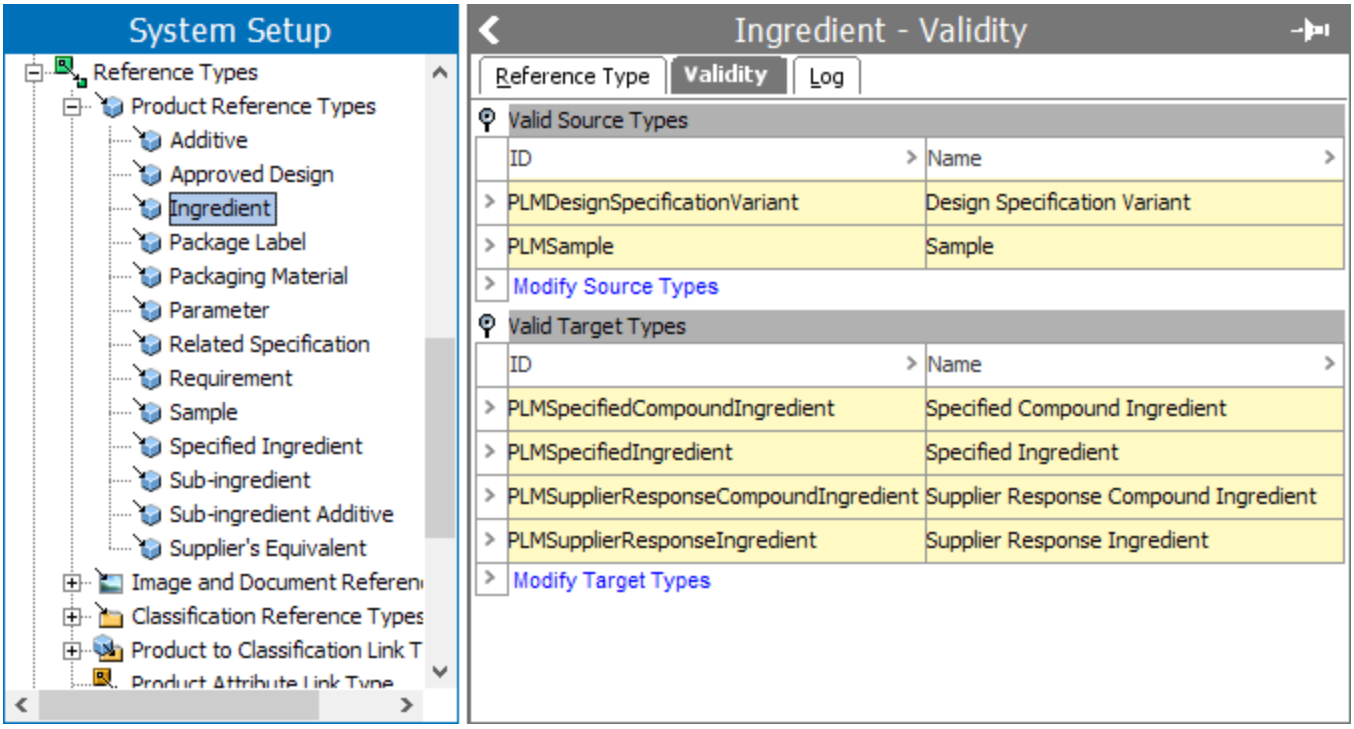
The PLMCompositeVariantSpecification reference should have the following Valid Source Types and Valid Target Types as seen in the picture below:



Ingredient

PLMIngredient is used as a reference to connect a PLMDesignSpecificationVariant to a PLMSpecifiedCompoundIngredient or a PLMSpecifiedIngredient. Additionally, it is used as a reference between a PLMSample and a PMLSupplierResponseCompoundIngredient or a PLMSupplierResponseIngredient.

The PLMIngredient reference should have the following Valid Source Types and Valid Target Types as seen in the picture below:

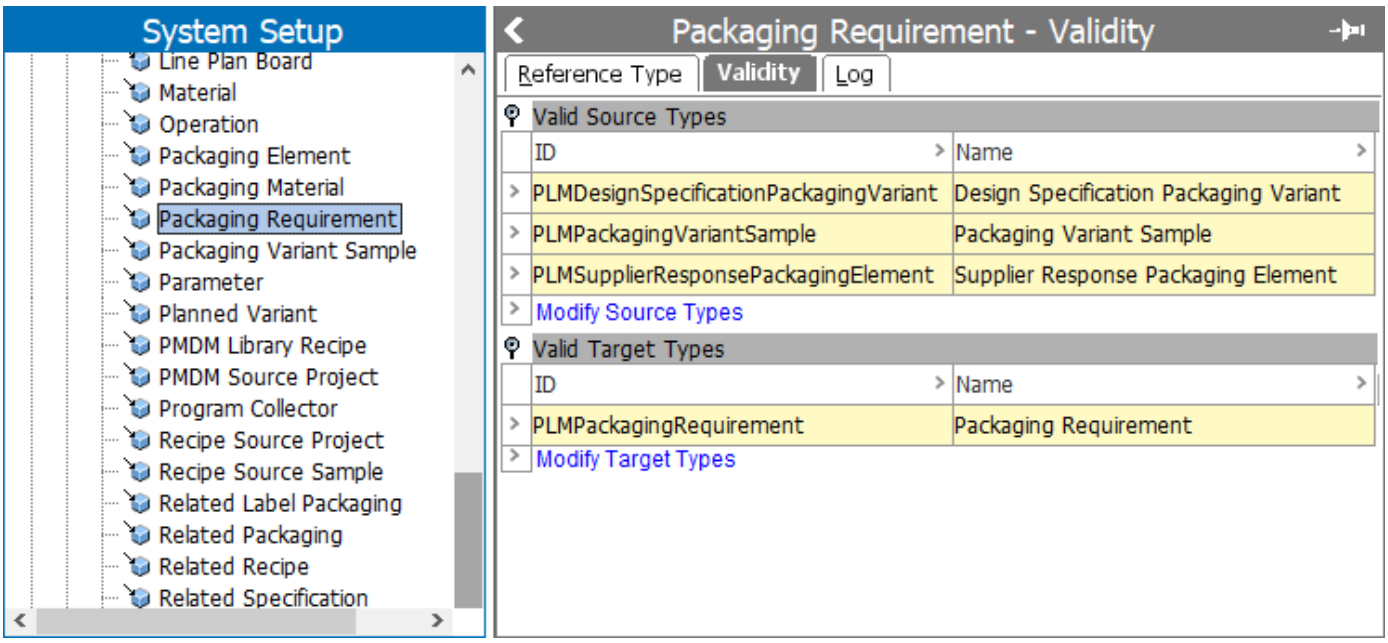


Note: While PLMIngredient is mandatory, it is possible to have more than one ingredient reference type. However, each additional ingredient reference type still must have the same attributes as PLMIngredient.

Packaging Requirement

The PLMPackagingRequirement reference relates to a PLMDesignSpecificationPackagingVariant, PLMPackagingVariantSample, and PLMSupplierResponsePackagingElement.

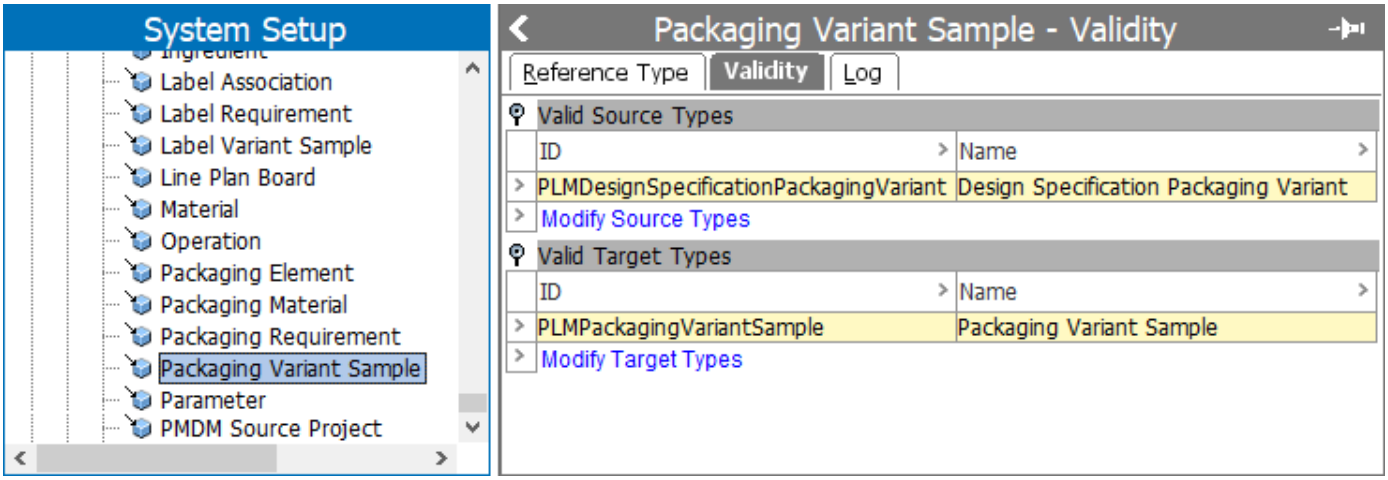
The PLMPackagingRequirement reference should have the following Valid Source Types and Valid Target Types as seen in the picture below:



Packaging Variant Sample

The PLMPackagingVariantSample reference relates a PLMDesignSpecificationPackagingVariant to many PLMPackagingVariantSample objects per supplier.

The PLMPackagingVariantSample reference should have the following Valid Source Types and Valid Target Types as seen in the picture below:



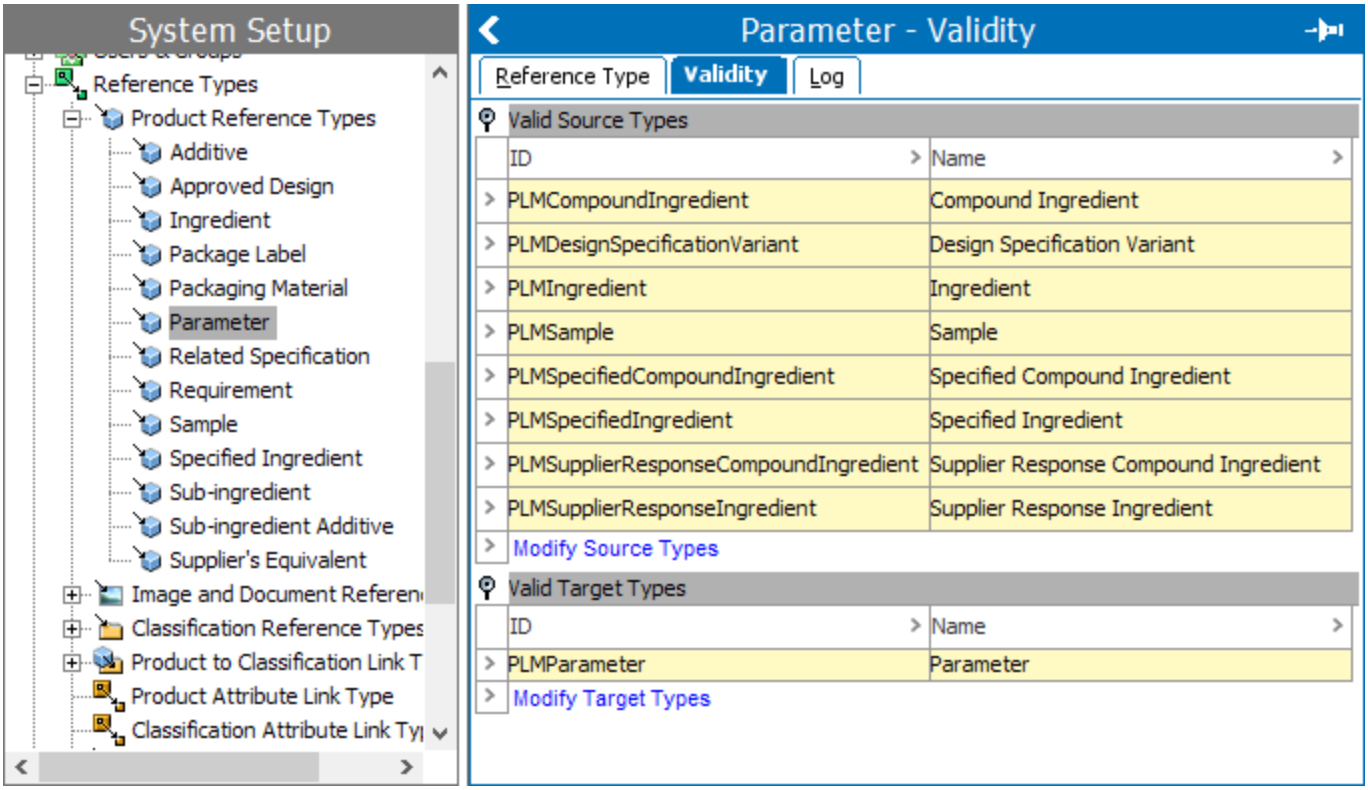
Parameter

PLMParameter is used as a reference to connect the following object types to a PLMParameter object type:

- PLMCompoundIngredient
- PLMDesignSpecificationVariant

- PLMIngredient
- PLMSample
- PLMSpecifiedCompoundIngredient
- PLMSpecifiedIngredient
- PLMSupplierResponseCompoundIngredient
- PLMSupplierResponseIngredient

The PLMParameter reference should have the following Valid Source Types and Valid Target Types as seen in the picture below.



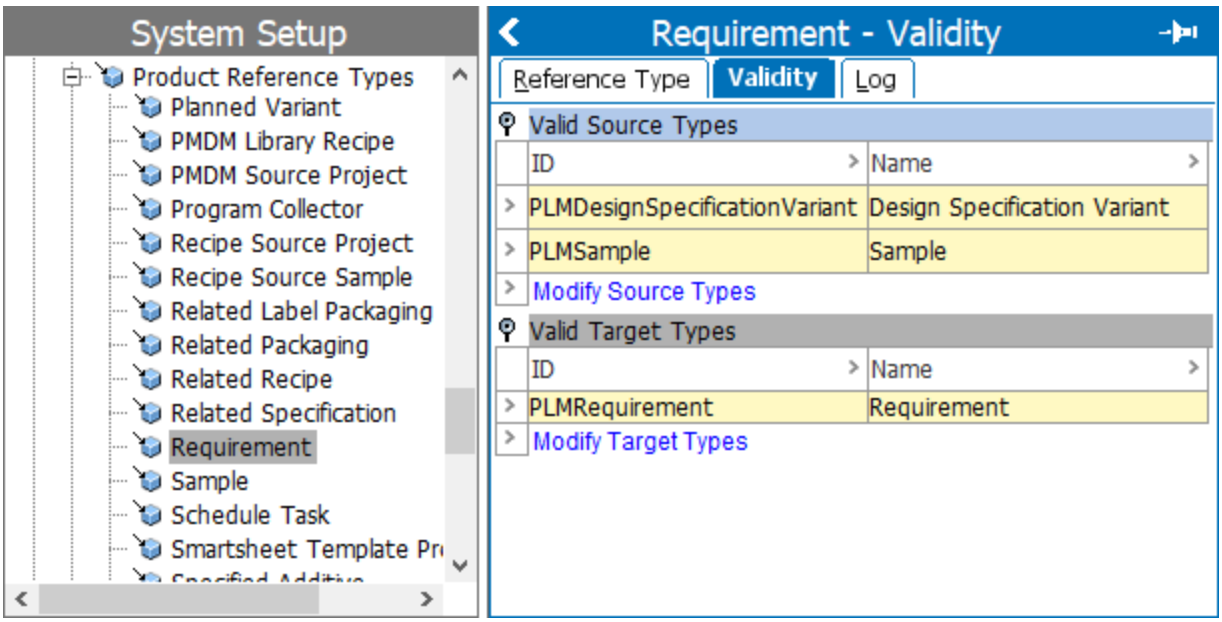
Note: It is possible to have more than one parameter reference type. However, each additional parameter reference type still must have the same source, target, and attributes as the original PLMParameter, though it could have additional source, target, and attribute types as well.

Requirement

PLMRequirement is used as a reference to connect the following object types to a PLMRequirement object type:

- PLMDesignSpecificationVariant
- PLMSample

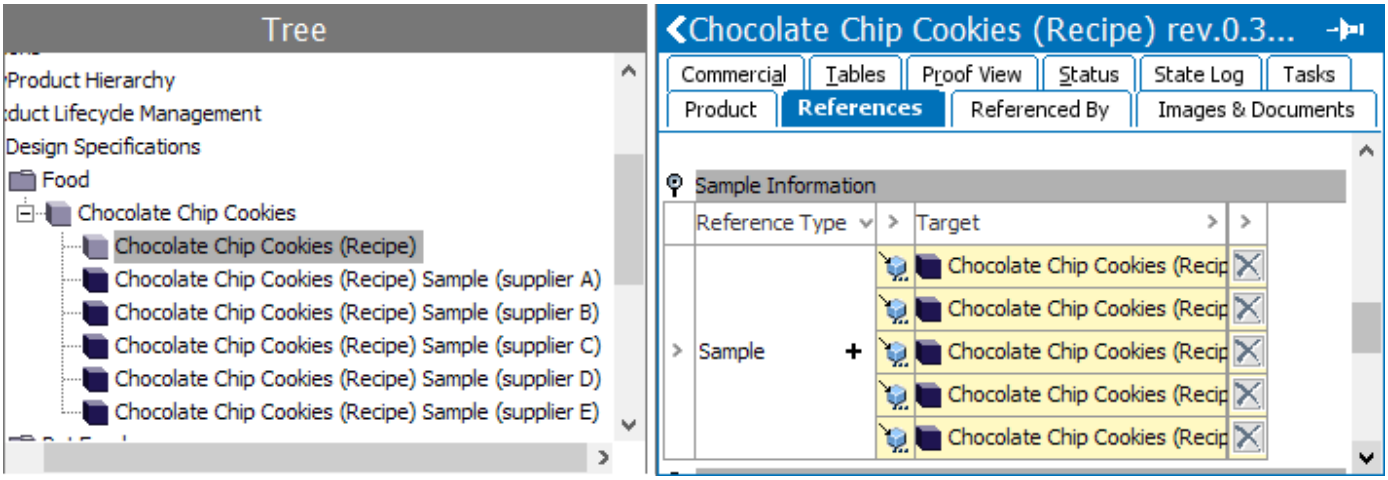
The PLMRequirement reference should have the following Valid Source Types and Valid Target Types as seen in the picture below.



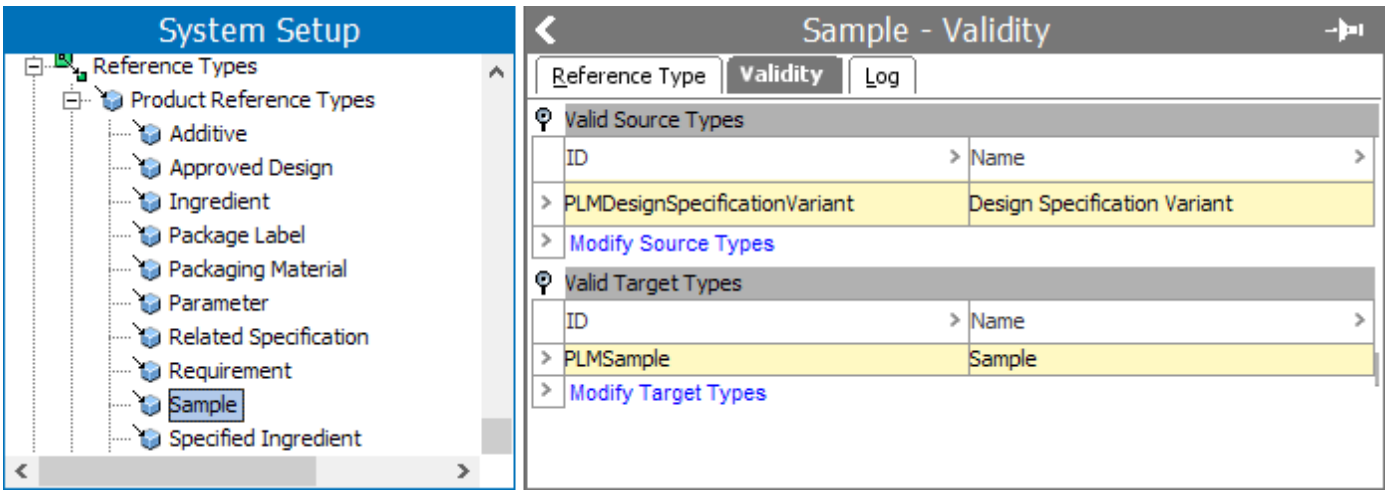
Note: It is possible to have more than one requirement reference type. However, each additional requirement reference type still must have the same source, target, and attributes as the original PLMRequirement, though it could have additional source, target, and attribute types as well.

Sample

PLMSample is used as a reference from the PLMDesignSpecificationVariant object types to the PLMSample object types.



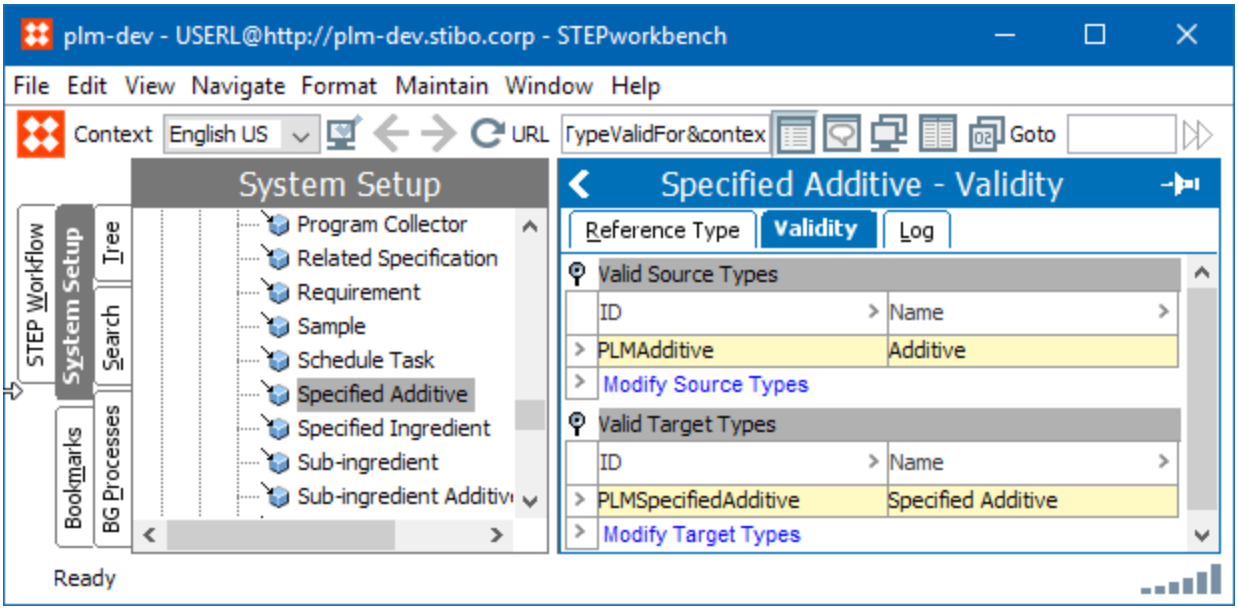
The PLMSample reference should have the following Valid Source Types and Valid Target Types as seen in the picture below:



Specified Additive

PLMSpecifiedAdditive is used to connect a PLMAdditive to a PLMSpecifiedAdditive.

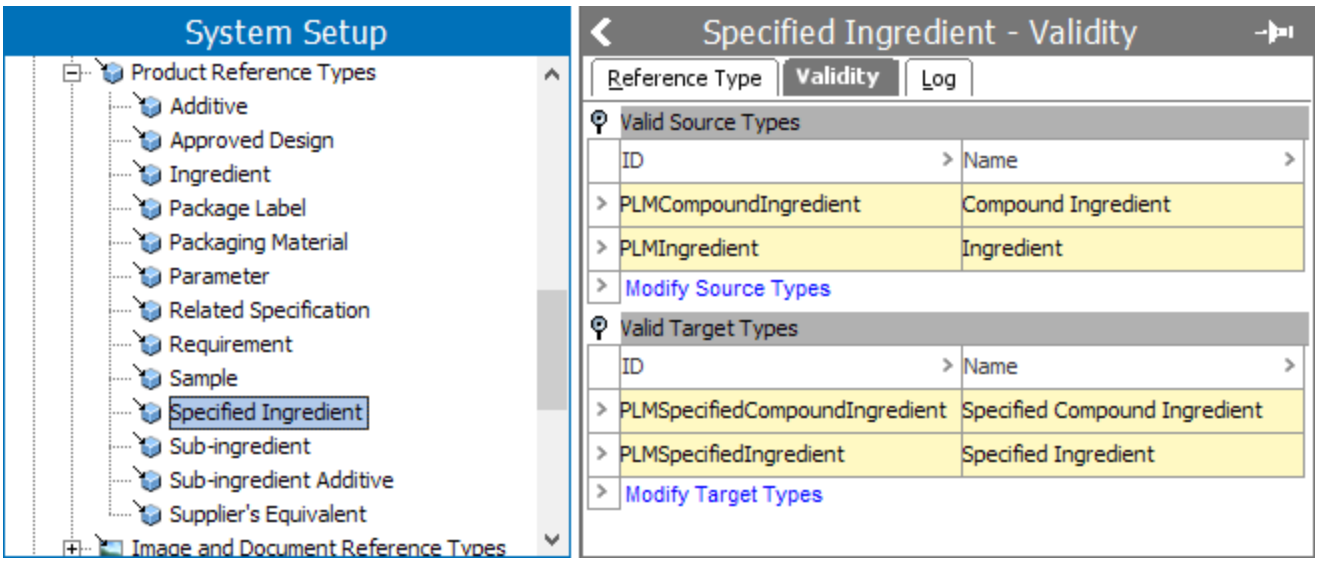
The PLMSpecifiedAdditive reference should have the following Valid Source Types and Valid Target Types as seen in the picture below:



Specified Ingredient

PLMSpecifiedIngredient is used to connect a PLMIngredient to a PLMSpecifiedIngredient, and to connect a PLMCompoundIngredient to a PLMSpecifiedCompoundIngredient.

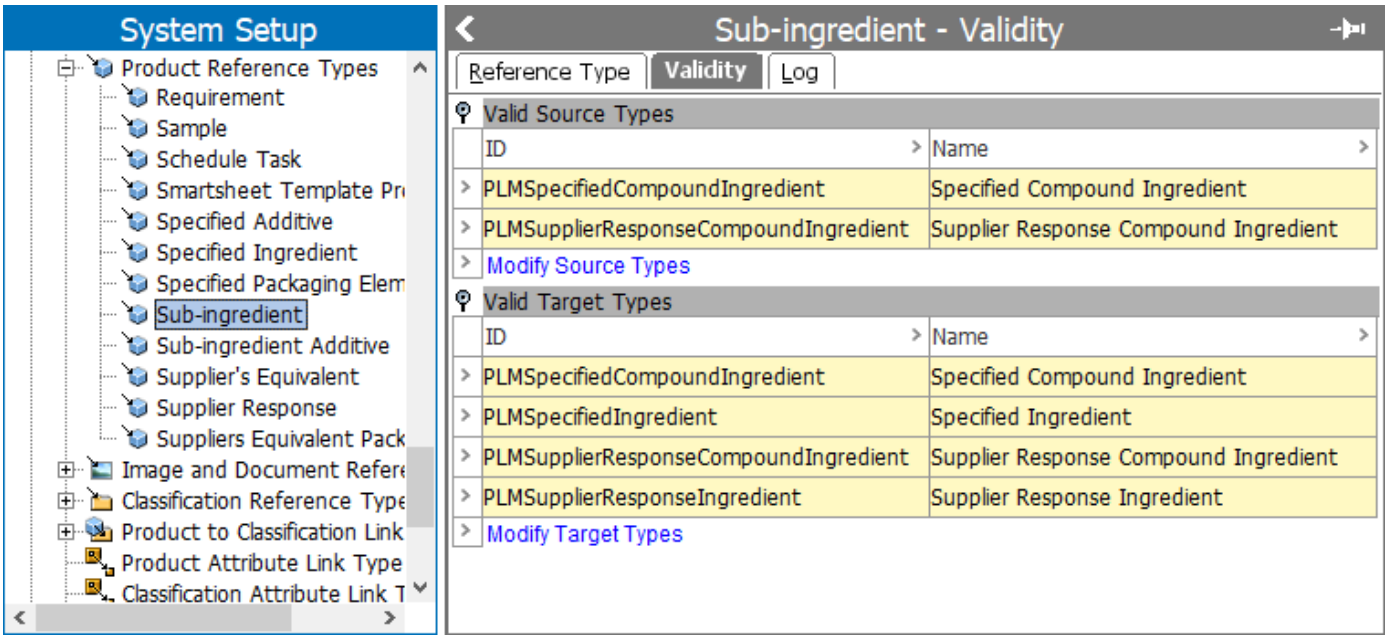
The PLMSpecifiedIngredient reference should have the following Valid Source Types and Valid Target Types as seen in the picture below:



Sub-Ingredient

The PLMSubIngredient reference is used to connect PLMSpecifiedCompoundIngredient to PLMSpecifiedIngredient and PLMSupplierResponseCompoundIngredient to PLMSupplierResponseIngredient.

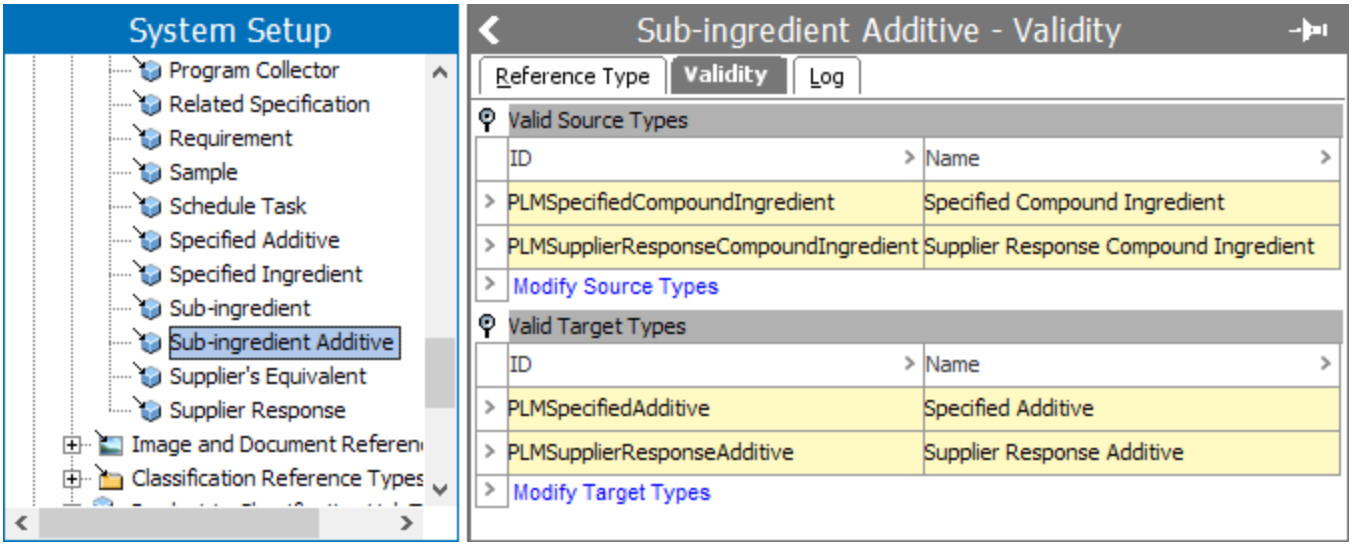
The PLMSubIngredient reference should have the following Valid Source Types and Valid Target Types as seen in the picture below:



Sub-Ingredient Additive

The PLMSubIngredientAdditive reference is used to connect PLMSpecifiedCompoundIngredient to PLMSpecifiedAdditive and PLMSupplierResponseCompoundIngredient to PLMSupplierResponseAdditive.

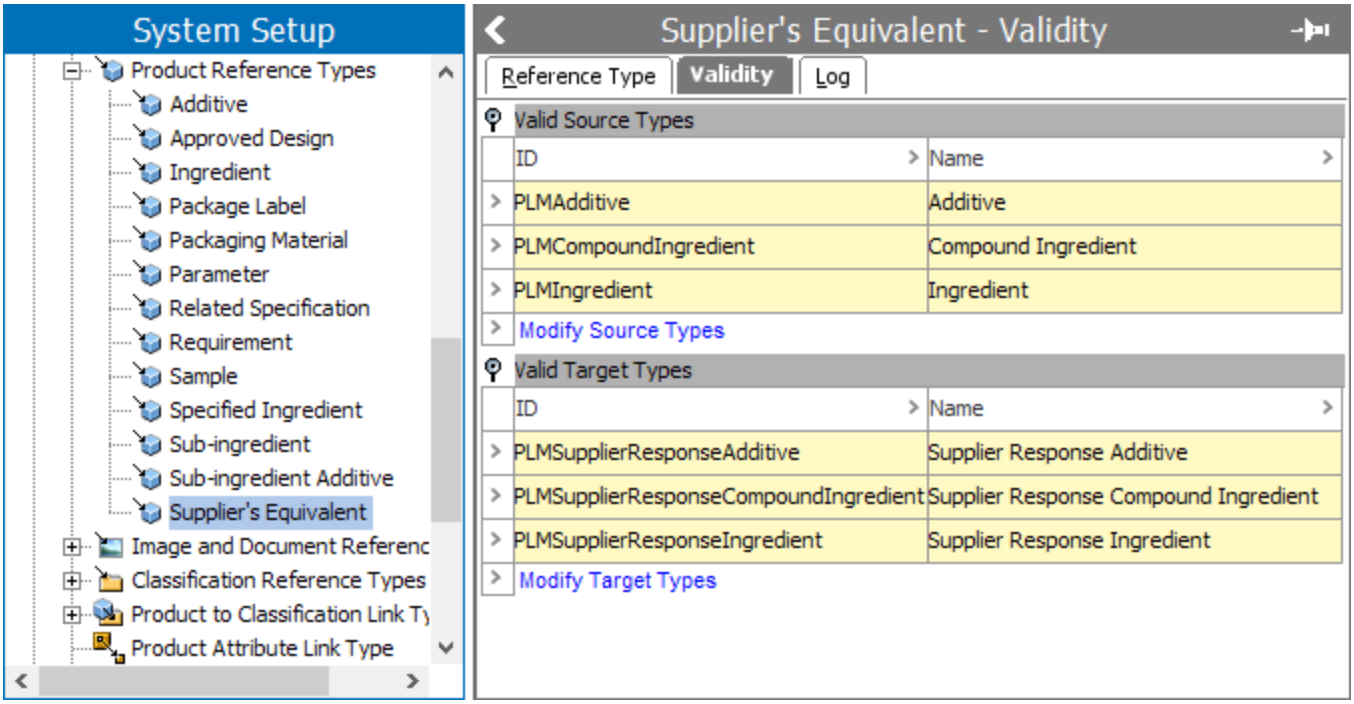
The PLMSubIngredientAdditive reference should have the following Valid Source Types and Valid Target Types as seen in the picture below:



Supplier's Equivalent

The PLMSuppliersEquivalent references is used to connect PLMCompoundIngredient to PLMSupplierResponseCompoundIngredient, PLMIngredient to PLMSupplierResponseIngredient, and PLMAdditive to PLMSupplierResponseAdditive.

The PLMSuppliersEquivalent reference should have the following Valid Source Types and Valid Target Types as seen in the picture below:



Classification Reference Types

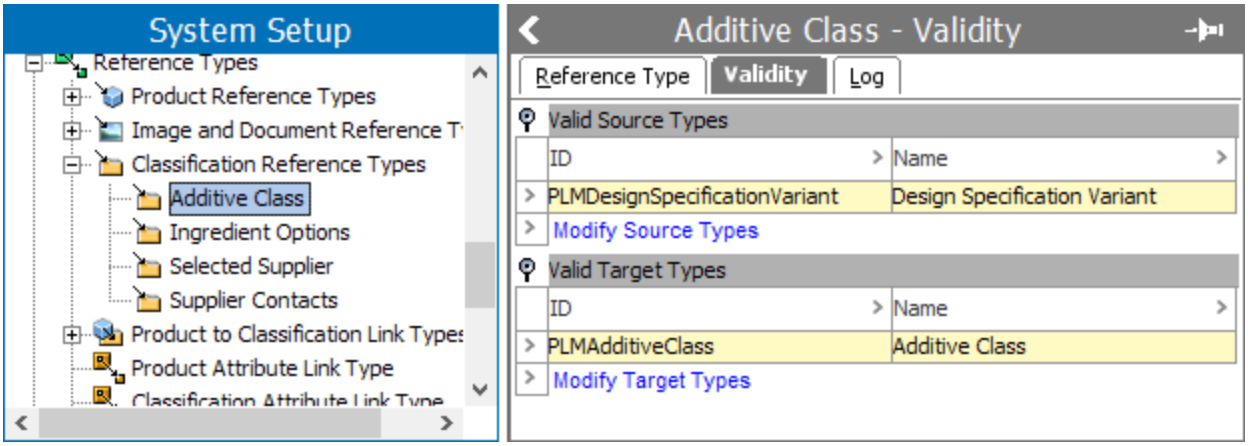
The Product to Classification Link Type is used to indicate which suppliers are bidding on the new product.

Additive Class

The classification reference can be used by customers to specify criteria about an entire group of additives rather than individually specify all of them. This allows the supplier to see what is in the group so that they can meet the specification.

The PLMAdditiveClass reference is used to connect the product PLMDesignSpecificationVariant object type to the classification PLMAdditiveClass object type.

The reference should have the following Valid Source Types and Valid Target Types as seen in the picture below:

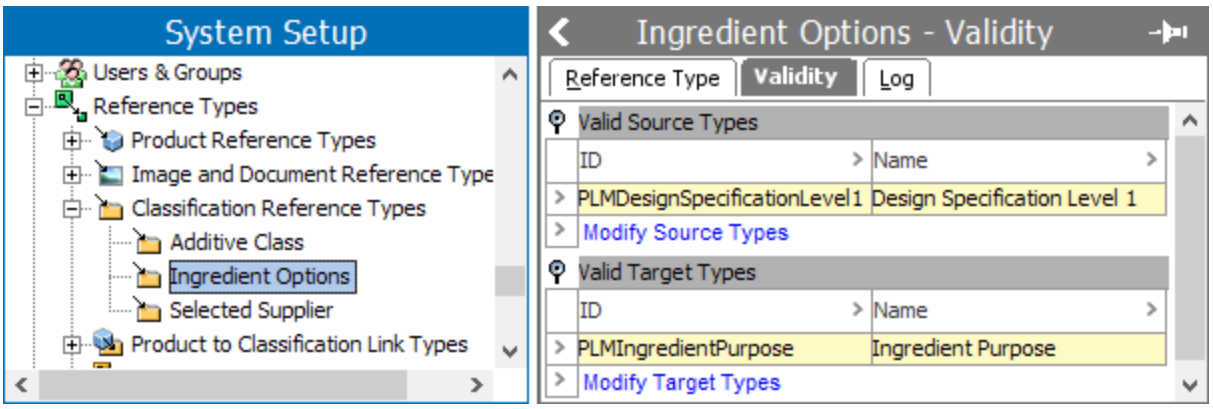


Ingredient Options

The ingredient Options reference allows customers to classify ingredients for different purposes, such as food vs pet food, and then limits where a user can choose ingredients to specify, or limits what supplier can choose to build recipes. Developed component looks for the parent of the design specification and connects all design specs in that category to the right ingredient classification.

The PLMIngredientOptions reference is used to connect the product PLMDesignSpecificationLevel1 object types to the classification PLMIngredientPurpose object type.

The reference should have the following Valid Source Types and Valid Target Types as seen in the picture below:

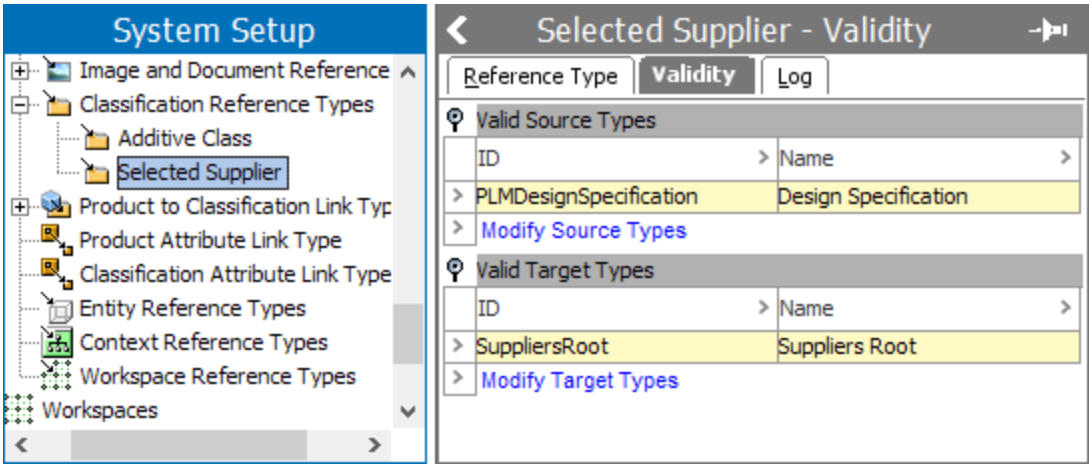


Selected Supplier

Note: The following reference type is not used in the developed component, but is used in the private label food solution.

The PLMSelectedSupplier reference is used to connect the product PLMDesignSpecification object types to the classification SupplierRoot object type.

The reference should have the following Valid Source Types and Valid Target Types as seen in the picture below:

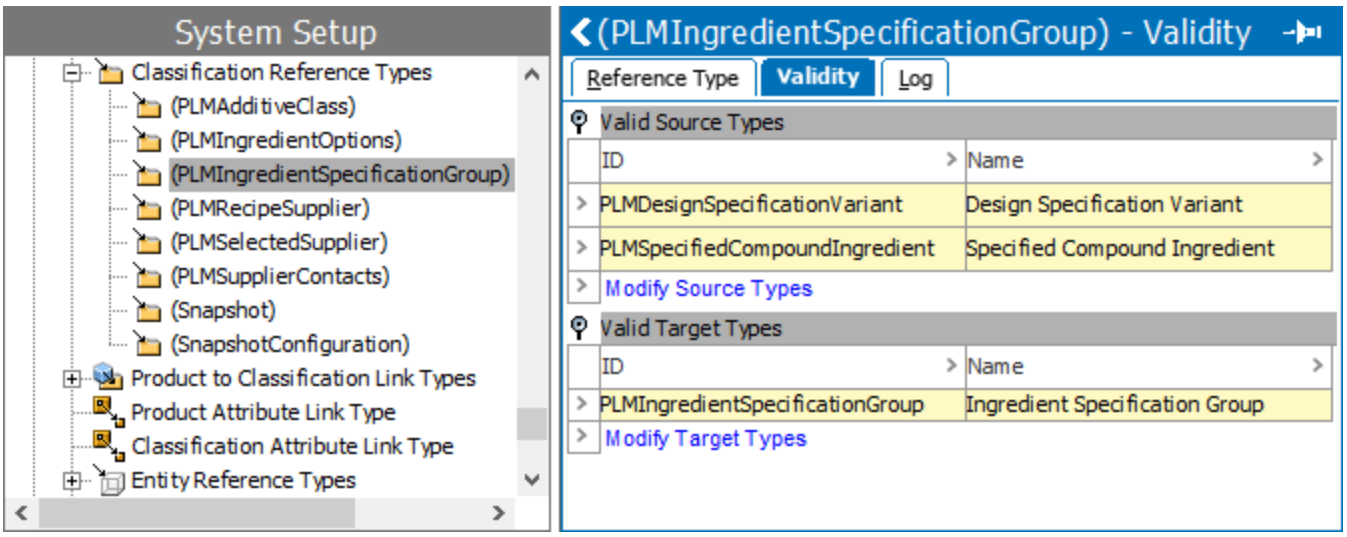


Ingredient Specification Group

The classification reference can be used by customers to specify criteria about an entire group of ingredients rather than individually specify all of them. This allows the supplier to see what is in the group so that they can meet the specification.

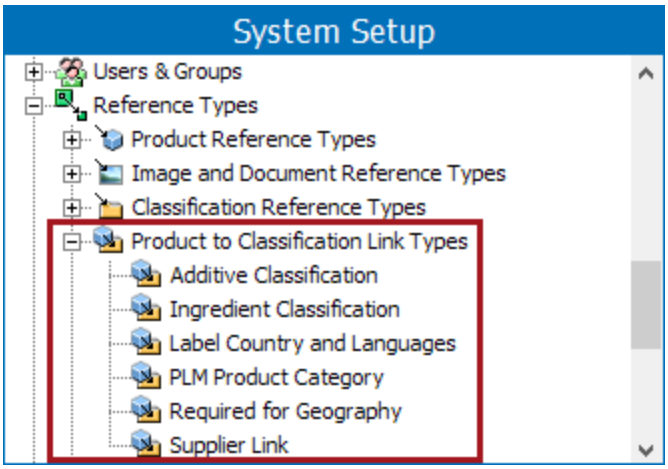
The PLMIngredientSpecificatinGroup reference is used to connect the product PLMDesignSpecificationVariant object type to the classification PLMIngredientSpecificatinGroup.

The reference should have the following Valid Source Types and Valid Target Types as seen in the picture below:


System Setup
Classification Reference Types
(PLMAdditiveClass)
(PLMIngredientOptions)
(PLMIngredientSpecificationGroup)
(PLMRecipeSupplier)
(PLMSelectedSupplier)
(PLMSupplierContacts)
(Snapshot)
(SnapshotConfiguration)
Product to Classification Link Types
Product Attribute Link Type
Classification Attribute Link Type
Entity Reference Types
(PLMIngredientSpecificationGroup) - Validity
Reference Type
Validity
Log
Valid Source Types
ID
Name
PLMDesignSpecificationVariant
Design Specification Variant
PLMSpecifiedCompoundIngredient
Specified Compound Ingredient
Modify Source Types
Valid Target Types
ID
Name
PLMIngredientSpecificationGroup
Ingredient Specification Group
Modify Target Types

Product to Classification Link Types

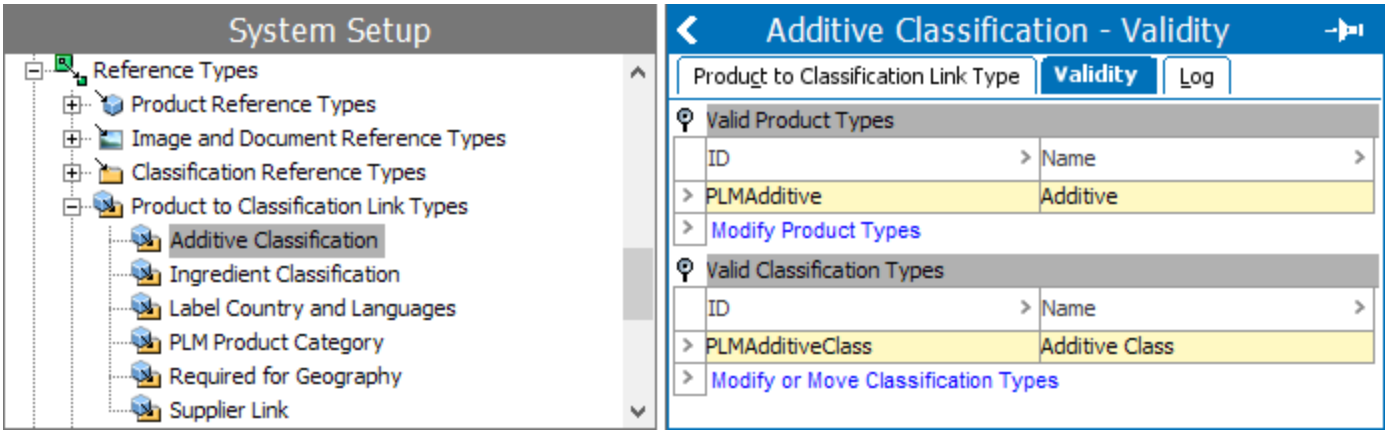
Product to classification link types are used to help classify which product object types are to be sorted into which classification group. It is possible for an object to be linked to more than one classification group.



Additive Classification

PLMAdditiveClassification is used to sort additive product types into various additive class folders. It is also possible for a PLMAdditiveClassification to be part of more than one additive class.

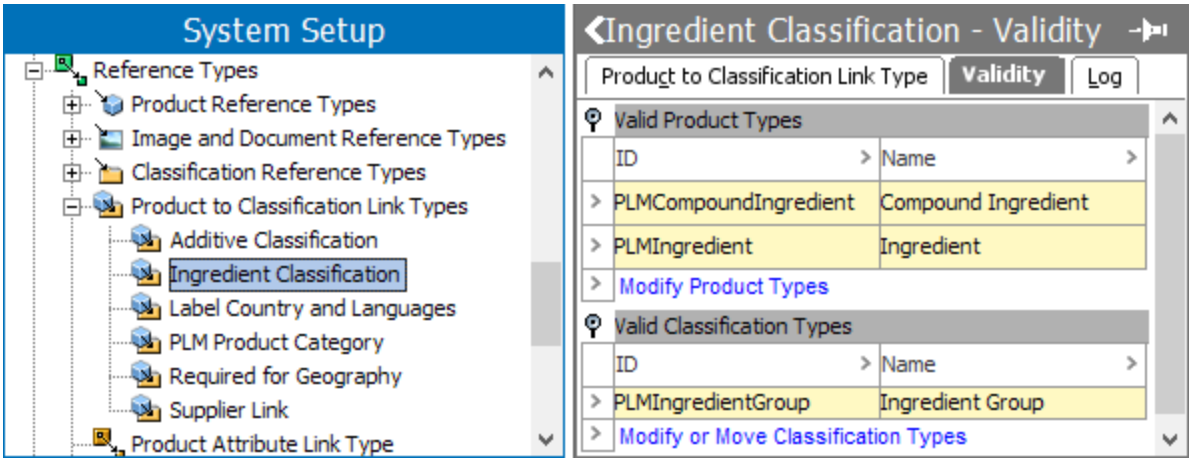
The PLMAdditiveClassification reference should have the following Valid Source Types and Valid Target Types as seen in the picture below:



Ingredient Classification

PLMIngredientClassification is used to control which ingredient and compound ingredient product types can be added into various ingredient classification folders, for example, food versus pet food. It is possible for PLMIngredient and PLMCompoundIngredient product types to be part of more than one ingredient class.

The PLMIngredientClassification should have the following Valid Source Types and Valid Target Types as seen in the picture below:

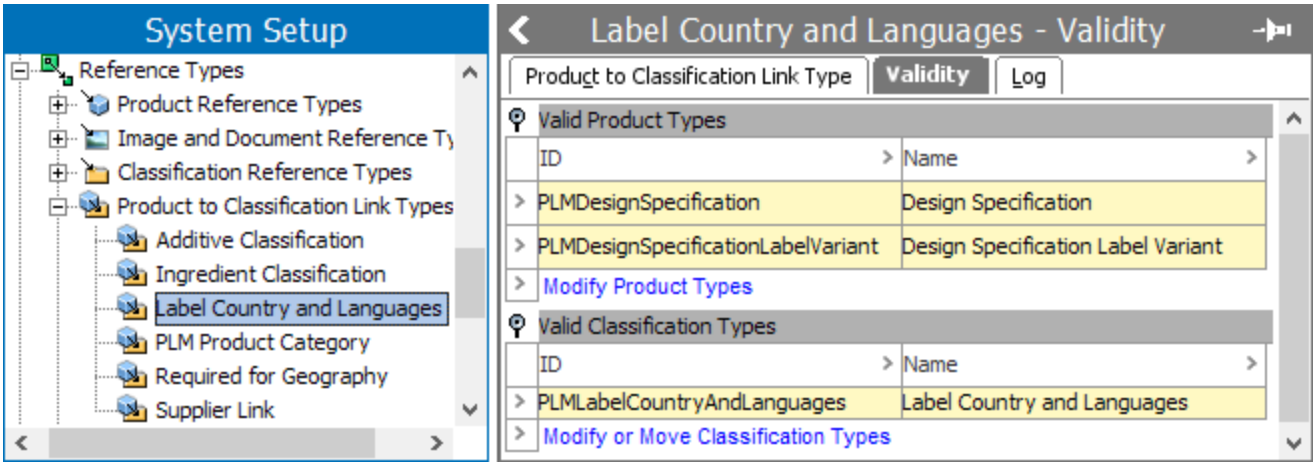


Label Country and Languages

Note: This reference is not part of the developed delivered components, but is used in the private label food solution.

The PLMLabelCountryAndLanguages reference is used to indicate which language bundles will be produced on a product label. It sorts PLMDesignSpecification and PLMDesignSpecificationLabelVariant product types into various PLMLabelCountryAndLanguages classes. It is possible for PLMDesignSpecification and PLMDesignSpecificationLabelVariant product types to be part of more than one label country and languages class bundle.

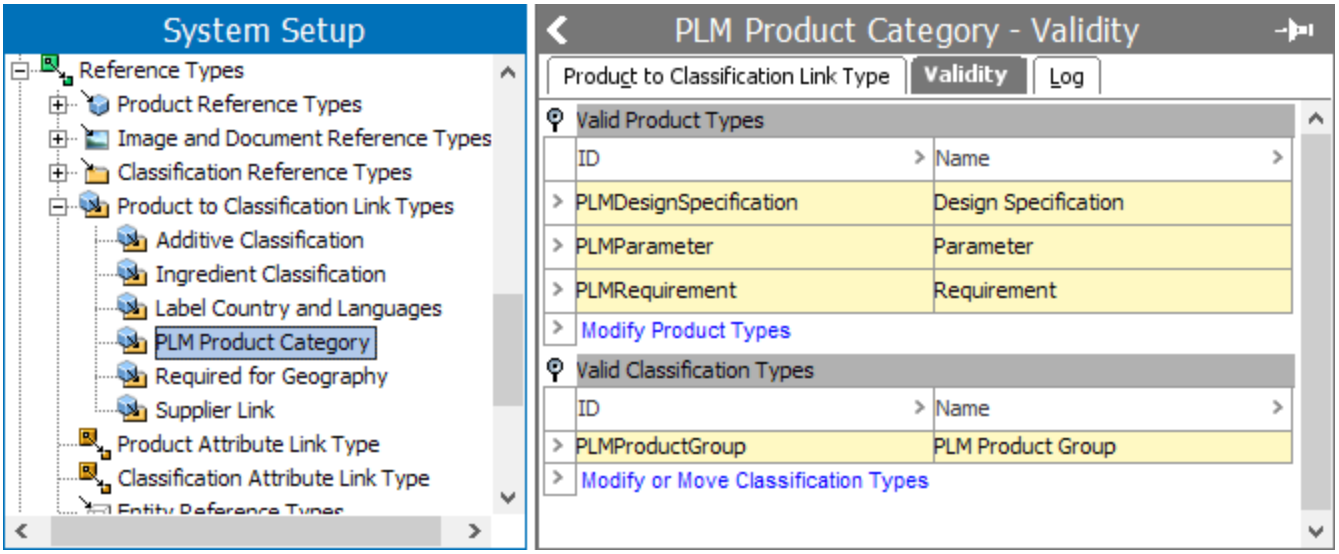
The PLMLabelCountryAndLanguages should have the following Valid Source Types and Valid Target Types as seen in the picture below:



PLM Product Category

The PLMProductCategory is used to sort PLMDesignSpecification, PLMDesignSpecificationLabelVariant, PLMParameter, and PLMRequirement object types into various PLMProductCategory classes. In other words, it enables customers to associate a design specification with a product category, and then link any necessary requirements and parameters. It is possible for PLMDesignSpecification, PLMDesignSpecificationLabelVariant, PLMParamater, and PLMRequirement product types to be part of more than one label country and languages class.

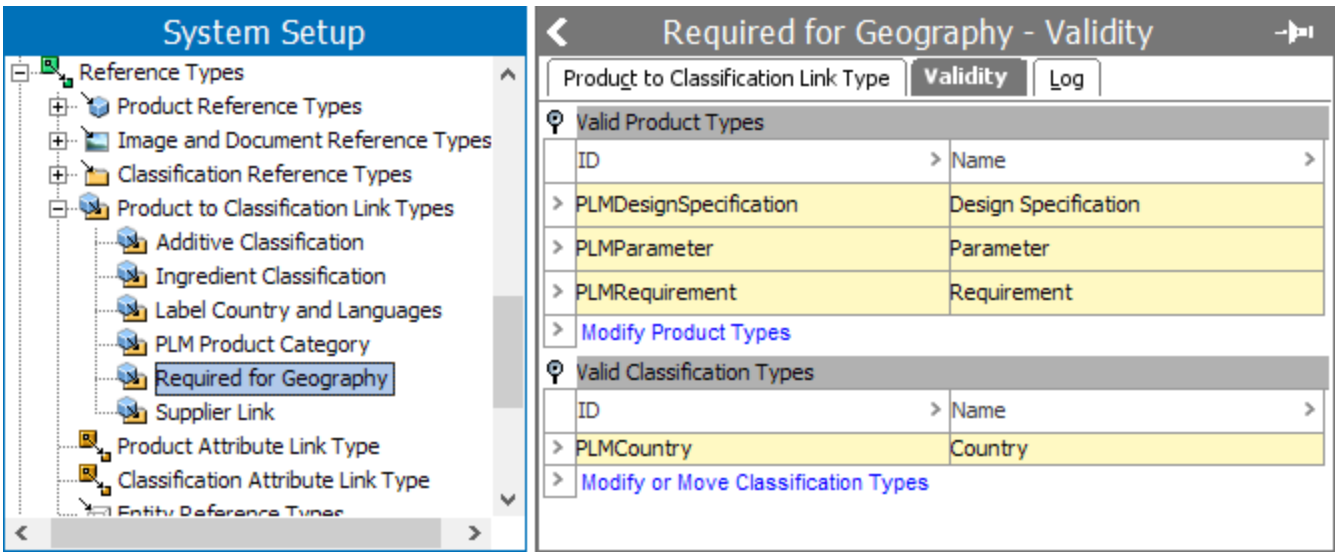
The PLM Product Category product to classification link type should have the following Valid Source Types and Valid Target Types as seen in the picture below:



Required for Geography

PLMRequiredForGeography is used to sort PLMDesignSpecification, PLMParameter, and PLMRequirement object types into various required for geography classes, thus indicating which countries the new product is intended to be sold. Additionally, through business rules, it is used to link in requirements and parameters that should be applied to all new products for sale in that country. It is possible for PLMDesignSpecification, PLMParameter, and PLMRequirement product types to be part of more than one required for geography class.

The PLMRequiredForGeography should have the following Valid Source Types and Valid Target Types as seen in the picture below:

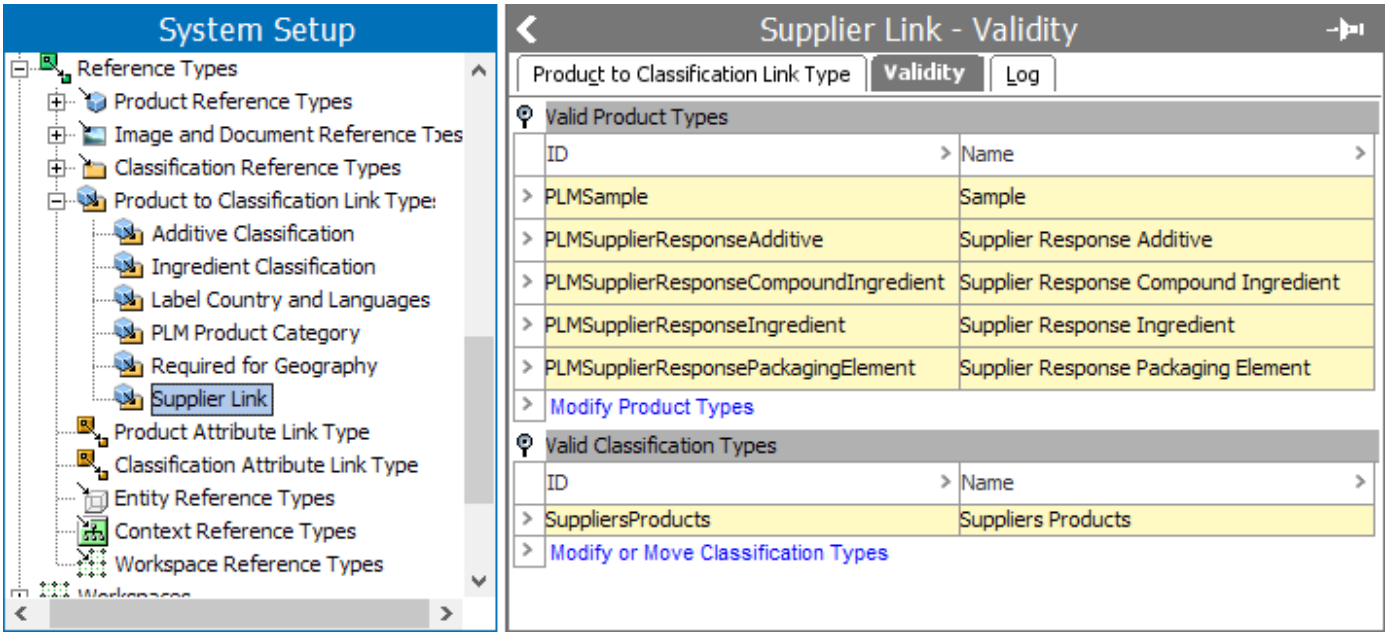


Supplier Link

Note: In workbench, in Users & Groups under the Web UI Setting flipper, the name of the 'Link type for vendor classification to product link' may be different than this example which uses 'SupplierLink.' Be sure to check your setting in workbench for the correct classification to product link, as this will need to be used for all components and business rules. Talk to your enablement team if changes need to be made.

SupplierLink is used to sort PLMSamples, PLMSupplierResponseAdditive, PLMSupplieResponseCompoundIngredient, PLMSupplierResponseIngredient, and PLMSupplierResponsePackagingElements into various supplier link classes.

The SupplierLink should have the following Valid Source Types and Valid Target Types as seen in the picture below:



Attributes Needed for Private Label Food Solution

When comparing recipes from suppliers, the table below details the required attribute groups and attributes.

All attributes listed in the table are description attributes, unless otherwise noted, with many being valid for multiple Reference Types. While the names for these attributes can vary, the IDs for the attributes needed for the private label food solution must be entered in exactly as displays in the table below:

Note: Even though an attribute may be valid for more than one reference type, this does not mean that the attribute needs to hold a value. Many references are used for multiple object types, and not all object types need all attributes to hold a value. This is because the same attributes are used on both suppliers and samples, and not all attributes need values for both of these object types at the same time.

Note: There are some attribute groups and attributes included in the table below that are used by Stibo Systems' private label food solution and workflows, but are not needed for the developed components. Attributes or attribute groups not needed for the developed components are identified by an asterisk.

Attribute Groups

Attribute Group IDs	Definition	Name	Attributes in Group
PLMCompareDetailsParameter	The attributes that appear in the show details dialog in the Compare Parameters Tab in Web UI.	Compare Details, Parameter	• PLMMeetsRequirement • PLMSuppliersExplanation • PLMDefiningAttribute • PLMMethod
PLMCompareDetailsRequirement	The attributes that appear in the show details dialog in the Compare requirements Tab in Web UI	Compare Details, Requirement	• PLMMeetsRequirement • PLMDefiningAttribute • PLMSuppliersExplanation
PLMCopiedAdditiveValues	The PLMSpecifiedAdditive or the PLMSupplierResponseAdditive are created and the attributes values from the attributes in this attribute group are copied form the generic PLMAdditive to the created objects (PLMSpecifiedAdditive/PLMSupplierResponseAdditive)	Copied Additive Values	• Open for various attribute types
PLMSpecifiedIngredientAdditionalInfo	These attributes display as additional info for the Specified Ingredients Side Panel. Additionally, they display in the Specified Ingredients Tab after the PLMSpecifiedIngredientStaticInformation attributes in the dialog for adding and editing ingredients.	Specified Ingredient Additional Information	• PLMSpecificationDetails • Open to other various attribute types
PLMSupplierIngredientAdditionalInfo	In the Compare Ingredients Tab, these attributes display as additional information for the sample ingredients. Additionally, in the Supplier Ingredients Tab, the attributes display after the PLMSampleIngredientStaticInformation attributes in the dialog for adding and editing ingredients.	Supplier Ingredient Additional Information	• PLMGuaranteedCountryOfOrigin • PLMSuppliersExplanation • Open to other various attribute types

Attribute Group IDs	Definition	Name	Attributes in Group
PLMSpecifiedIngredientStaticInformation	In the Specified Ingredients Tab these attributes are the static information in the dialog for adding and editing ingredients. All the attributes are needed.	Specified Ingredient Static Information	• PLMSpecifiedIngredientAllowance • PLMSpecifiedIngredientPrecision • PLMSpecifiedIngredientQuantity
PLMSupplierIngredientStaticInformation	In the Supplier Ingredients Tab these attributes are the static information in the dialog for adding and editing ingredients. All the attributes are needed.	Supplier Ingredient Static Information	• PLMSuppliersIngredientQuantity

Attributes

Attribute IDs	Definition	Validation Base Type	Validity	Dependencies
PLMAdditiveClassID	Used by PLM developed Web UI components for specifying a recipe and for suppliers to enter their recipe additives. After selecting an additive and class for the additive, the STEP ID is written to this attribute because that ensures uniqueness of the class. The additive class name is written to a different attribute (PLMAdditiveClass).	Text	**Product Reference Types** • PLMAdditive	None
PLMAlternateName	An alternate name used in place of an ingredient or compound ingredient for searching, e.g., searching for an 'eggplant' will also show results with 'aubergine,' the alternate name for eggplant.	Text	**Primary Product Types** • PLMCompoundIngredient • PLMIngredient	Language

Attribute IDs	Definition	Validation Base Type	Validity	Dependencies
PLMEuropeanNumberingSystemNumber **Note:** This is a specification attribute	Number codes for substances that are permitted to be used as food additives if used within the European Union and European Free Trade Association. The recipe creation components use this as an alternate search term.	Text	**Primary Product Types** • PLMAdditive • PLMSupplierResponseAdditive	None
PLMGuaranteedCountryOfOrigin **Note:** Part of PLMSupplierIngredientAdditionalInfo attribute group	Indicates the country where the ingredient, additive, or compound ingredient is from.	List of Values	**Product Reference Types** • PLMAdditive • PLMIngredient • PLMSubIngredient • PLMSubIngredientAdditive	None
PLMHelpText	Directions that assist the user to answer requirements and parameters.	Text	**Product Types** • PLMParameter • PLMRequirement **Product to Classification Link Types** • PLMProductCategory • PLMRequiredForGeography **Product Reference Types** • PLMAdditive • PLMIngredient • PLMParameter • PLMRequirement • PLMSubIngredient • PLMSubIngredientAdditive	Language
PLMInternationalNumberingSystemNumber* **Note:** This is a specification attribute	An international numbering system for food additives which provide a short designation of what may be a lengthy name. You can search using this number.	Text	**Primary Product Types** • PLMAdditive • PLMSupplierResponseAdditive	None
PLMMeetsRequirement **Note:** Part of the PLMCompareDetailsRequirement	The supplier's answer on the specified parameter / requirement.	List of Values List of Values use	**Product Reference Types** • PLMParameter • PLMRequirement	None

Attribute IDs	Definition	Validation Base Type	Validity	Dependencies
and PLMCompareDetailsParameter attribute groups.		IDs for compare logic		
PLMMethod **Note:** Part of the PLMCompareDetailsParameter attribute group.	An explanation of how the measurement was done in order to meet the request.	Text	**Product Reference Types** • PLMParameter	Language
PLMParameterDescription	Describes the parameter being used, or gives further information on the viewed parameter.	Text	**Primary Product Types** • PLMParameter **Product to Classification Link Types** • PLMProductCategory • PLMRequiredForGeography **Product Reference Types** • PLMParameter	Language
PLMParameterType	Used to group different types of parameters.	List of Values	**Primary Product Types** • PLMParameter **Classification Reference Types** • PLMProductCategory • PLMRequiredForGeography **Product Reference Type** • PLMParamater	None
PLMRecipeNumber **Note:** This is a specification attribute	A unique identifier for a supplier's recipe.	Text	**Primary Product Types** • PLMSample	None
PLMRequirementDescription	The explanation of a requirement.	Text	**Primary Product Types** • PLMRequirement **Product to Classification Link Types** • PLMProductCategory • PLMRequiredForGeography **Product Reference Type** • PLMRequirement	Language
PLMRequirementType	A grouping mechanism for	List of Values	**Primary Product Types** • PLMRequirement	None

Attribute IDs	Definition	Validation Base Type	Validity	Dependencies
	different types of requirements.		**Product to Classification Link Type** • PLMProductCategory • Required for Geography **Product Reference Type** • PLMRequirement	
PLMSortOrder	Used to specify the order that parameters and requirements should be listed. For recipes, the supplier adds a sort order to indicate the descending order of ingredients and additives.	Number	**Primary Product Types** • PLMParameter • PLMRequirement **Product to Classification Link Type** • PLMProductCategory • PLMRequiredForGeography **Product Reference Types** • PLMAdditive • PLMIngredient • PLMParameter • PLMRequirement • PLMSubIngredient • PLMSubIngredientAdditive	None
PLMSpecificationDetails **Note:** Part of the PLMSpecifiedIngredientAdditionalInfo attribute group.	Provides further information, such as instructions, places of origin to exclude, brand to use, etc. on specified additives, ingredients, and sub-ingredient.	Text	**Product Reference Type** • PLMAdditive • PLMIngredient • PLMSubIngredient	None
PLMSpecifiedIngredientAllowance	Defines whether a recipe 'May Contain,' 'Must Contain,' or 'Must Not Contain' an ingredient, compound ingredient, or additive. It is used together with 'Specified Ingredient Precision' and 'Specified Ingredient Quantity (%)' to generate statements like 'Must Contain	List of Values	**Product Reference Type** • PLMAdditive • PLMIngredient • PLMSubIngredient • PLMSubIngredientAdditive	None

Attribute IDs	Definition	Validation Base Type	Validity	Dependencies
	Exactly 8%.'			
PLMSpecifiedIngredientPrecision	A specification of the amount of the ingredient, compound ingredient or additive you want in you recipe. It can be 'Approximately', 'Exactly', 'Maximum' or 'Minimum'. Used together with 'Specified Ingredient Allowance' and 'Specified Ingredient Quantity (%)' to generate statements like 'Must Contain Exactly 8%.'	List of Values	**Product Reference Type** • PLMAdditive • PLMIngredient • PLMSubIngredient • PLMSubIngredientAdditive	None
PLMSpecifiedIngredientQuantity	Used together with 'Specified Ingredient Allowance' and 'Specified Ingredient Precision' to generate statements like 'Must Contain Exactly 8%.'	Number	**Product Reference Type** • PLMAdditive • PLMIngredient • PLMSubIngredient • PLMSubIngredientAdditive	None
PLMDefiningAttribute **Note:** Part of the PLMCompareDetailsRequirement and PLMCompareDetailsParameter attribute groups.	Provides an area that the supplier is able to respond if the supplier must add more detail to their answer.	LOV	**Product Reference Type** • PLMParameter • PLMRequirement	None
PLMSuppliersExplanation **Note:** Part of the PLMSupplierIngredientAdditionalInfo, PLMCompareDetailsRequirement, and the PLMCompareDetailsParameter,	Primarily used if the supplier wants to explain why they added another ingredient, or amount of the ingredient, other than the one specified.	Text	**Product Reference Type** • Additive • Ingredient • Parameter • Requirement • Sub-ingredient • Sub-ingredient Additive	Language

Attribute IDs	Definition	Validation Base Type	Validity	Dependencies
attribute groups	Additionally, it is used if the supplier wants to add something to the answer of a requirement or parameter.			
PLMSuppliersIdentificationNumber*	A unique number that a supplier itself is given.	Text	**Primary Product Type** • Sample	None
PLMSuppliersIngredientQuantity	Gives a quantity of additives, ingredients, sub-ingredients, or sub-ingredient additives in the suppliers' sample / recipe.	Number	**Product Reference Type** • Additive • Ingredient • Sub-ingredient • Sub-ingredient Additive	None
PLMSuppliersName*	The name of the supplier.	Text	**Product Reference Type** • Sample	None
PLMVersionNumber* This is a specification attribute	The recipe version number sent.	Number	**Product Reference Type** • Sample	None

List Of Values for Attributes

LOVs IDs	Name	LOV for which Attributes
PLMCountryCodeISO3166-1_2013	Country Code - ISO_3166-1 2013	• PLMGuaranteedCountryOfOrigin
PLMMeetsRequirementLOV	Meets Requirement	• PLMMeetsRequirement
PLMParameterTypeLOV	Parameter Type	• PLMParameterType
PLMRequirementTypeLOV	Requirement Type	• PLMRequirementType
PLMSpecifiedIngredientAllowanceLOV	Specified Ingredient Allowance	• PLMSpecifiedIngredientAllowance
PLMSpecifiedIngredientPrecisionLOV	Specified Ingredient Precision	• PLMSpecifiedIngredientPrecision

Private Label Food Solution Setup in Web UI

The private label food solution enable the customer to look at a product from two or more suppliers and view the similarities and differences of the product's makeup from one supplier to the next. Additionally, it allows the customer to compare the supplier recipes in relation to their own recipe specification. There are a number of component tabs and reference types that need to be created and properly setup in Web UI for the private label food solution to function properly.

Read the following sections below on how to properly set up the private label food solution in Web UI.

- Adding the Compare BOMs Action Button
- Adding and Mapping Tabs for Private Label Food Solution

Note: Suppliers can get a record of their specification response that they submit to the customer when they respond to a bid for a private label product. If chosen for production, the supplier's response is the basis for contractual agreements. This record outlines the bill of materials used to fulfill the private label product, and provides explanations on how the supplier will meet the customer's requirements. For more information see the Private Label Food Solution segment of the Product Lifecycle Management section in the Solution Enablement documentation.

Adding the Compare BOMs Action Button

There is a pivotal action button needed for the private label food solution, the **Compare BOMs Action** button. This action button enables users to select recipes that suppliers have returned, and evaluate the recipes against other suppliers and the original recipe specification. Users can review the ingredients, compound ingredients, and sub-ingredients used in the recipe, and evaluate the parameters and requirements to help them make a decision on which recipe to select.

This action button can be added to any Node List Properties or Task List Properties in conjunction with the compare tab child components via a Node Details screen.

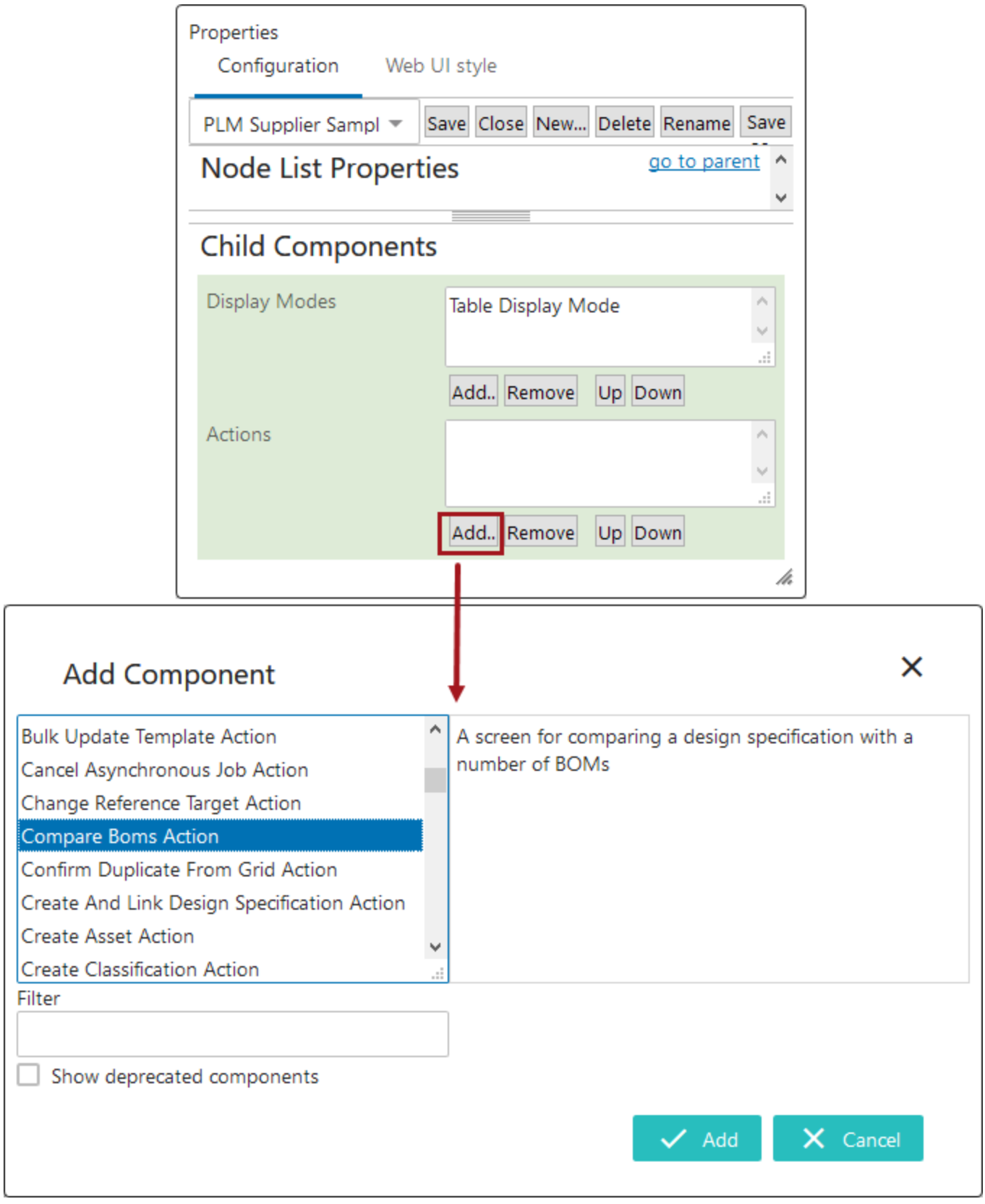
Important: PLMSamples are the only object type that render data on a Node List Properties or Task List Properties properly. If other object types are used or selected, the compare tabs will not function as expected.

See the following topics in the **Web User Interface / Web UI Setup and User Guide** for more information:

- Node Details Screen
- Node List Component
- Task List Properties

Adding the Compare BOMs Action

1. Navigate to the desired Node List Properties or Task List Properties. In the following example, a Node List Properties is used.
2. Under Child Components, click on the **Add** button to add the **Compare BOMs Action** button.


Properties
Configuration
Web UI style
PLM Supplier Sampl
Save
Close
New...
Delete
Rename
Save
Node List Properties
go to parent
Child Components
Display Modes
Table Display Mode
Add..
Remove
Up
Down
Actions
Add..
Remove
Up
Down
Add Component
Bulk Update Template Action
Cancel Asynchronous Job Action
Change Reference Target Action
Compare Boms Action
Confirm Duplicate From Grid Action
Create And Link Design Specification Action
Create Asset Action
Create Classification Action
A screen for comparing a design specification with a number of BOMs
Filter
Show deprecated components
Add
Cancel

Note: If adding a Compare BOMs Action Button to a Task List Properties know that you cannot submit any item in the workflow when on any of the compare tabs. For more on the compare tabs, see **Private Label Food Solution** topic in the **Private Label Food Solution** section of the **PLM for Users** documentation. You can only submit an item in a workflow from a Node Details when accessed from a Task List Properties.

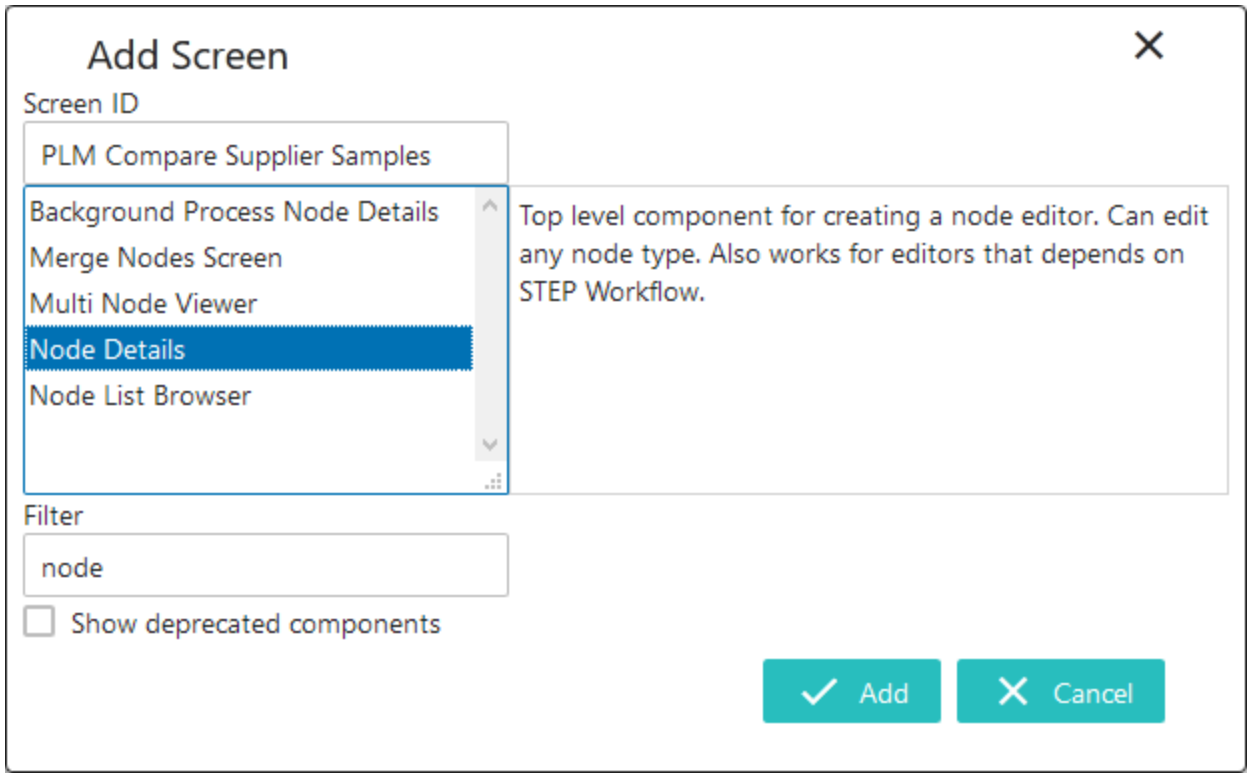
Once the Compare BOMs Action is added, the desired compare tabs need to be added and proper mapping needs to take place. For more on how to add the compare tabs or how to map everything, see the **Adding and Mapping Tabs for Private Label Food Solution** topic in this section.

Adding and Mapping Tabs for Private Label Food Solution

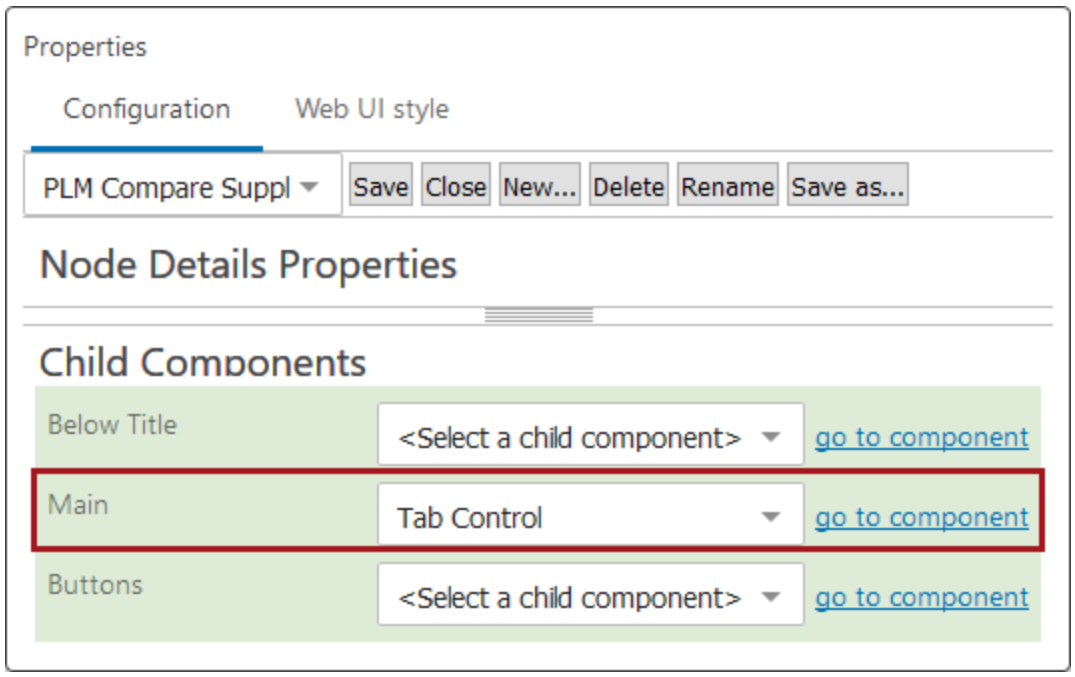
To support the process of the private label food solution, various tabs need to be added and configured. The private label food solution component supports Bill of Materials (BOMs) creation for the customer, the supplier, and the ability for customers to compare all BOMs against their own recipe specifications. The sections below describe how to add, configure, and map the private label food solution tabs.

Adding Tabs

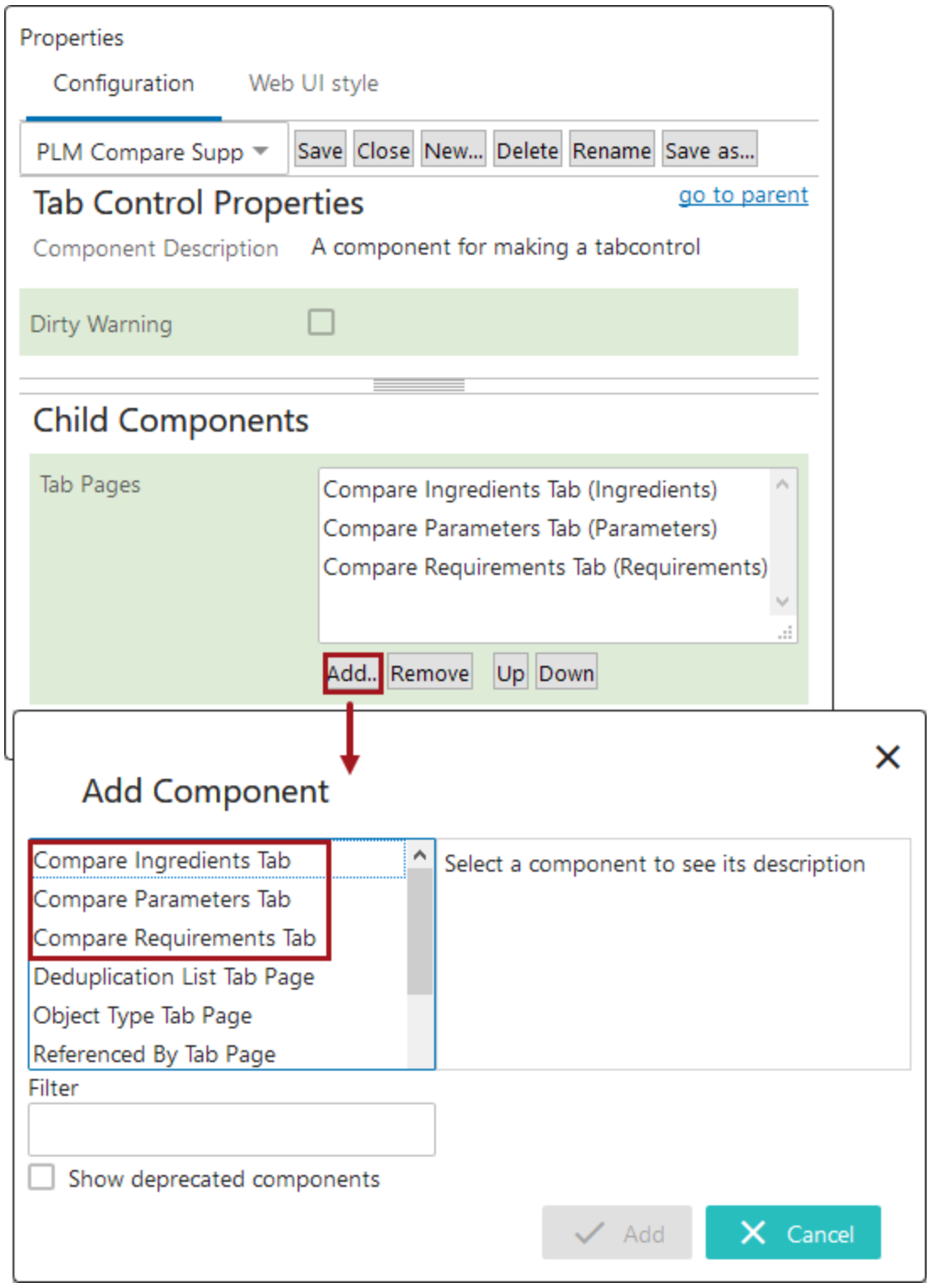
1. Open the Designer in Web UI, and create a new Node Details Properties screen. In the example below, the screen is called 'PLM Compare Supplier Samples.'



2. Under Child Components > Main > select Tab Control from the dropdown and then click **go to component**.



3. On the Tab Control Properties under Child Components in the Tab Pages field, add the following tabs for the private label food solution depending on business needs:
   - Specify Ingredients Tab
   - Supplier Ingredients Tab
   - Compare Ingredients Tab
   - Compare Parameters Tab
   - Compare Requirements Tab

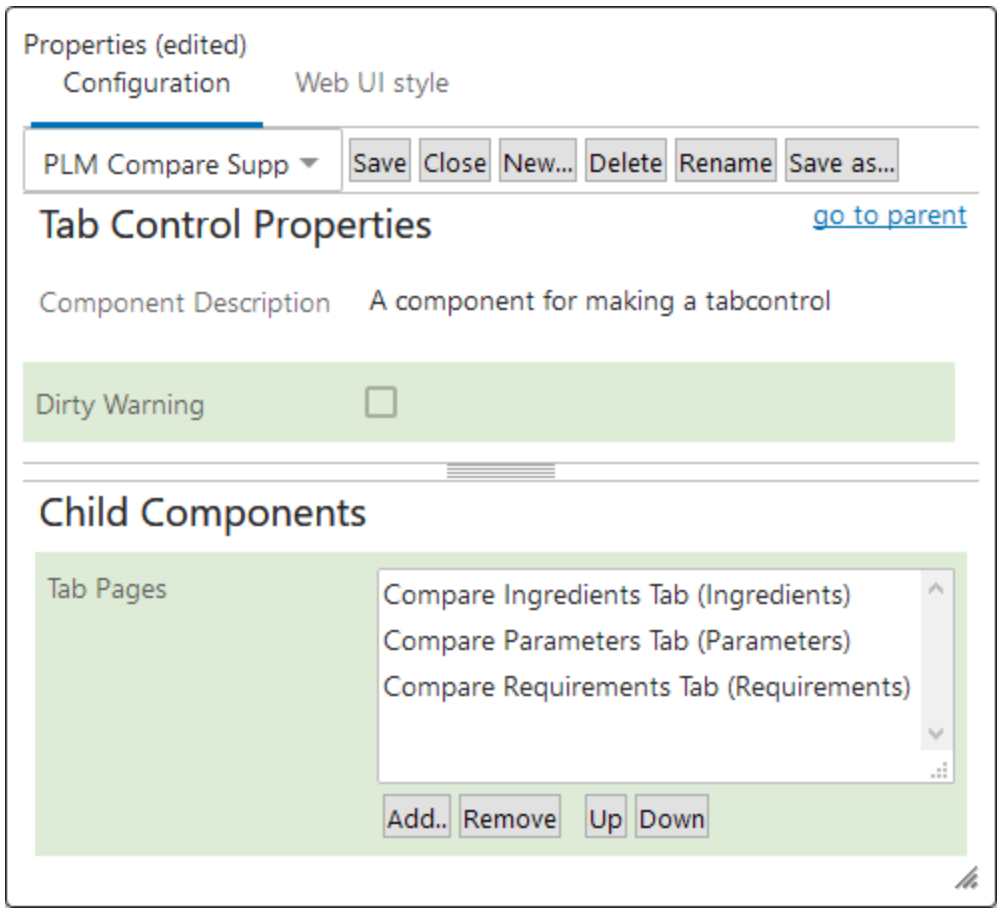


4. Once a tab type is added, double click on it to configure. For more on how to configure each tab type, see the following topics:
    - Configuring the Specify Ingredients Tab
    - Configuring the Supplier Ingredients Tab

- Configuring the Compare Tabs

Note: The 'Configuring the Compare Tabs' topic describes the configurations for the Compare Ingredients Tab, Compare Parameters Tab, and Compare Requirements Tab.

5. Repeat step three and four to add any other additional private label food solution tabs needed.



Mappings

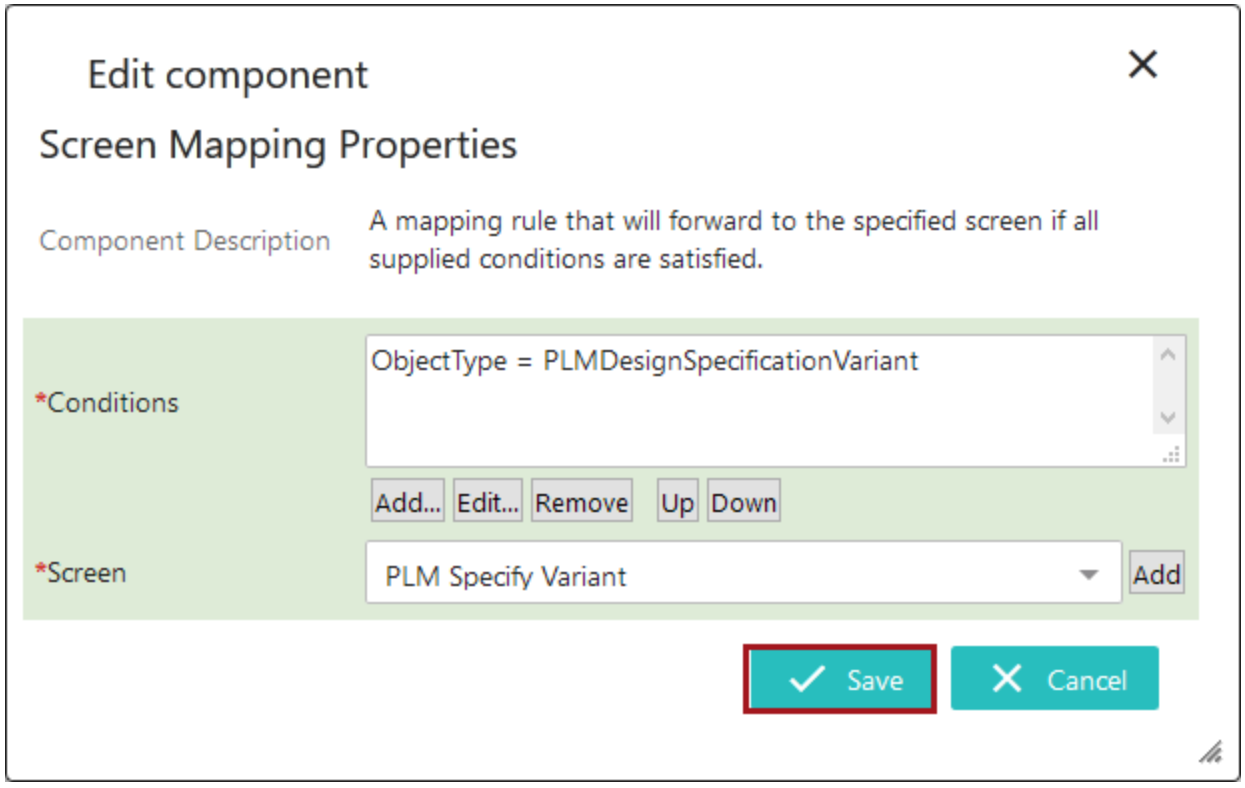
In order for the private label food solution tabs to display correctly in Web UI, they need to be mapped correctly. Below explains how to map each private label food solution tab. For more details on mappings, see the **Mappings** topic in the **Using a Web UI** section of the **Web User Interfaces / Web UI Setup and User Guide** documentation.

Specify Ingredients Tab

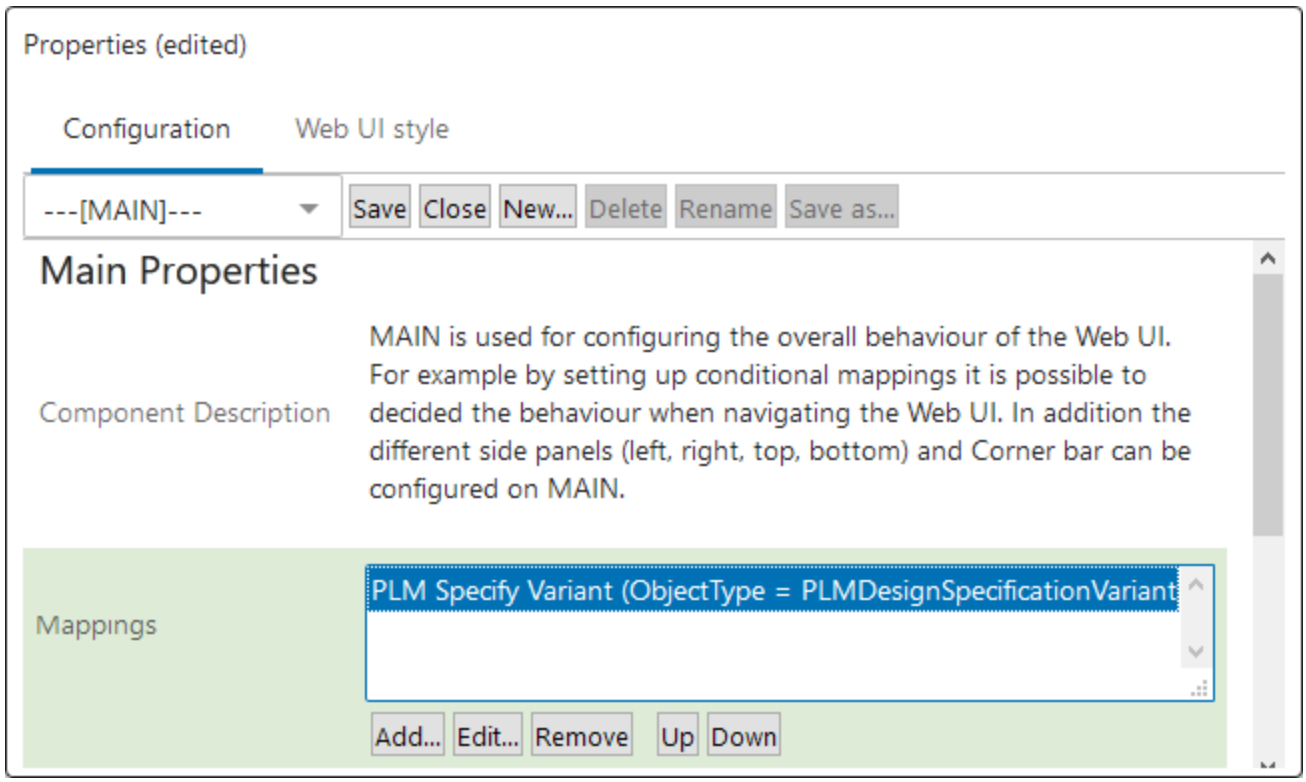
For the Specify Ingredients Tab to work properly in Web UI, the following mapping needs to take place:

Note: This could work with either an Object Type Condition or a Workflow State Condition. In the example below, Object Type Condition is used.

1. In the designer under ---[MAIN]--- > Mappings > Add > Conditions > Add an **Object Type Condition**.
2. Select the object type that represents the Design Specification Variant, in this example it is called PLMDesignSpecificationVariant.
3. Next, select the designated Node Details screen that was created for the Specify Ingredients Tab, in this case the Node Details screen is called PLM Specify Variant. Click **Save**.



4. When finished, the mapping should look similar to the picture below.



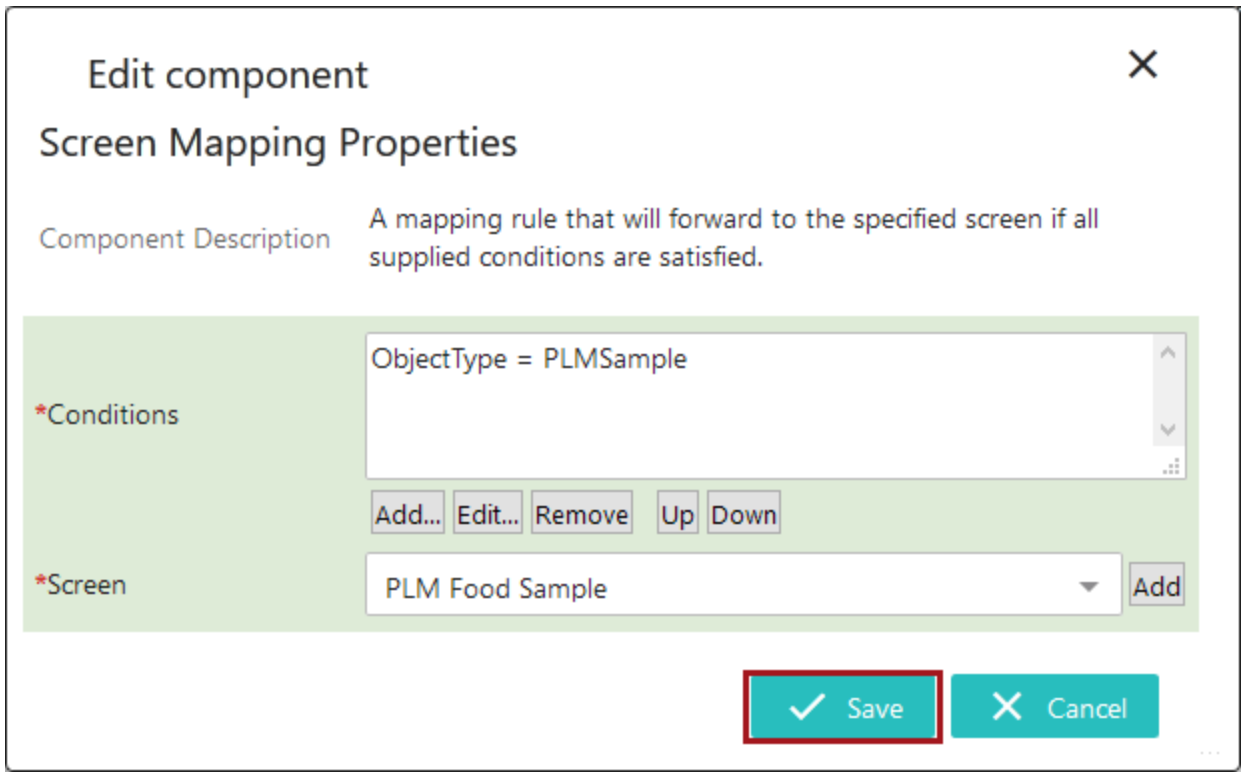
Supplier Ingredients Tab

For the Supplier Ingredients Tab to work properly in Web UI, the following mapping needs to take place.

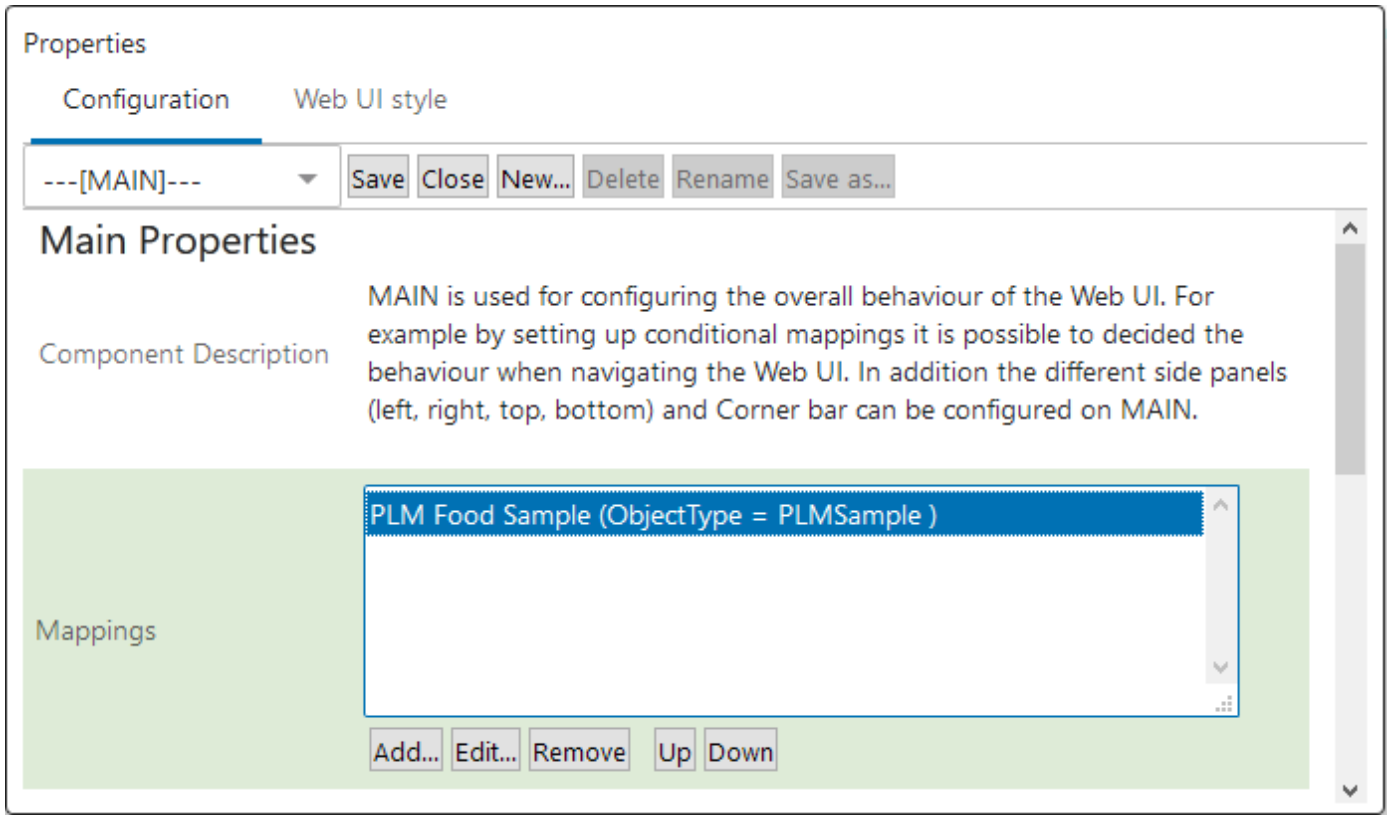
Note: This could work with either an Object Type Condition or a Workflow State Condition. In the example below, Object Type Condition is used.

---

1. In the designer under ---[MAIN]--- > Mappings > Add > Conditions > Add an **Object Type Condition**.
2. Select the object type that represents the sample. In this example it is called PLMSample.
3. Next, select the designated Node Details screen that was created for the Supplier Ingredients Tab. In this case the Node Details screen is called PLM Food Sample. Click **Save**.



4. When finished, the mapping should look similar to the picture below.

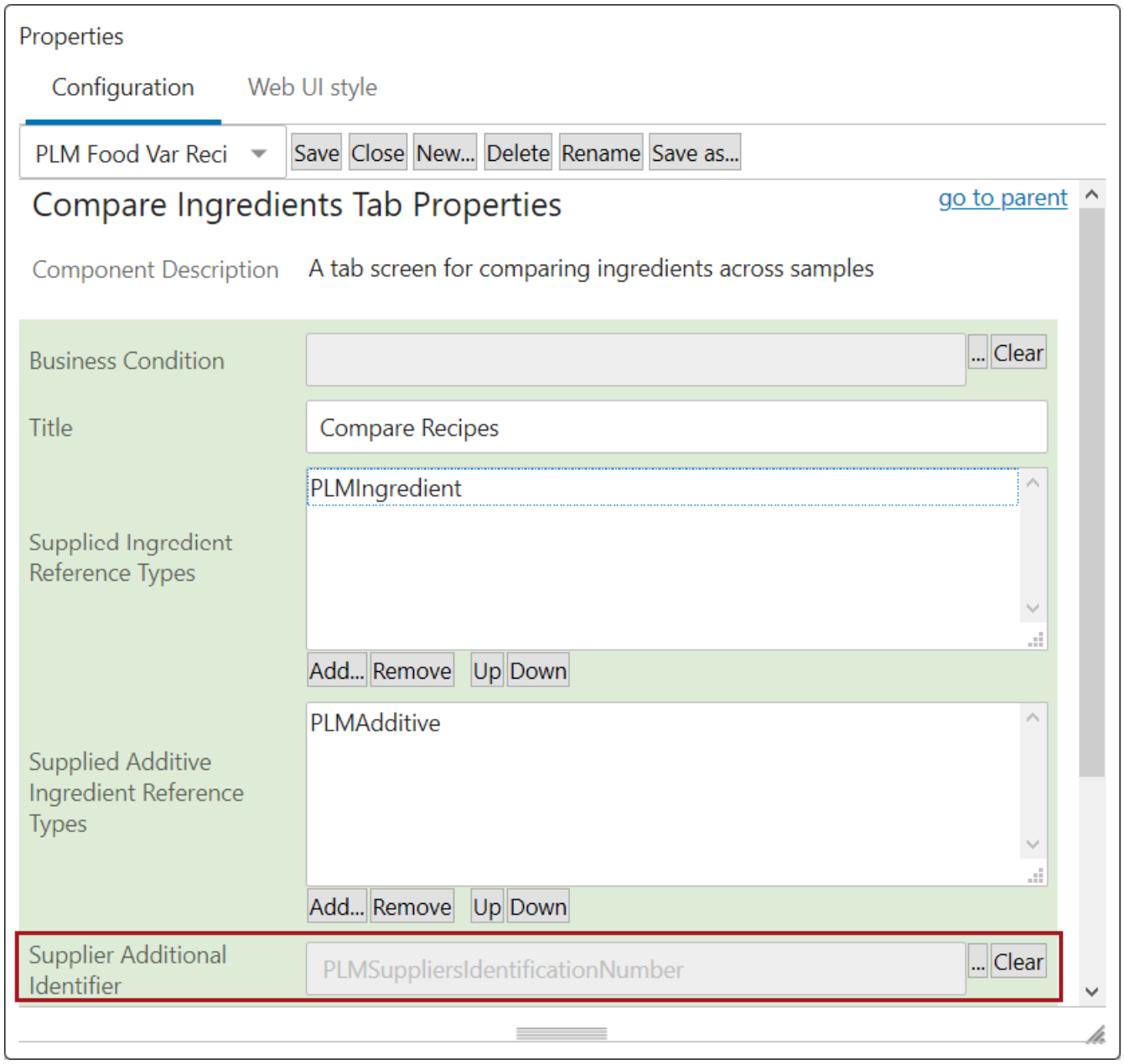


Compare Tabs

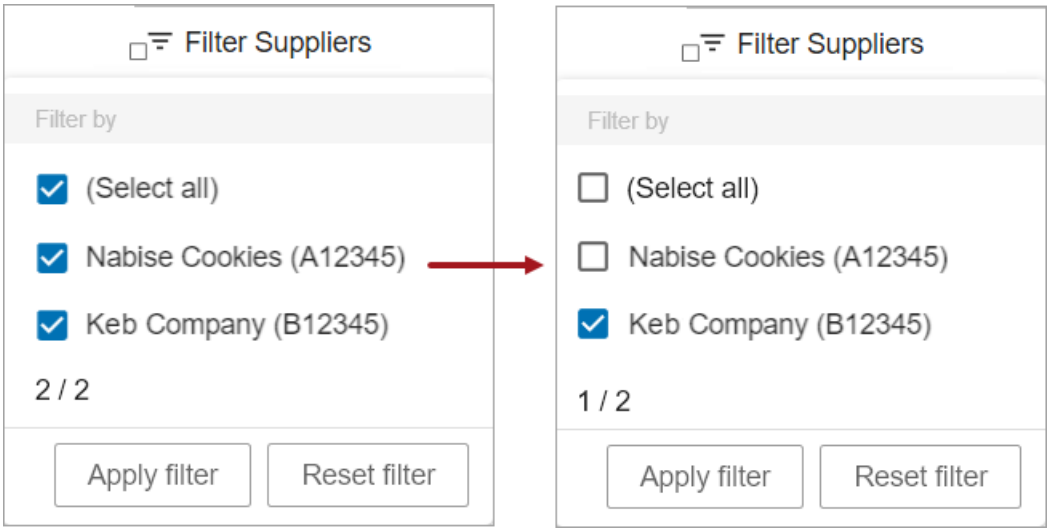
There are two ways to map the Compare Tabs:

- By object type, workflow state mappings, etc. on the MAIN or Forwarding Switch Screen Properties. For more information, see the **Mappings** and the **Mapping Task List to Workflow State** topics located in the **Using Web UI** section of the **Web User Interfaces** / **Web UI Setup and User Guide** documentation.

  If this mapping method is used, a parameter in the Web UI designer called 'Supplier Additional Identifier' on each of the compare tabs enables an administrator to optionally select one attribute that will appear after the supplier's name.



Additionally, when on any of the Compare Tabs, a user can select 'Filter Suppliers' in the Web UI toolbar to narrow supplier results if needed.



- By mapping using the Compare BOMs Action and Compare BOMs Condition.

  For more on how to map using the Compare BOMs Action or Compare BOMs Condition, see the section below.

Note: In some cases, there may be a valid mapping where multi-selection of composite recipe samples is possible. However, this is not a valid selection for the Compare Ingredients Tab. The tab may still render, but a message will display stating: 'Comparison of different composite recipes cannot be displayed.'

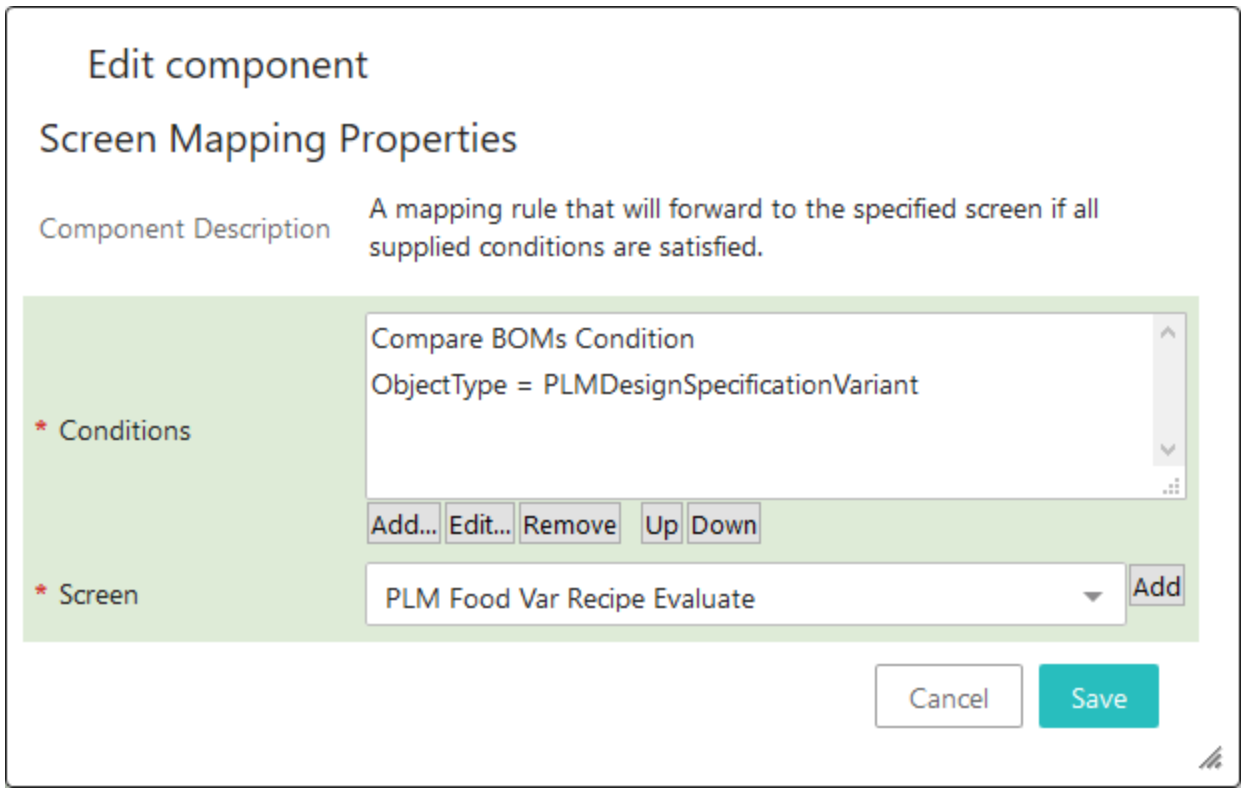
Mapping using the Compare BOMs Action and Compare BOMs Condition

In order for the Compare Ingredients Tab, Compare Parameters Tab, and Compare Requirements Tab to work properly in Web UI when making a selection, then using the Compare BOMs Action, the following mapping needs to take place. An example using the Compare BOMs Condition is below:

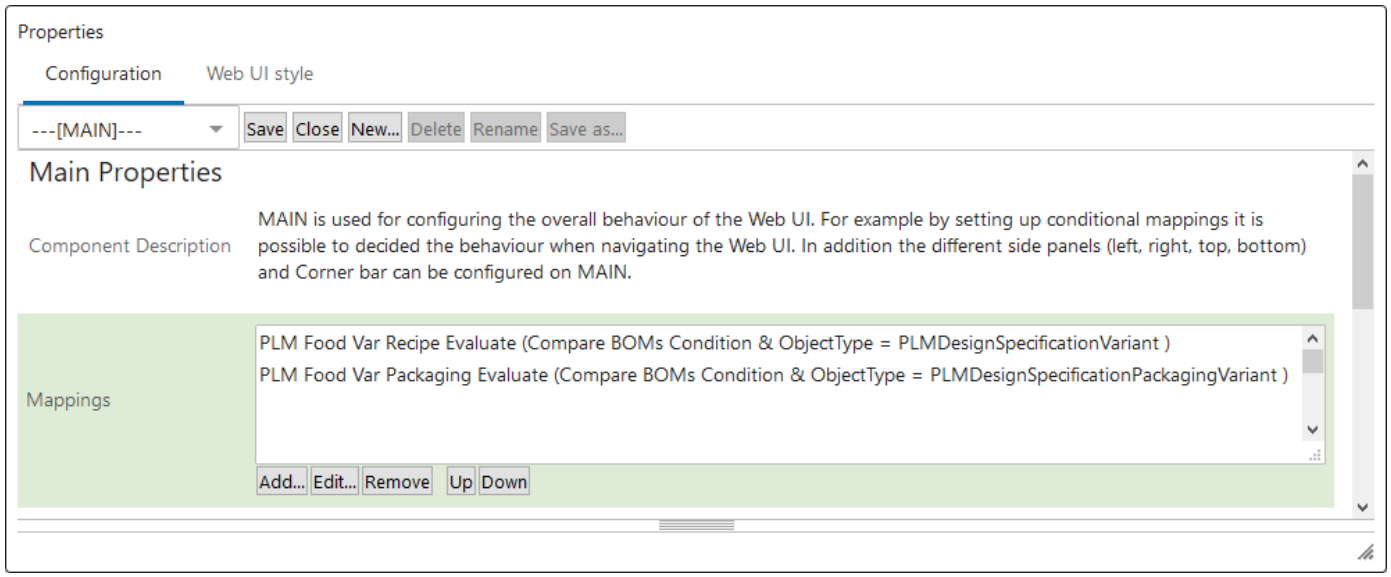
Note: The Compare BOMs Action figures out which design specification variant (or design specification composite variant) is needed to display for grouping the recipe(s), and passes that information along with which samples were selected to the compare tab screens. Additionally, it also applies to selection of packaging variant samples; it figures out which design specification packaging variant to go to. The combination of the specification variant, or design specification composite variant, or packaging variant samples plus the Compare BOMs Condition determines which screen should be used.

---

1. In the designer under ---[MAIN]--- > Mappings > Add > Conditions > Add the **Compare BOMs Condition**.
2. Next, select the designated Node Details screen that was created for the compare tabs, in this case the Node Details screen is called PLM Food Var Recipe Evaluate. Click **Save**.



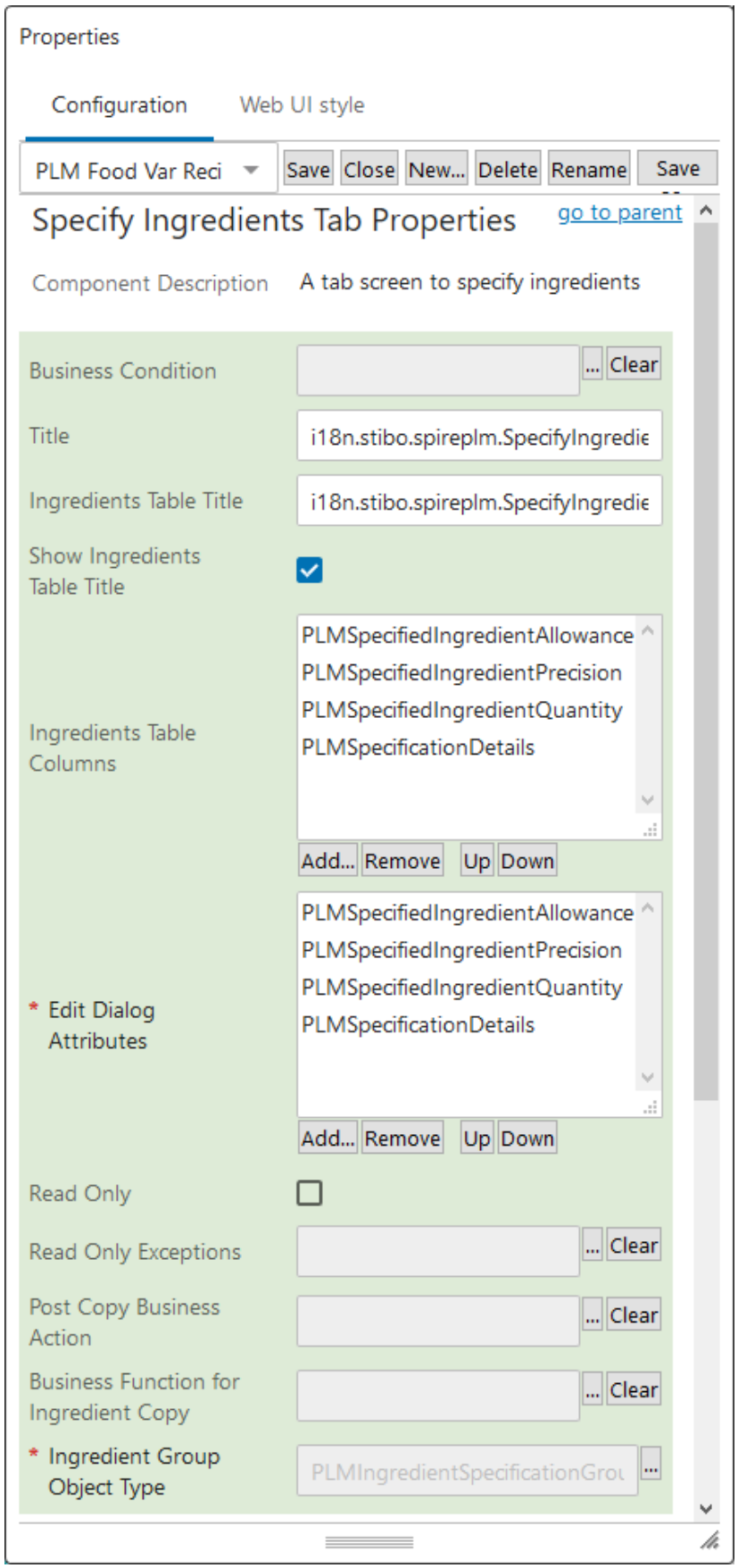
3. When finished, the mapping should look similar to the picture below.



Configuring the Specify Ingredients Tab

Recipe specifications from customers aid suppliers in knowing exactly what to include or exclude in their sample recipes back to customers.

To set up the Specify Ingredients tab, and customize information provided to the supplier, a number of fields need to be configured in the designer:


Properties
Configuration
Web UI style
PLM Food Var Reci
Save
Close
New...
Delete
Rename
Save
Specify Ingredients Tab Properties
go to parent
Component Description
A tab screen to specify ingredients
Business Condition
Clear
Title
i18n.stibo.spireplm.SpecifyIngredie
Ingredients Table Title
i18n.stibo.spireplm.SpecifyIngredie
Show Ingredients Table Title
Ingredients Table Columns
PLMSpecifiedIngredientAllowance
PLMSpecifiedIngredientPrecision
PLMSpecifiedIngredientQuantity
PLMSpecificationDetails
Add...
Remove
Up
Down
* Edit Dialog Attributes
PLMSpecifiedIngredientAllowance
PLMSpecifiedIngredientPrecision
PLMSpecifiedIngredientQuantity
PLMSpecificationDetails
Add...
Remove
Up
Down
Read Only
Read Only Exceptions
Clear
Post Copy Business Action
Clear
Business Function for Ingredient Copy
Clear
* Ingredient Group Object Type
PLMIngredientSpecificationGrou

- **Business Condition**: Select a preconfigured business condition that determines whether the tab will display. If the condition returns true, the tab displays. If it returns false, the tab does not display. The business condition is evaluated when a screen is saved or refreshed.
- **Title**: Enter a name for the Specification Tab.
- **Ingredients Table Title**: Enter a name for the title of the recipe specification table.
- **Show Ingredients Table Title**: Enabling this shows the Ingredients Table title.
- **Ingredients Table Columns**: Allows for customizable columns in the recipe specification.

  Note: The columns for 'Ingredient Name' and 'Ingredient Type' are default. They cannot be removed from the table or changed in Web UI.

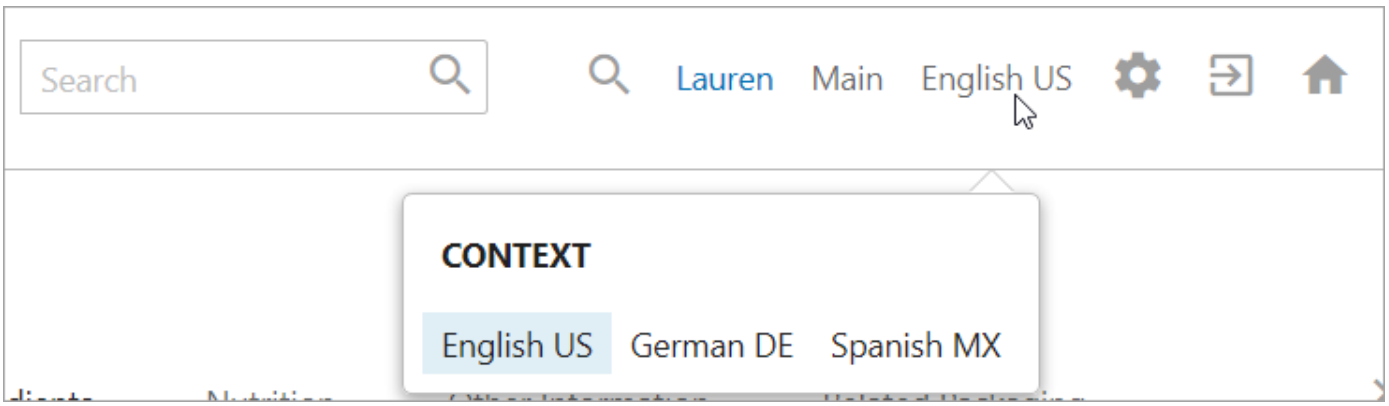
- **Edit Dialog Attributes**: Controls which attributes are added to the 'Add Ingredients' dialog in Web UI and allows for them to be ordered according to needs.

  Important: The attributes with the IDs PLMSpecifiedIngredientAllowance, PLMSpecifiedIngredientPrecision, and PLMSpecifiedIngredientQuantity must must be configured in the Edit Dialog Attributes in order for validations to work against the supplier's recipe and the Compare Tabs.

- **Read Only**: When enabled, all fields are not able to be edited unless there is an attribute group selected for the Read Only Exceptions.
- **Read Only Exceptions:** Select an attribute group that has description attributes valid for the PLMIngredient reference type. Any description attributes in this group that were added to the 'Edit Dialog Attributes' field can still be edited even when the 'Read Only' parameter is selected. However, if the 'Read Only' parameter is not selected, then any attributes in this group are not able to be edited.
- **Post Copy Business Action**: A business action that is invoked after a library ingredient is copied to a specified ingredient.
- **Business Function for Ingredient Copy:** A business function that returns attribute groups and contexts that is used for copying values maintained on the library ingredient to the specified ingredient.
- **Ingredient Group Object Type:**The object type for ingredient groups used for recipe specifications and supplier validations.

Language Translations

It is now possible for quality managers to select ingredients or additives in their own language, such as English, change the context in the corner bar of a Web UI to a different context, such as Spanish, and if the ingredients have been translated, view the translated ingredient names and additives. This enables quality managers to work in their own language, and suppliers to see the selected ingredients or additives in their preferred language.

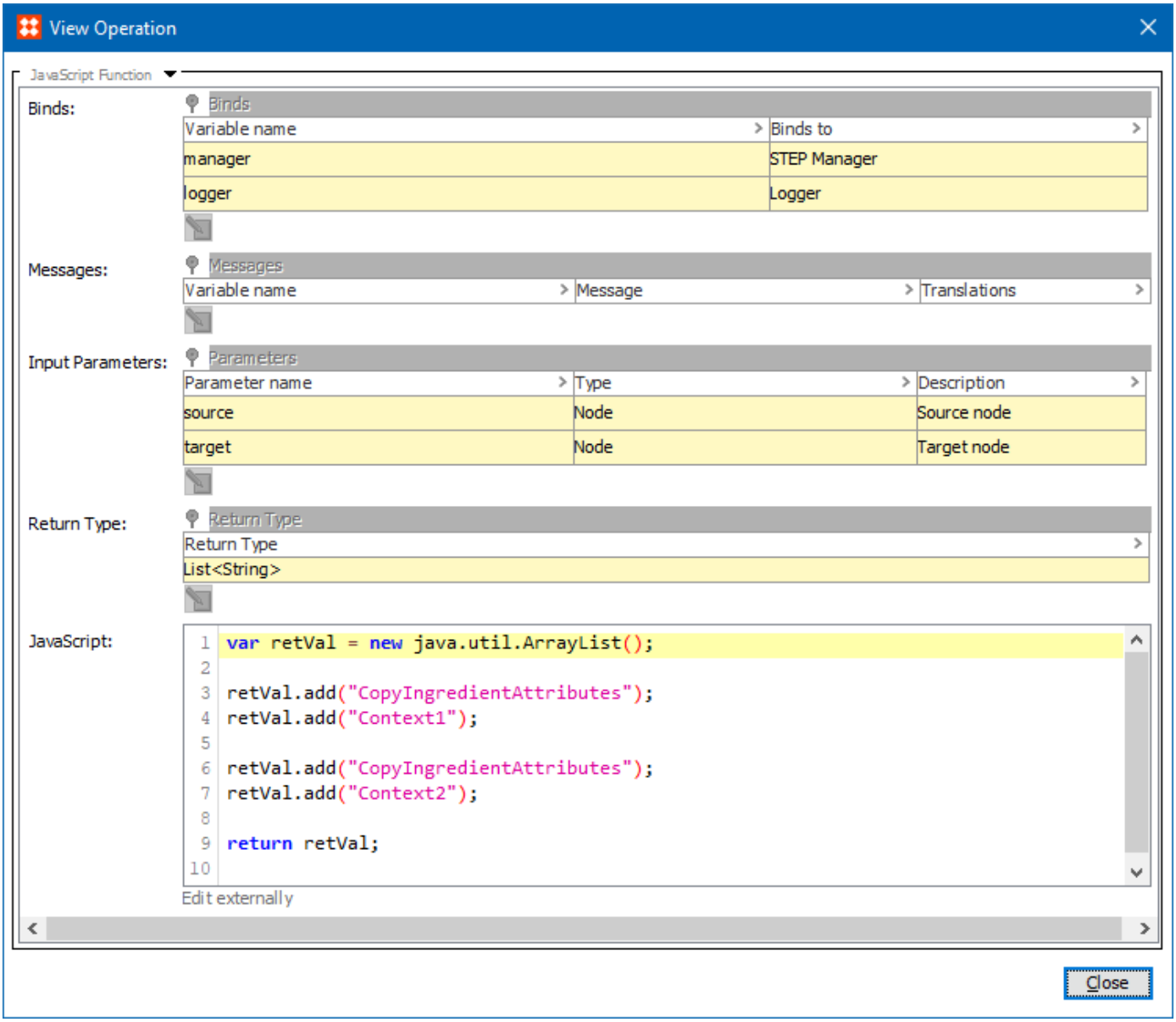


Copying Pre-translated Ingredients

To copy pre-translated ingredient names and attribute values maintained on the ingredients, a business function is used. When an ingredient is added to the recipe specification, a business function is called that will return one or more pairs of attribute groups to be copied for a specific context. The business function can return multiple attribute groups, and ingredient and additive names are copied in all available contexts.

Note: Attribute values are only copied in the contexts that are returned by the business function.

The business function is created in workbench and will look similar to the example below:



Input parameters for the business function are:

- **source**: this is the Node that will contain the source object. It can be a design specification variant or a specified compound ingredient.
- **target**: this is the Node containing the target object for the reference. It can be a specified ingredient, specified compound ingredient, or a specified additive.

In Web UI on the Specified Ingredients Tab, there is a field in the designer to select the desired business function.

Post Copy Business Action

This business action can be used when copying parameter values when an ingredient is added to a specification and the ingredient has associated parameters.

The business action is optional. It may be used to replace the handling of parameters attached to ingredients when they are specified or proposed by suppliers, or for other purposes.

As an example, if parameters are maintained on ingredients, the business action can:

- Determine which parameter values should be taken
- Determine which contexts the parameter values should be copied from and sent to
- Determine which reference types should be applied from the specified ingredient to the parameter

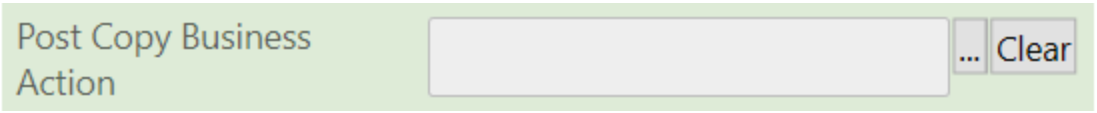
The business action will be invoked after each time one of the following instances occurs:

- An ingredient is selected from the library.
- A specified ingredient, compound ingredient, or additive is created.
- A specified ingredient reference is created between a library ingredient and a specified ingredient, compound ingredient, or additive.
- A reference is created between a design specification variant and a specified ingredient, compound ingredient, additive or additive class.
- A reference is created between a compound ingredient and an ingredient.
- The business function for 'ingredient copy' is invoked.

Input parameters for the business action are:

- **ingredientReference**: this is a reference type that was created between a design specification variant and a specified ingredient, or a reference between a specified compound ingredient and a specified ingredient before the business action was invoked.

This business action can be added to Web UI on a Specified Ingredients Tab by selecting the desired Post Copy Business Action.

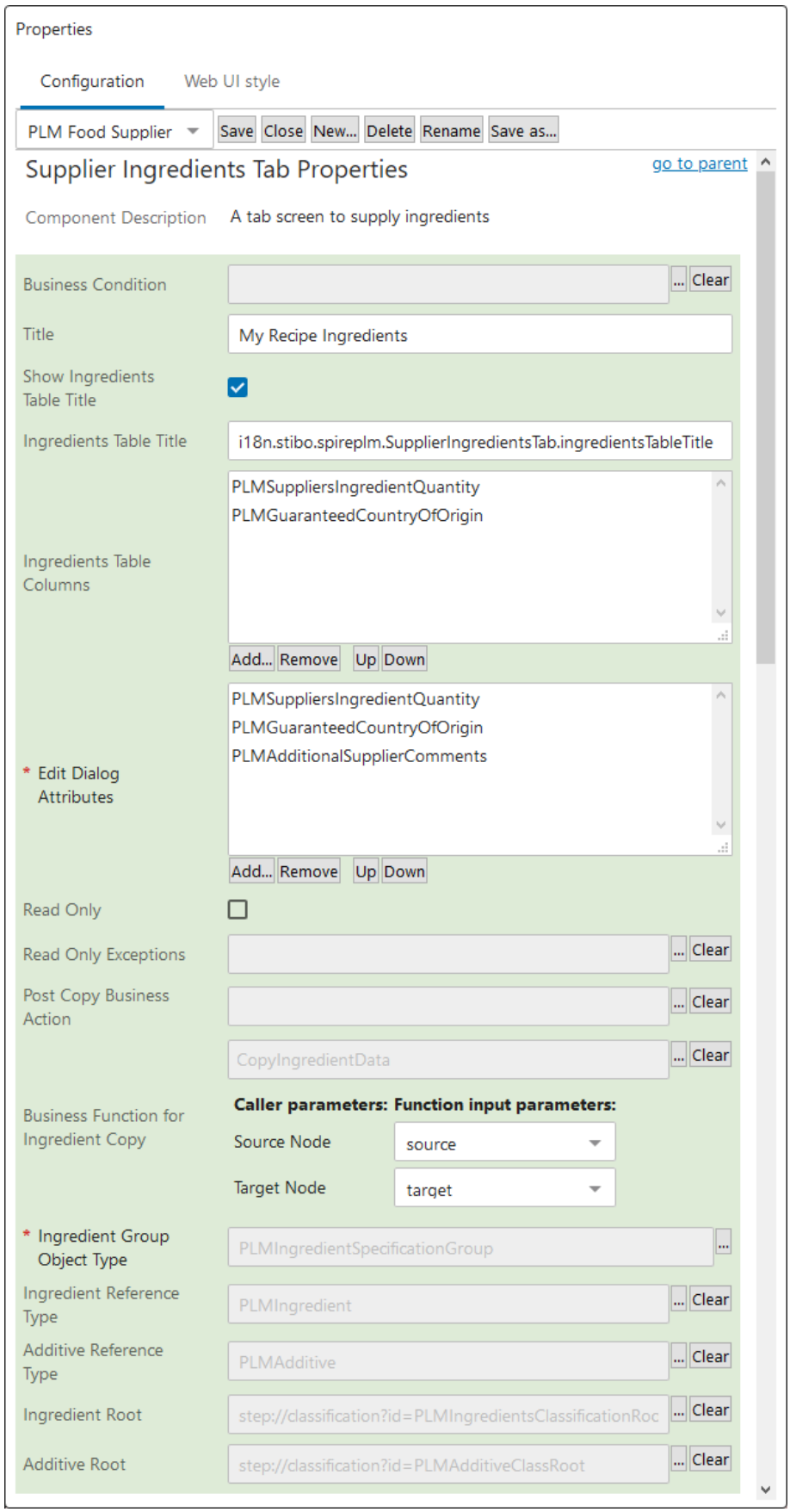


Note: The Specified Ingredients Tab in Web UI will not refresh any data when the business action is envoked. Therefore, the action should not be used to affect data on the screen.

Configuring the Supplier Ingredients Tab

Recipe samples from suppliers detail exactly what was put into the proposed recipe. It is important to customize the display and sequence for the suppliers' view to ensure that the supplier provides back to the customer any necessary information on the ingredient, additive, or compound ingredient being added to their sample recipe.

To set up the Supplier Ingredients tab properly, a number of fields need to be configured in the designer:


Properties
Configuration
Web UI style
PLM Food Supplier
Save
Close
New...
Delete
Rename
Save as...
Supplier Ingredients Tab Properties
go to parent
Component Description
A tab screen to supply ingredients
Business Condition
Clear
Title
My Recipe Ingredients
Show Ingredients Table Title
Ingredients Table Title
i18n.stibo.spireplm.SupplierIngredientsTab.ingredientsTableTitle
Ingredients Table Columns
PLMSuppliersIngredientQuantity
PLMGuaranteedCountryOfOrigin
Add...
Remove
Up
Down
* Edit Dialog Attributes
PLMSuppliersIngredientQuantity
PLMGuaranteedCountryOfOrigin
PLMAdditionalSupplierComments
Add...
Remove
Up
Down
Read Only
Read Only Exceptions
Clear
Post Copy Business Action
Clear
CopyIngredientData
Clear
Business Function for Ingredient Copy
Caller parameters:
Function input parameters:
Source Node
source
Target Node
target
* Ingredient Group Object Type
PLMIngredientSpecificationGroup
Ingredient Reference Type
PLMIngredient
Clear
Additive Reference Type
PLMAdditive
Clear
Ingredient Root
step://classification?id=PLMIngredientsClassificationRoc
Clear
Additive Root
step://classification?id=PLMAdditiveClassRoot
Clear

- **Business Condition**: Select a preconfigured business condition that determines whether the tab will display. If the condition returns true, the tab displays. If it returns false, the tab does not display. The business condition is evaluated when a screen is saved or refreshed.
- **Title**: Fill in the field with an appropriate name for the tab.
- **Show Ingredients Table Title**: Select this if you want the table title to show.
- **Ingredient Table Title:** Fill in the field with an appropriate name for the table.
- **Ingredients Table Columns**: Add and order any Ingredient Table Columns needed.

  Note: The column for Ingredient Name is default. It cannot be removed from the table or changed in Web UI.

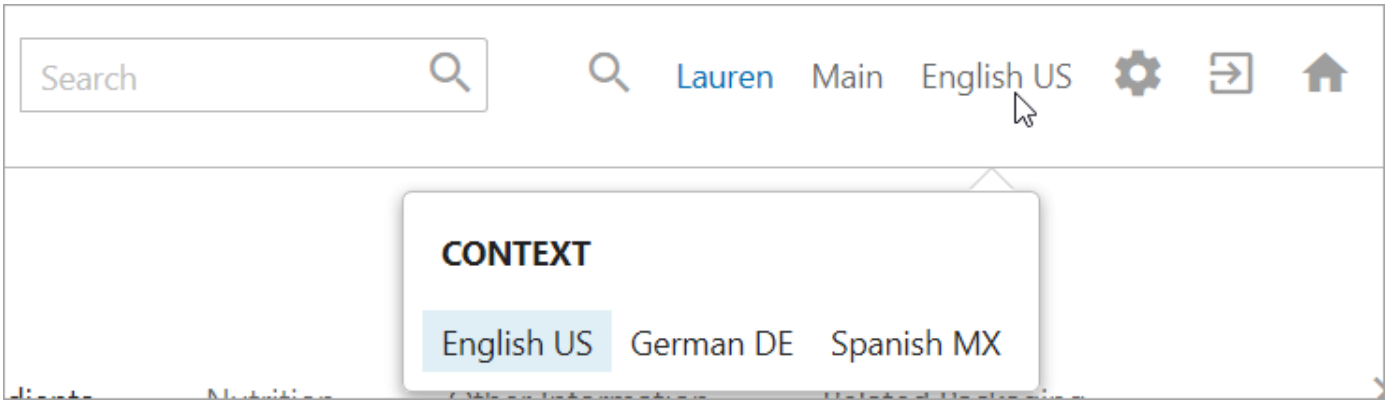
- **Edit Dialog Attributes**: Controls which attributes are added to the 'Add Ingredients' dialog in Web UI and allows for them to be ordered according to needs.

  Important: The attribute with the ID PLMSuppliersIngredientQuantity must be in this group for the validations and alerts to work. Additionally, the display order in the pop-up dialog must follow the sort order of the parameter.

- **Read Only**: When enabled, all fields are not able to be edited unless there is an attribute group selected for the Read Only Exceptions.
- **Read Only Exceptions:** Select an attribute group that has description attributes valid for the PLMIngredient reference type. Any description attributes in this group that were added to the 'Edit Dialog Attributes' field can still be edited even when the 'Read Only' parameter is selected. However, if the 'Read Only' parameter is not selected, then any attributes in this group are not able to be edited.
- **Post Copy Business Action**: A business action that is invoked after a library ingredient is copied to a specified ingredient.
- **Business Function for Ingredient Copy:** A business function that returns attribute groups and contexts that is used for copying values maintained on the library ingredient to the supplier's ingredient.
- **Ingredient Group Object Type:**The object type for ingredient groups used for recipe specifications and supplier validations.
- **Ingredient Reference Type**: Add the appropriate reference for the Ingredient Reference Type.
- **Additive Reference Type**: Add the appropriate reference for the Additive Reference Type.
- **Ingredient Root**: Select the appropriate Ingredient Root folder to search below.
- **Additive Root**: Select the appropriate Additive Root.

Language Translations

It is now possible for quality managers to select ingredients or additives in their own language, such as English, change the context in the corner bar of a Web UI to a different context, such as Spanish, and if the ingredients have been translated, view the translated ingredient names and additive classes. This enables suppliers to work in their own language, and customers to see the selected ingredients or additive classes in their preferred language.

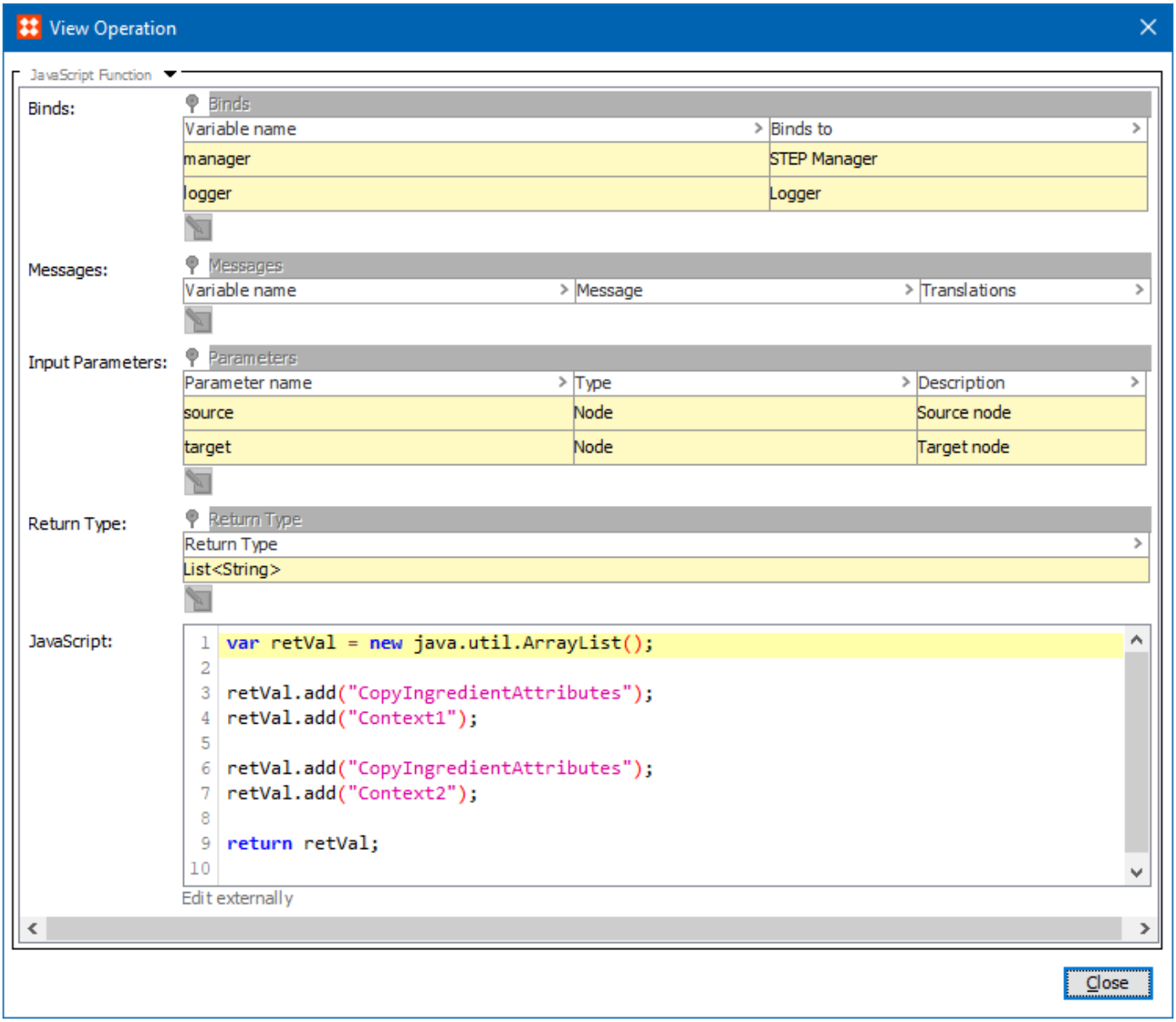


Copying Pre-translated Ingredients

To copy pre-translated ingredient names and attribute values maintained on the ingredients, a business function is used. When an ingredient is added to the recipe specification, a business function is called that will return one or more pairs of attribute groups to be copied for a specific context. The business function can return multiple attribute groups, and ingredient and additive names are copied in all available contexts.

Note: Attribute values are only copied in the contexts that are returned by the business function.

The business function is created in workbench and will look similar to the example below:



Input parameters for the business function are:

- **source**: this is the Node that will contain the source object. It can be a design specification variant or a specified compound ingredient.
- **target**: this is the Node containing the target object for the reference. It can be a specified ingredient, specified compound ingredient, or a specified additive.

In Web UI on the Supplier Ingredients Tab, there is a field in the designer to select the desired business function.

Post Copy Business Action

This business action can used when copying parameter values when an ingredient is added to a specification and the ingredient has associated parameters.

The business action is optional. It may be used to replace the handling of parameters attached to ingredients when they are specified or proposed by suppliers, or for other purposes.

As an example, if parameters are maintained on ingredients, the business action can:

- Determine which parameter values should be taken
- Determine which contexts the parameter values should be copied from and sent to
- Determine which reference types should be applied from the specified ingredient to the parameter

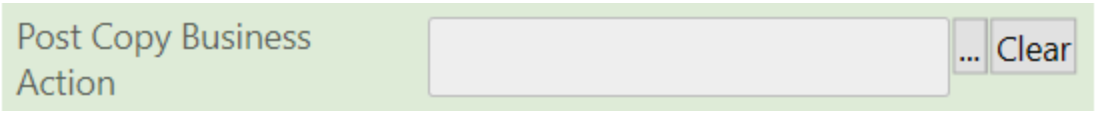
The business action will be invoked after each time one of the following instances occurs:

- An ingredient is selected from the library.
- A supplier response ingredient, compound ingredient, or additive is created.
- An ingredient reference is created between a library ingredient and a supplier response ingredient, compound ingredient, or additive.
- A reference is created between a sample and a supplier response ingredient, compound ingredient, additive, additive class, or ingredient group.
- A reference is created between a compound ingredient and an ingredient.
- The business function for 'ingredient copy' is invoked.

Input parameters for the business action are:

- **ingredientReference**: this is a reference type that was created between a design specification variant and a specified ingredient, or a reference between a specified compound ingredient and a specified ingredient before the business action was invoked.

This business action can be added to Web UI on a Supplier Ingredients Tab by selecting the desired Post Copy Business Action.



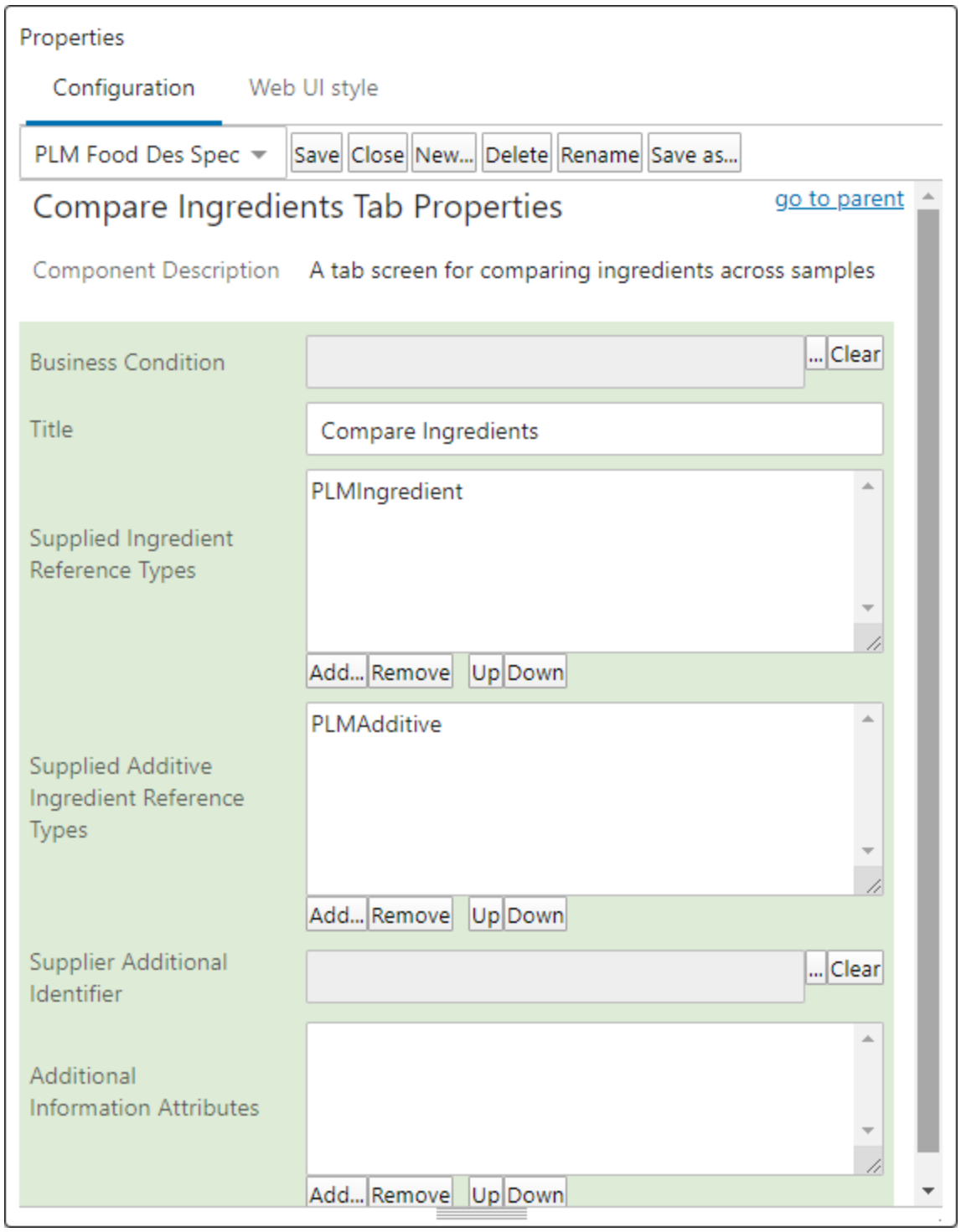
Note: The Specified Ingredients Tab in Web UI will not refresh any data when the business action is envoked. Therefore, the action should not be used to affect data on the screen.

Configuring the Compare Tabs

While the compare tabs can be used individually, they are often used together to help a customer see the similarities and differences from the suppliers' recipe samples in comparison to the recipe specification. Compare tabs work for both individual recipes and composite recipes. Additionally, the Compare Requirements Tab is used to compare supplier packaging samples to packaging specifications to determine the best packaging for the product. To configure each compare tab see below.

Compare Ingredients Tab

This tab enables the customer to directly compare the suppliers' recipes against their own recipe specification.



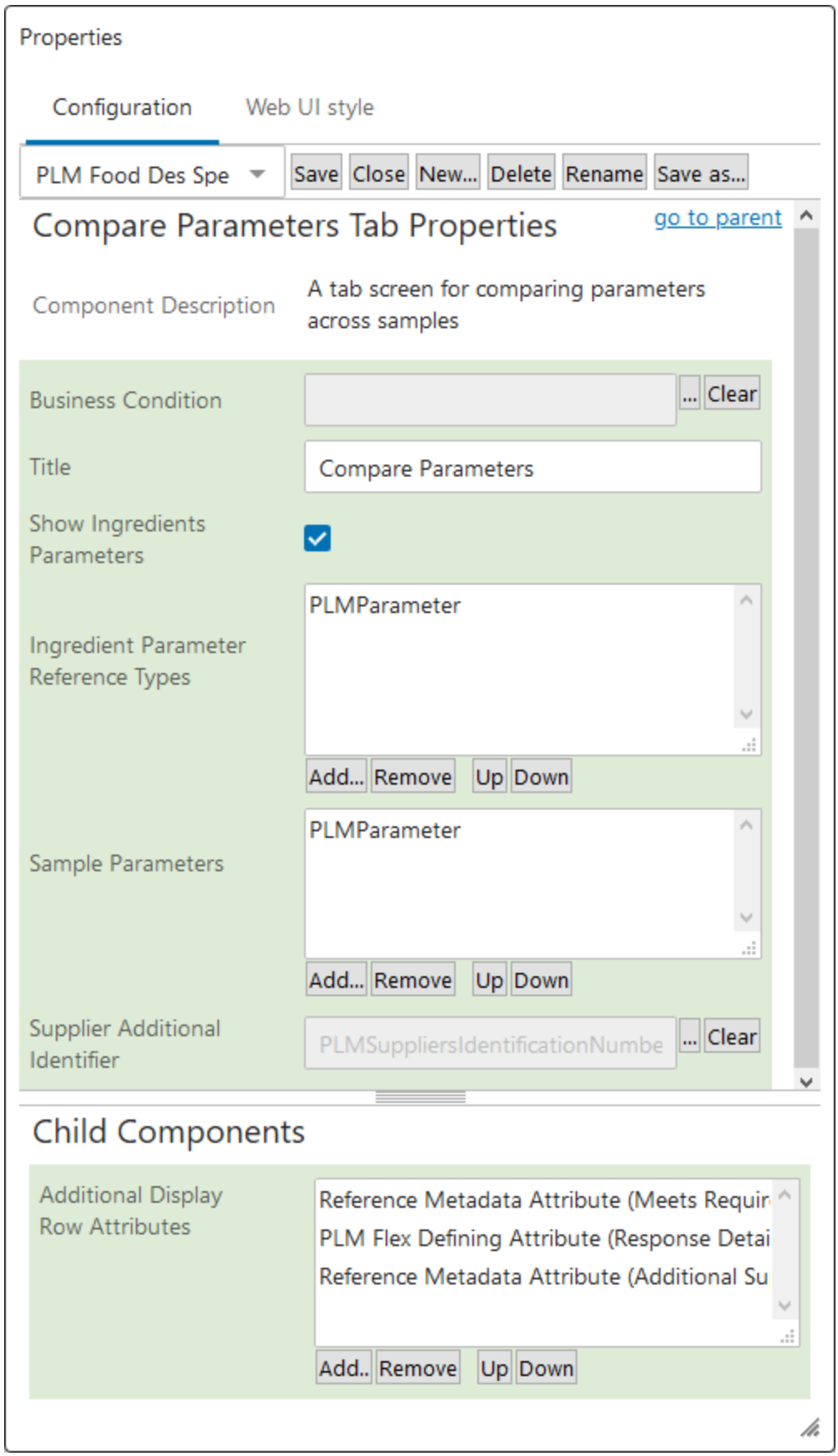
- **Business Condition**: Select a preconfigured business condition that determines whether the tab will display. If the condition returns true, the tab displays. If it returns false, the tab does not display. The business condition is evaluated when a screen is saved or refreshed.
- **Title**: Enter in a title for the Compare Ingredients tab.

- **Supplied Ingredient Reference Types**: References used for supplier ingredients. Add the appropriate references.
- **Supplied Additive Ingredient Reference Types**: References used for supplier additives. Add the appropriate references.
- **Supplier Additional Identifier**: An attribute that provides additional information after the supplier name. This field is optional.
- **Additional Information Attributes**: One or more Attribute Value Components can be added to this field and ordered how desired by selecting the up and down buttons. They display when a user clicks on the information icon in Web UI. These attributes must be made valid for the reference between the sample and ingredients.

Note: More than one additive or ingredient reference type can be added. If more than one additive or ingredient reference type is added, it does not matter what order they are displayed in.

Compare Parameters Tab

This tab enables the customer to compare the supplier's parameters against one another and the recipe specification.

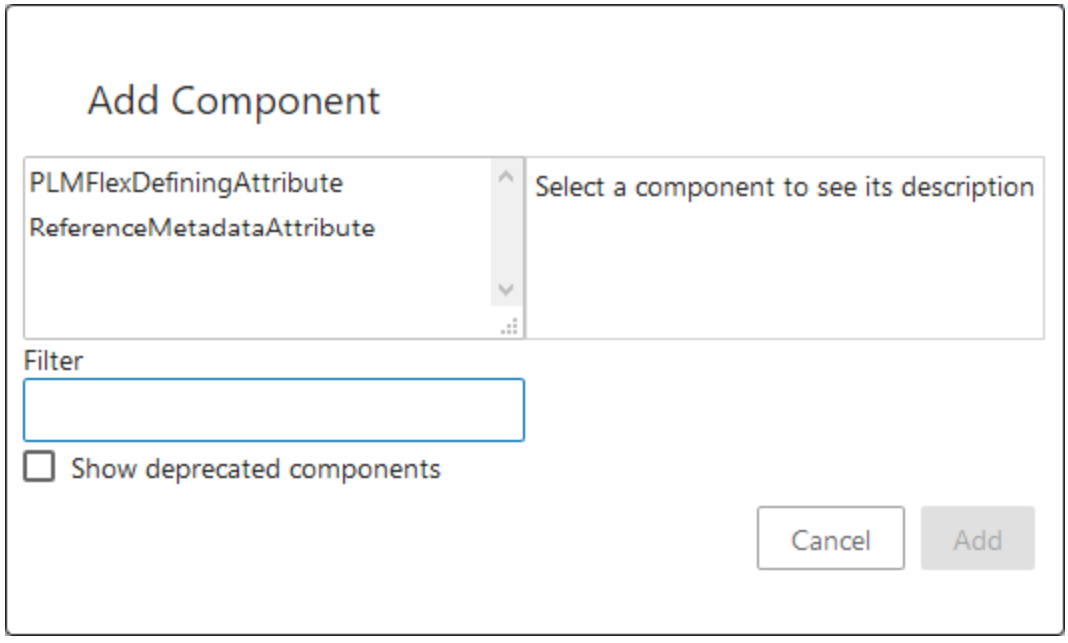

Properties
Configuration
Web UI style
PLM Food Des Spe
Save
Close
New...
Delete
Rename
Save as...
Compare Parameters Tab Properties
go to parent
Component Description
A tab screen for comparing parameters across samples
Business Condition
...
Clear
Title
Compare Parameters
Show Ingredients Parameters
Ingredient Parameter Reference Types
PLMParameter
Add...
Remove
Up
Down
Sample Parameters
PLMParameter
Add...
Remove
Up
Down
Supplier Additional Identifier
PLMSuppliersIdentificationNumbe
...
Clear
Child Components
Additional Display Row Attributes
Reference Metadata Attribute (Meets Requir
PLM Flex Defining Attribute (Response Detai
Reference Metadata Attribute (Additional Su
Add..
Remove
Up
Down

- **Business Condition:** Select a preconfigured business condition that determines whether the tab will display. If the condition returns true, the tab displays. If it returns false, the tab does not display. The business condition is evaluated when a screen is saved or refreshed.
- **Title**: Add an appropriate title for the Compare Parameters tab.
- **Ingredient Parameter Reference Type:** The reference type(s) between the supplier response ingredients and the Parameter, from where the values for the Parameter Description in the comparison table will be displayed.
- **Specified Parameters**: Add the appropriate specified parameter references.

Note: More than one parameter reference type can be added. If more than one reference type is added, it does not matter what order they are displayed in.

- **Sample Parameters**: Add the appropriate sample parameter references.
- **Supplier Additional Identifier**: An attribute that provides additional information after the supplier name. This field is optional.
- **Additional Display Row Attributes**: Add any needed attributes that should appear in the Detail Requirements Compare dialog. The attributes can be either a PLMFlexDefiningAttribute or a ReferenceMetadataAttribute.

Note: When adding a PLM Flex Value Attribute you are adding a defining attribute. A defining attribute is an LOV that contains a list of other attribute IDs that are used to control the format of data in a column in a Multi-Reference Editor. Users can choose one of the LOV values to define how the attribute's format should be controlled for the supplier' response.

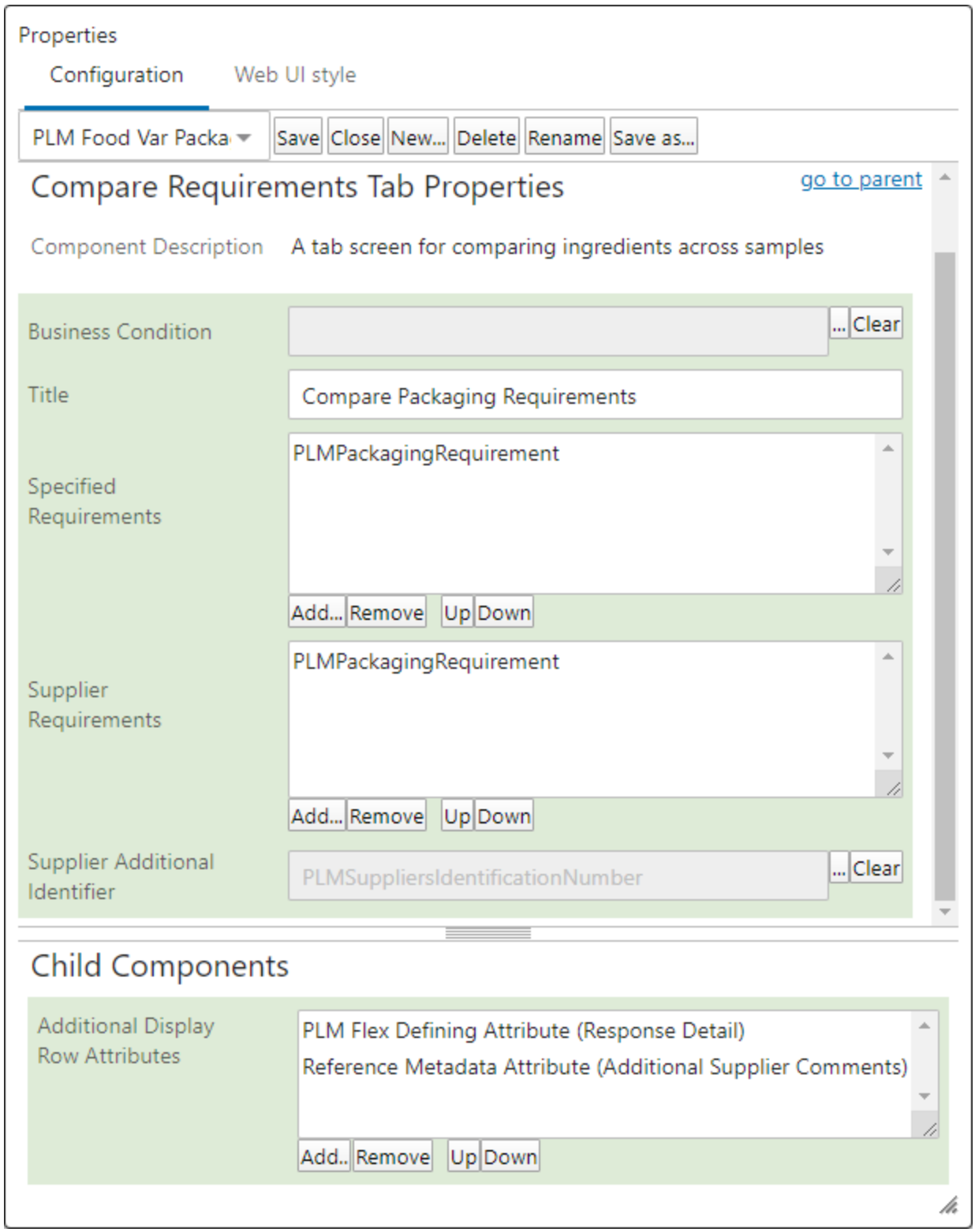


For more information on a defining attribute, see the **Multi-Reference Editor** topic in this documentation.

Compare Requirements Tabs

Depending on if a recipe or packaging sample is configured, this tab enables the customer to directly compare the suppliers' requirements against one another and against the recipe or packaging specification.

It is not possible to configure and see both recipe and packaging samples on the same Compare Requirements Tab. Selected references, object types, and mappings for these are separate.



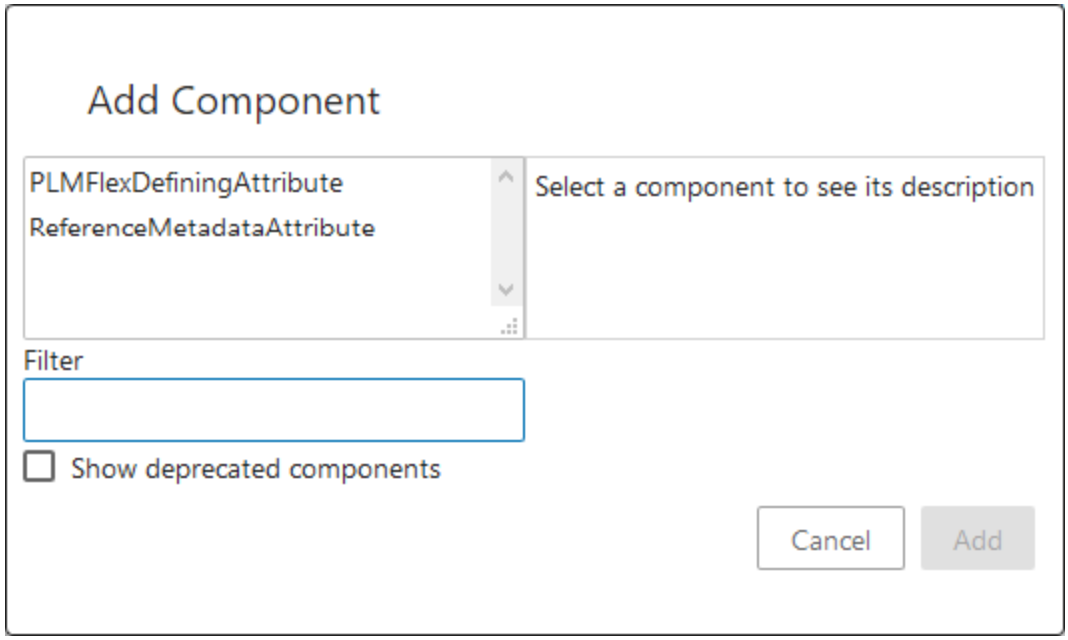
- **Business Condition:** Select a preconfigured business condition that determines whether the tab will display. If the condition returns true, the tab displays. If it returns false, the tab does not display. The business condition is evaluated when a screen is saved or refreshed.

- **Title**: Add an appropriate title for the Compare Requirements tab.
- **Specified Requirements**: Add the appropriate references for the Specified Requirements field.
- **Supplier Requirements**: Add the appropriate recipe or supplier references.

Note: More than one requirement reference type can be added, though it must be all related to recipes, or all related to packaging. If more than one reference type is added, it does not matter what order they are displayed in.

- **Supplier Additional Identifier**: An attribute that provides additional information after the supplier name. This field is optional.
- **Additional Display Row Attributes**: Add any needed attributes that should appear in the Detail Requirements Compare dialog. The attributes can be either a PLMFlexDefiningAttribute or a ReferenceMetadataAttribute.

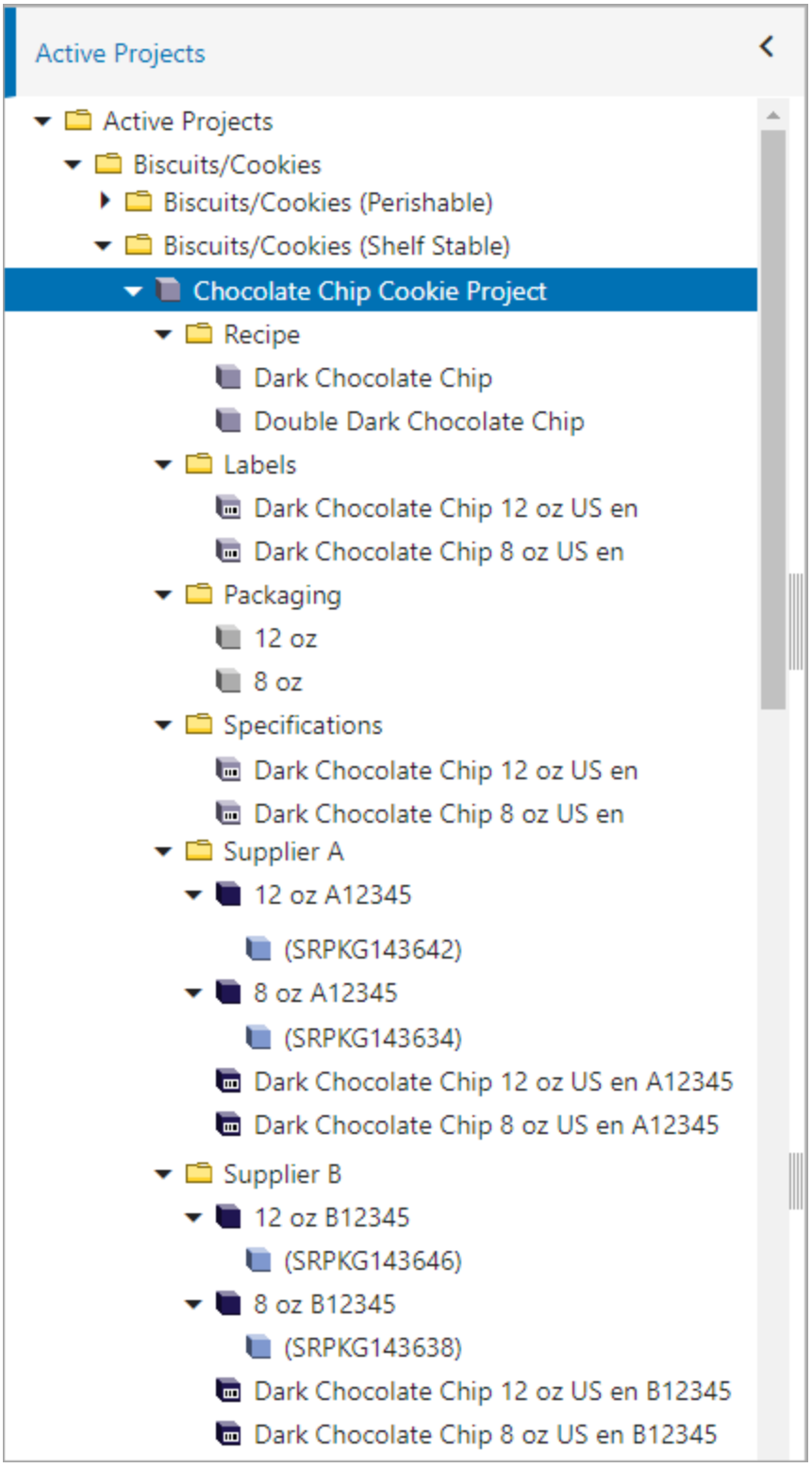
Note: When adding a PLM Flex Value Attribute you are adding a defining attribute. A defining attribute is an LOV that contains a list of other attribute IDs that are used to control the format of data in a column in a Multi-Reference Editor. Users can choose one of the LOV values to define how the attribute's format should be controlled for the supplier' response.



For more information on a defining attribute, see the **Multi-Reference Editor** topic in this documentation.

Configuring Project Navigator

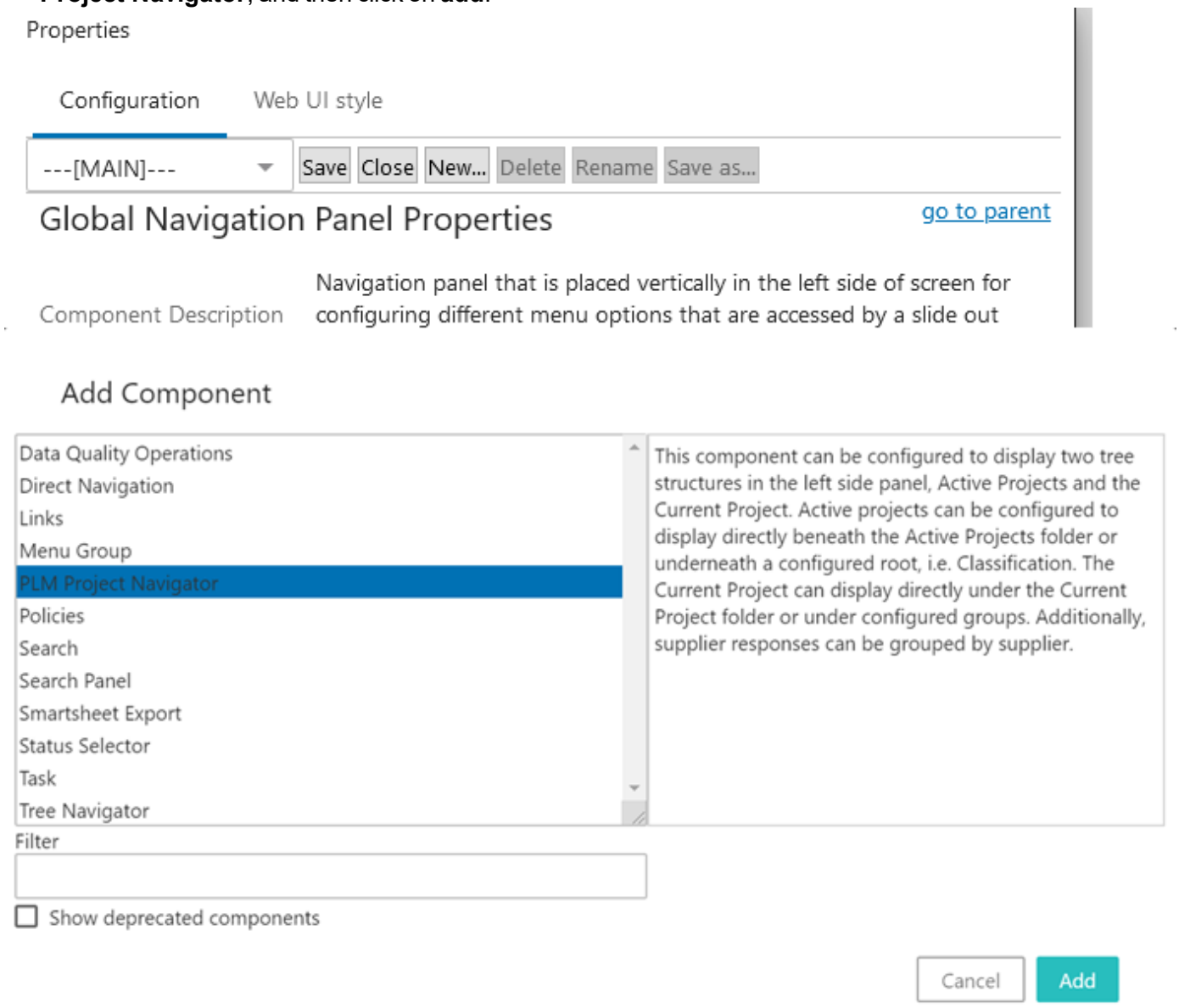
Configure Project Navigator to access design specifications (active projects) in workflows via a classification folder in the Tree navigation. Users get a complete view of all the projects, objects, and references associated to the design specification, such as recipes, packaging, labels, or suppliers. This enables users to quickly navigate to the Tree where they can select the classification folder configured to house active projects.



To configure Project Navigator, follow the directions below:

Note: Suppliers will only have access to the active projects they are associated with and will not have access to other supplier's active projects.

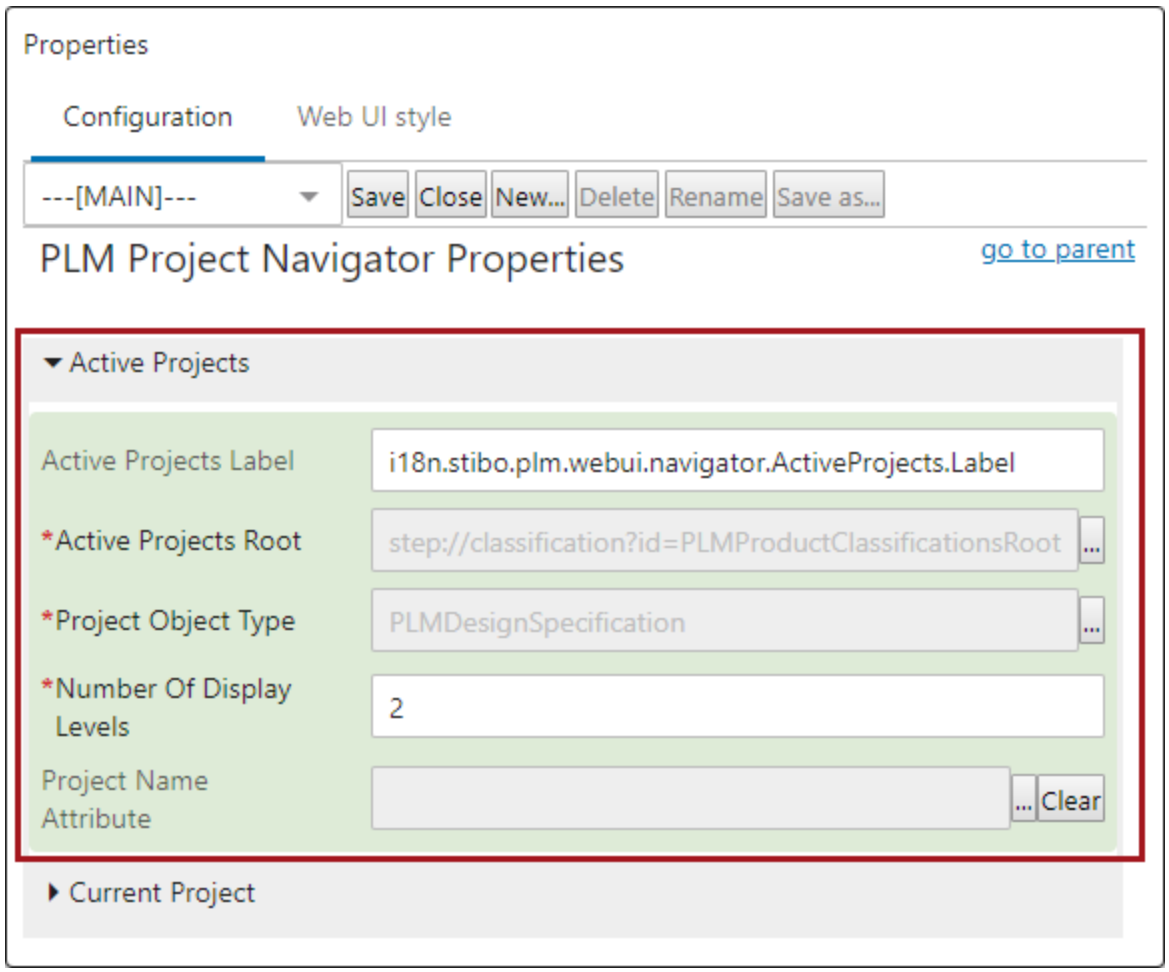
1. In Web UI, go to the designer and select --[MAIN]-- from the dropdown. Under Child Components, add a **Global Navigation Panel**.
2. Double click the Global Navigation Panel, and in the Child Components > Content dropdown field, select **PLM Project Navigator**, and then click on **add**.



3. There are two sections in the PLM Project Navigator Properties: Active Projects and Current Project. Fill out the fields in both of these sections appropriately.

Active Projects Flipper

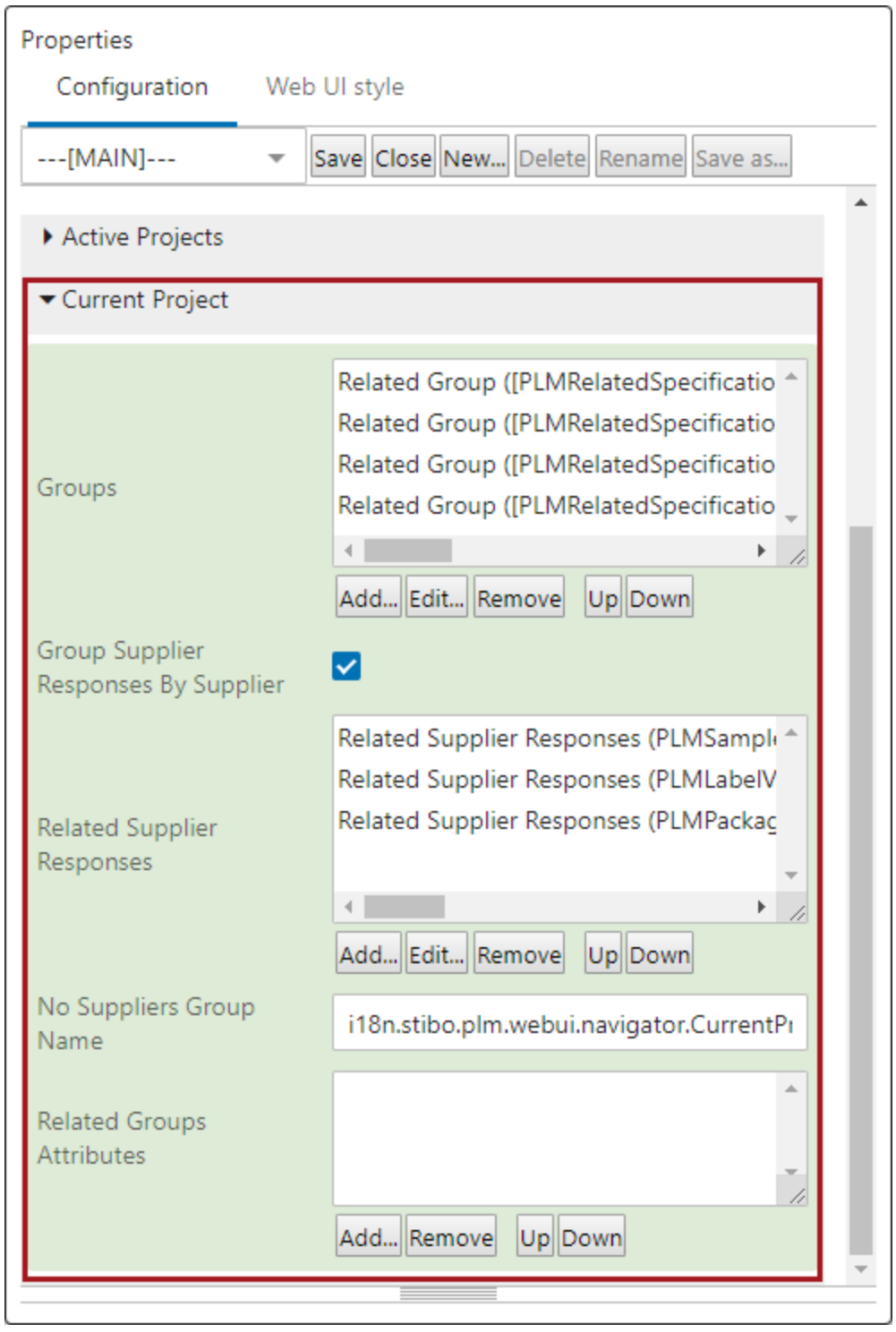
Expand the Active Project flipper and fill out the fields in this section:



- **Active Projects Label**: Enter in the name for the folder that will hold active projects.
- **Active Projects Root**: Select the root for all active project. This folder is used for the different classification groupings.
- **Project Object Type**: The object type selected to display under the selected active project root. In this example, the 'PLMDesignSpecification' object type is used.
- **Number of Display Levels**: The level of folders up from the selected 'Product Object Type' that will be displayed in the classification structure when users browse to find projects..
- **Project Name Attribute**: Select an attribute to display a different name for the active project. This displays instead of the 'Project Object Type' name.

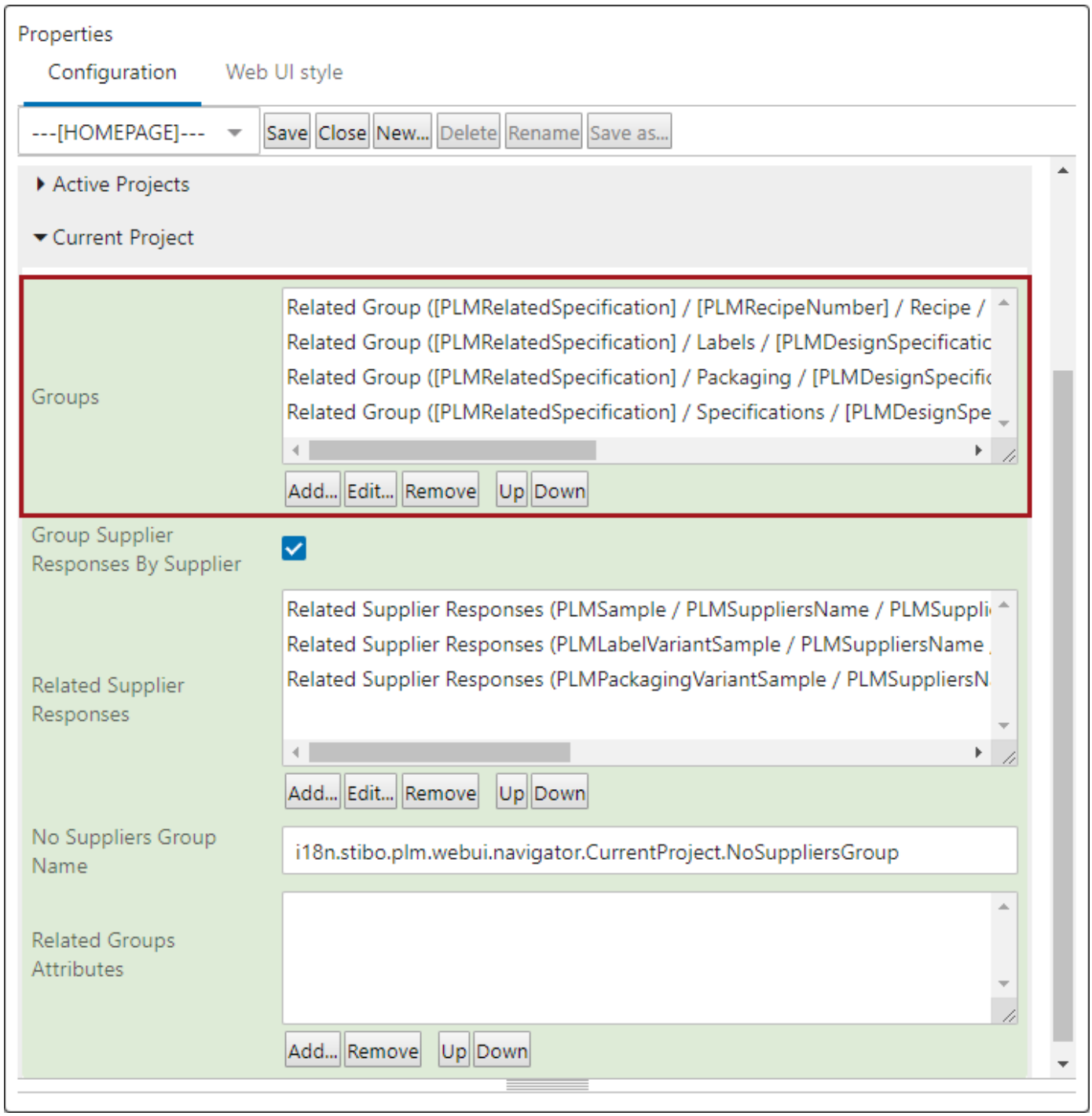
Current Project Flipper

Expand the Current Project flipper and fill out the fields in this section:

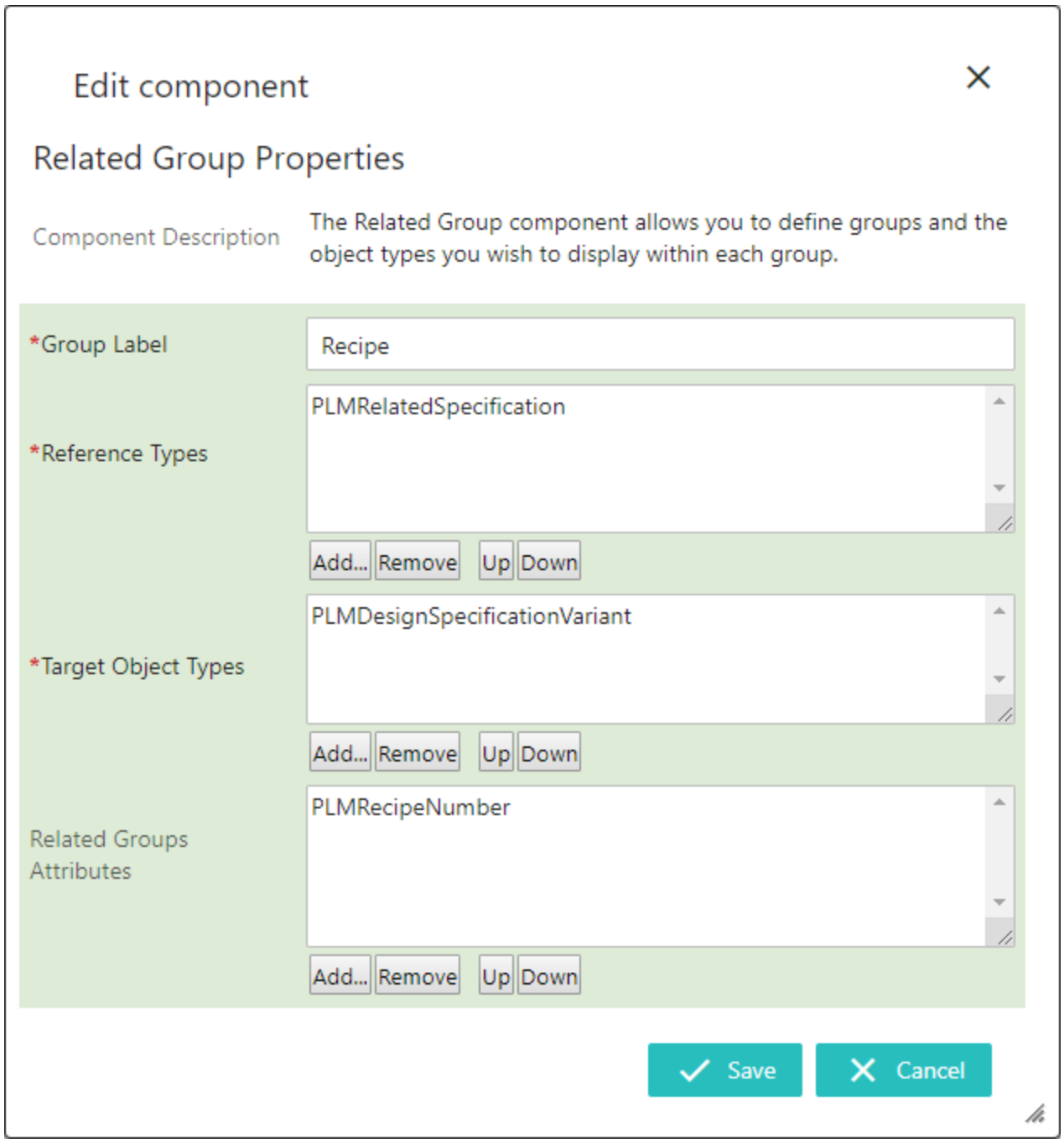


Groups

This field is used to configure the groups you want to display in the active projects classification folder. For example, you could have groupings for specifications, labels, and packaging.



To configure this field, click **Add**. Configure the following fields as necessary:



Group Label: Enter the display name for the group.

Reference Types: Select the reference type needed for the group. The reference needed are from the project (for example design specifications), to the specifications in the project.

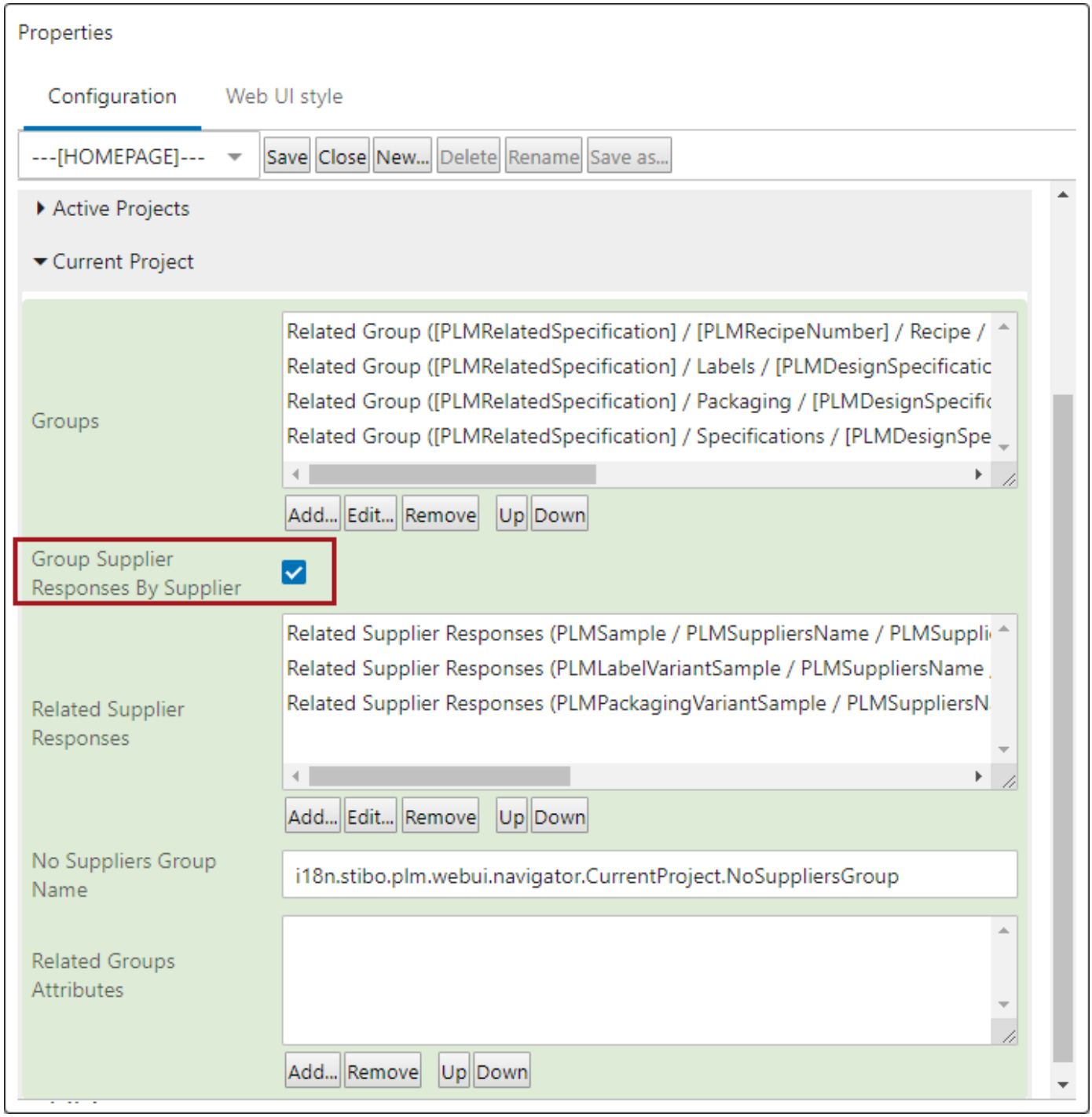
Target Object Type: Select the object types to display within each group.

Related Group Attributes: Select the attributes to display when a user hovers over the related group node.

Group Supplier Responses By Supplier

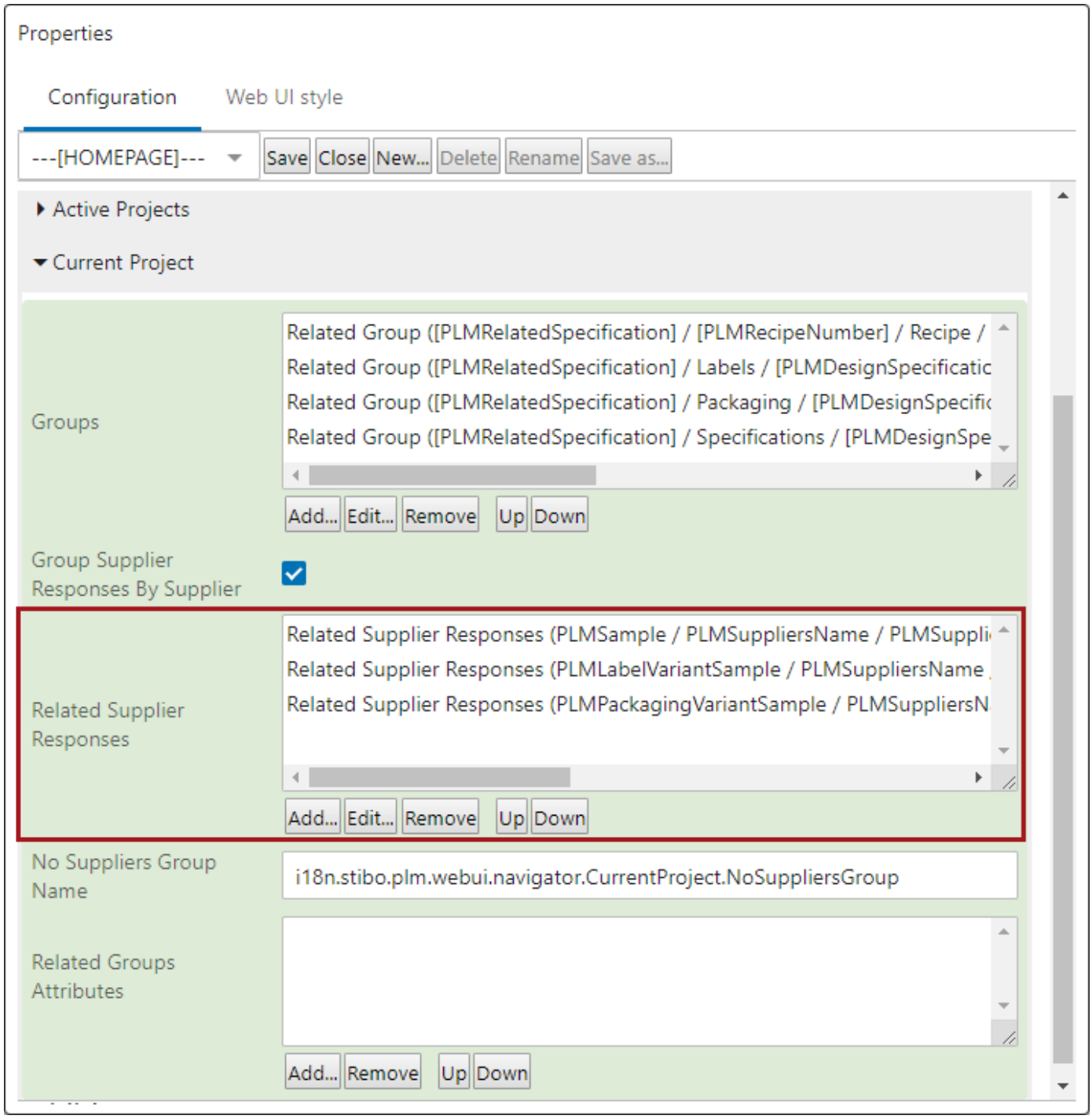
When selected, this will group supplier samples by each supplier instead of in one main grouping. The name of the supplier groupings is dependent on the attribute selected when configuring the Related Supplier Responses field.

Note: If unselected, then the following fields are disabled: Supplier Name, Related Supplier Responses, and Supplier Response Display Name.

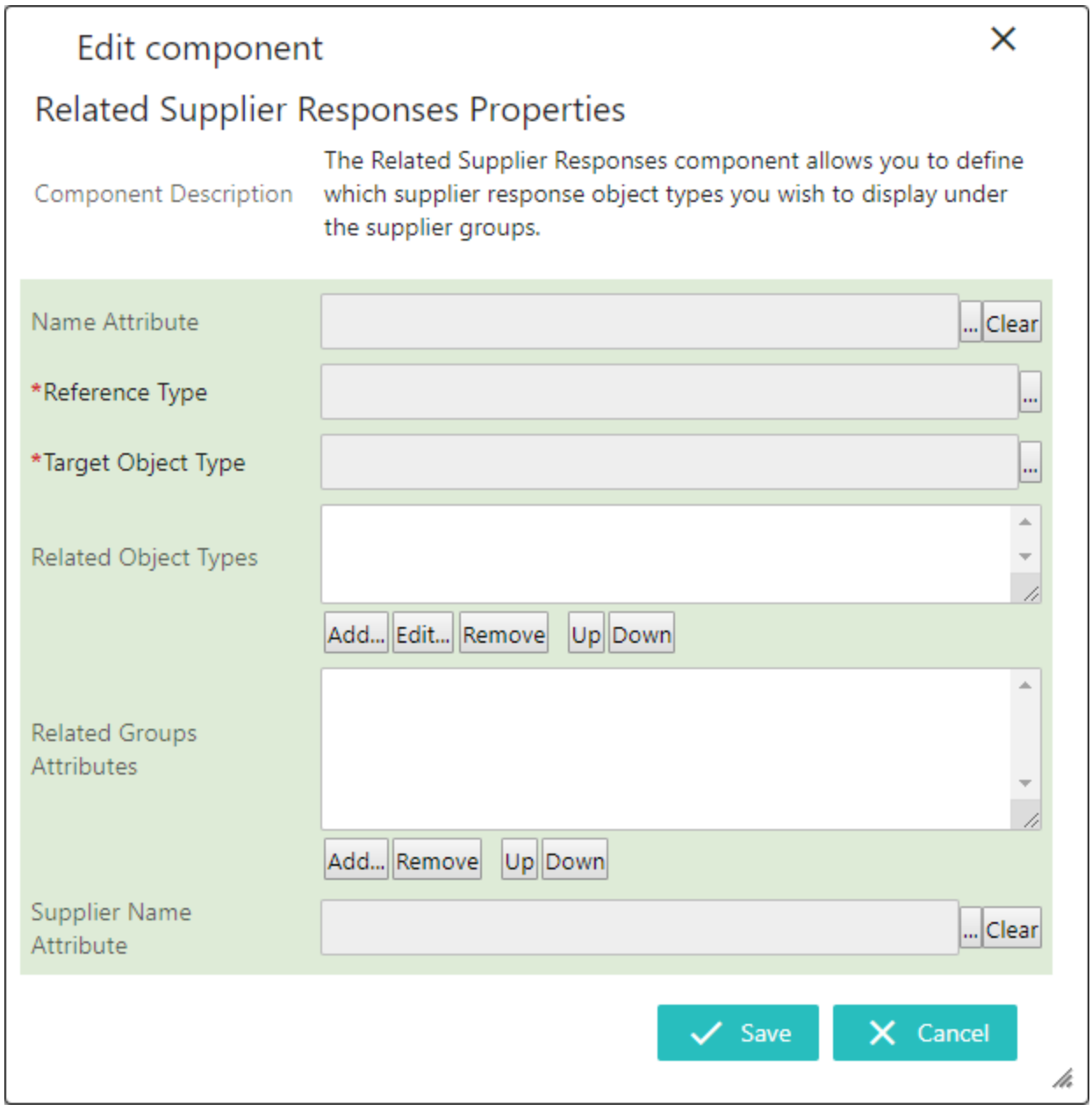


Related Supplier Responses

This field is used to configure the sample object types to display under each supplier. In this example, the object types are sample, packaging sample, or label sample.



To configure this field, click **Add** and configure the following fields as necessary.



Attribute Name: Select this attribute to display a different attribute name instead of the Target Object Type ID.

Reference Type: Select the appropriate reference type for the group. This reference type is acting as the source which must be the project (for example, design specification).

Target Object Type: Select the object types to display within the group.

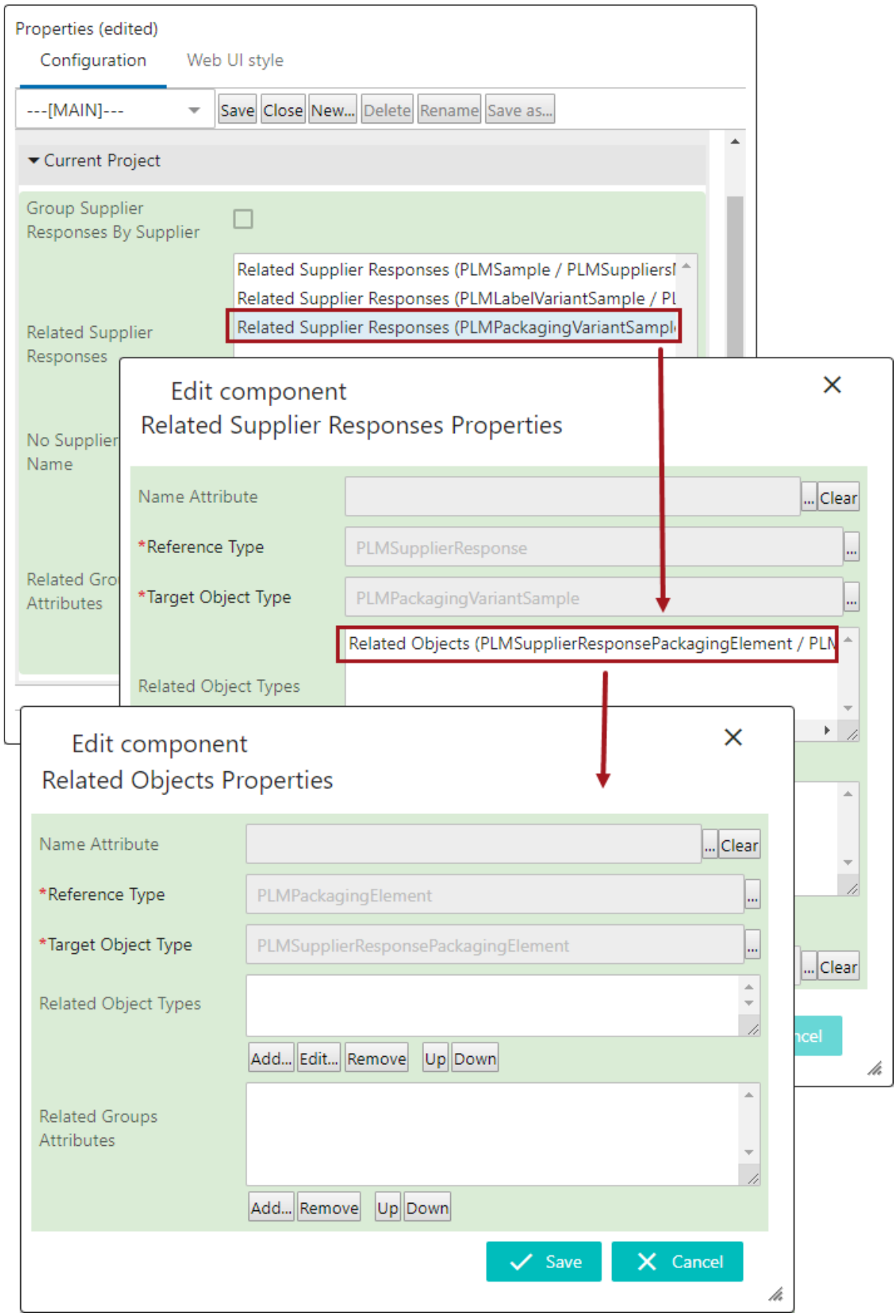
Related Object Types: Select other object types to further break down what was selected for the target object type.

Related Groups Attributes: Select the attribute to display when a user hovers over the related groups node.

Supplier Name Attribute: Select the attribute to use as the display name for the supplier.

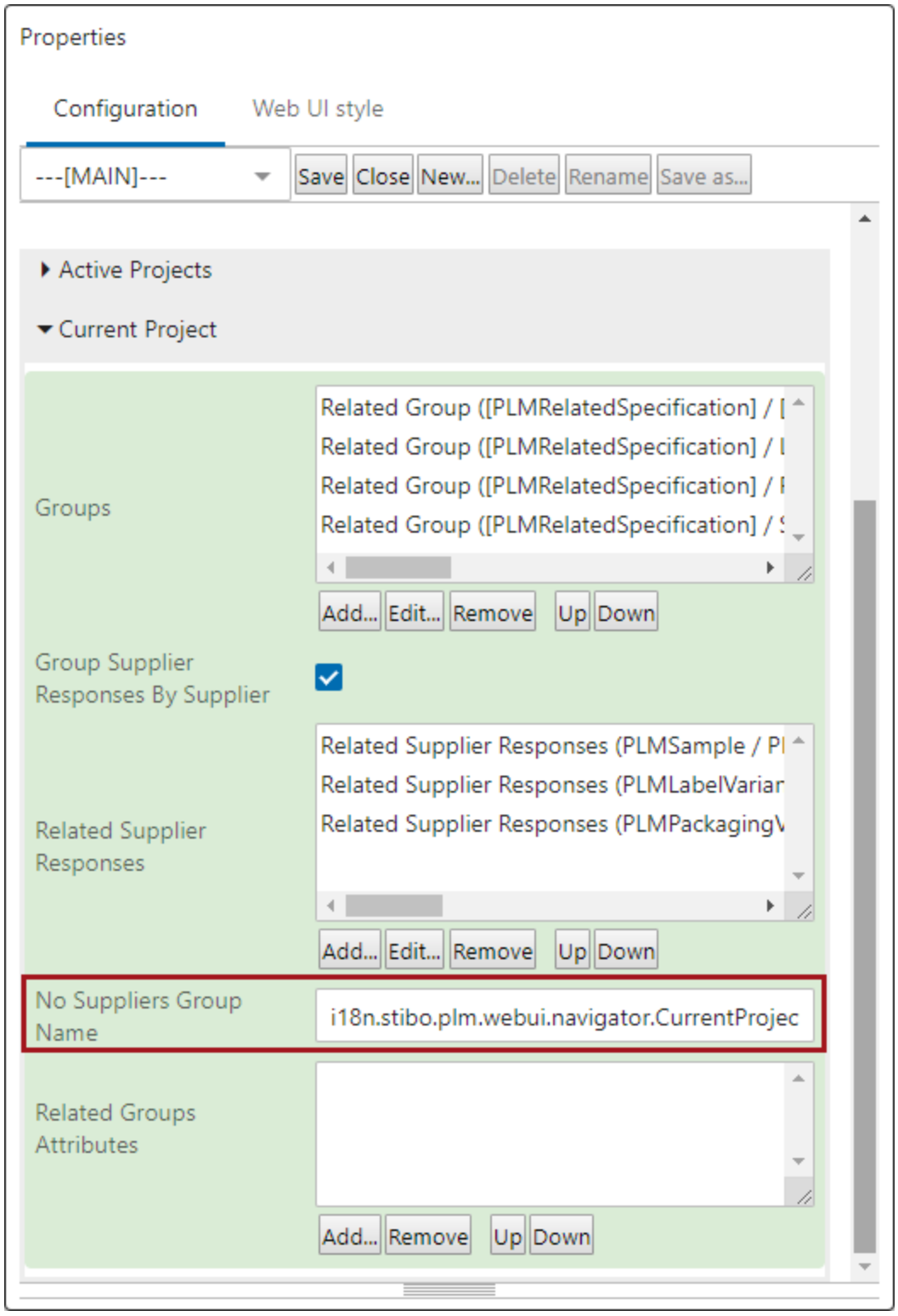
Note: The Supplier Name Attribute is also the name used when grouping by supplier responses.

Packaging variant or packaging sample can have nested levels in the PLM data model. To configure nesting, once either packaging variant or packaging sample is configured, double click on it, and configure the dialog that displays with the necessary nested level. Continue to do this for each necessary nested level.

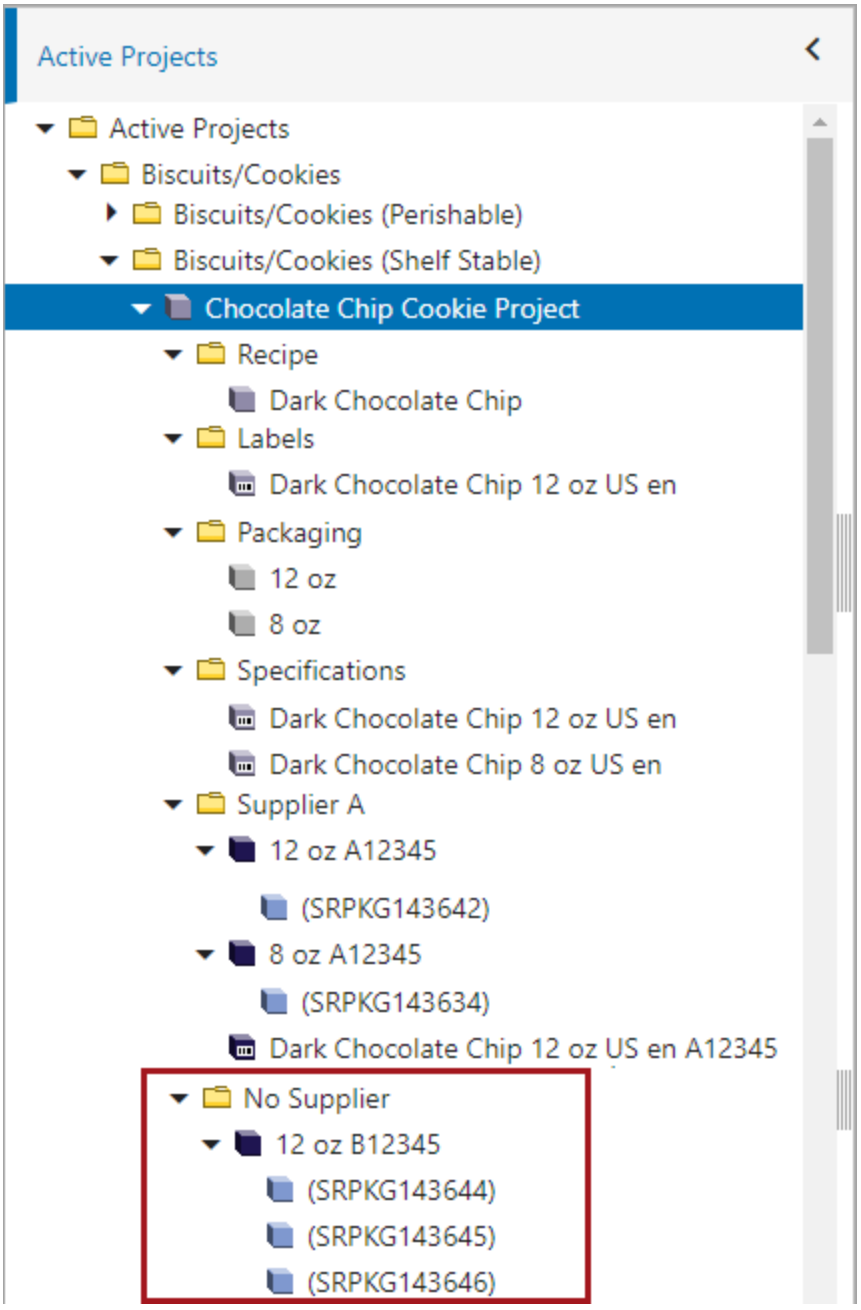

Properties (edited)
Configuration
Web UI style
---[MAIN]---
Save
Close
New...
Delete
Rename
Save as...
Current Project
Group Supplier Responses By Supplier
Related Supplier Responses (PLMSample / PLMSuppliersI
Related Supplier Responses (PLMLabelVariantSample / PL
Related Supplier Responses (PLMPackagingVariantSampl
Related Supplier Responses
No Supplier Name
Related Gro Attributes
Edit component
Related Supplier Responses Properties
Name Attribute
Clear
*Reference Type
PLMSupplierResponse
*Target Object Type
PLMPackagingVariantSample
Related Objects (PLMSupplierResponsePackagingElement / PLM
Related Object Types
Edit component
Related Objects Properties
Name Attribute
Clear
*Reference Type
PLMPackagingElement
*Target Object Type
PLMSupplierResponsePackagingElement
Related Object Types
Add...
Edit...
Remove
Up
Down
Related Groups Attributes
Add...
Remove
Up
Down
Save
Cancel

No Suppliers Group Name

A customer may receive supplier responses but not know which supplier sent the response. If this is the case, these responses need to be grouped together under one folder. This field provides a name to the folder to hold unclaimed supplier responses. The default title for this folder is called 'No Supplier.'

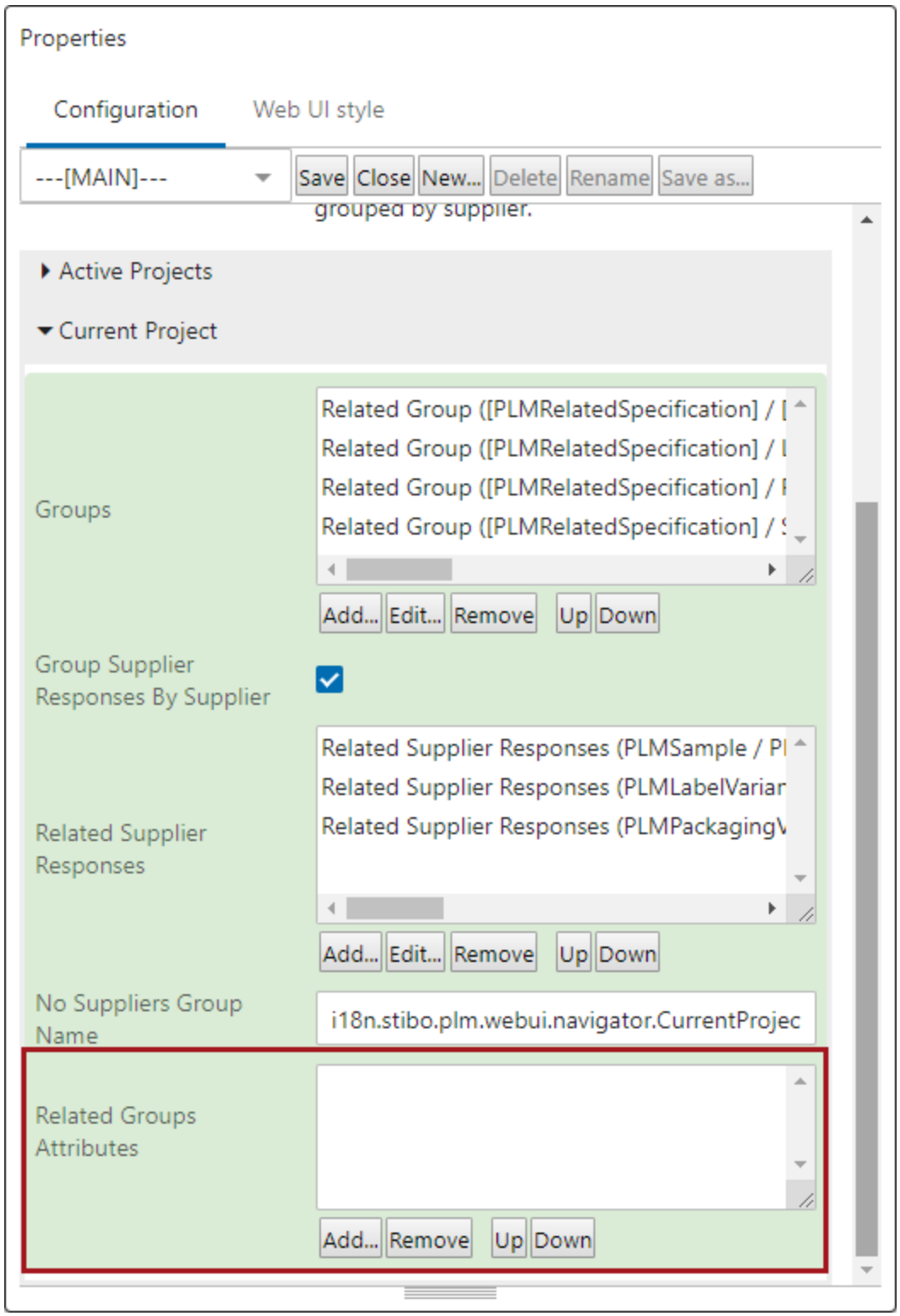


For example, if a supplier responded, but their name was not associated with the response, their response would appear in the 'No Suppliers' group name folder.



Related Groups Attributes

Select the attributes to display when a user hovers over the related groups' node.



Once configured, map to the needed screen. For more on mapping, see the **Mappings** topic in the **Using a Web UI** section of the **Web User Interfaces / Web UI Setup and User** Guide.

For more on how to use project navigation in Web UI, see the **Using Project Navigator** topic in the **PLM for Users** section of the **Product Lifecycle Management** documentation.

Storyboard Setup

Storyboards allows users to create idea concepts for early product development. When setup properly, a user is able to interact with storyboards, and upload content of various object types. To set up this interface for users, follow the directions in this documentation.

Important: It is recommended that admin users read through the **PLM for Users** documentation before starting setup. It is important to understand how PLM works prior to beginning any configuration. Additionally, it is important to be familiar with standard STEP functionality.

All of the setup described in this documentation is done in the STEP Workbench. If the steps are not followed (including naming conventions, except where notated), then PLM will not function as expected.

Users of PLM will not see the workbench, and will only interact with PLM through the web. Proper workbench setup is vital for the user having a seamless experience while working.

The following licenses and components are needed for storyboards to work:

Required License	Components needed
X.STEPIllustrator **Note:** Only needed if also utilizing the ability to integrate with Adobe Illustrator	illustrator **Note:** Only needed if also utilizing the ability to integrate wtih Adobe Illustrator
N/A	plm-ui-rfa

Configurations, Object Types, and Business Rules

All of the setup described below is done in the STEP Workbench. If the steps are not followed (including naming conventions, except where notated), then PLM will not function as expected.

Below are directions on how to get started implementing PLM.

PLM Configurations Setup

Follow the steps below to upload the configuration files.

Important: Talk to your implementation team before uploading the provided configuration files and configuring anything else for PLM.

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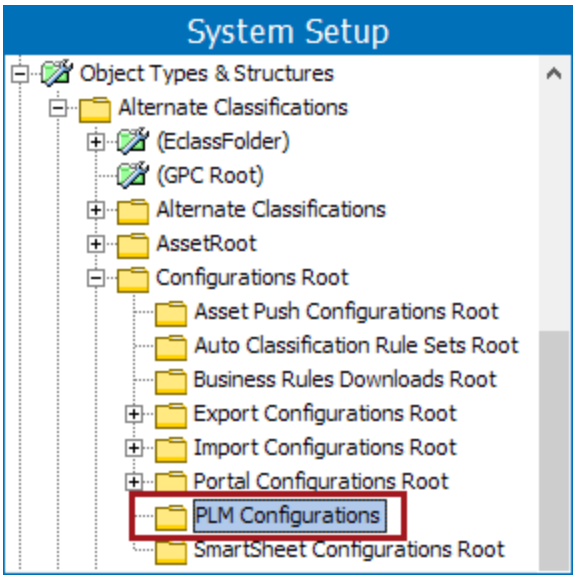
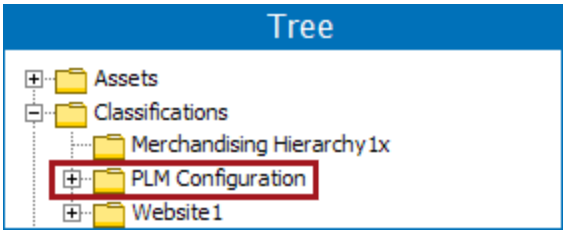
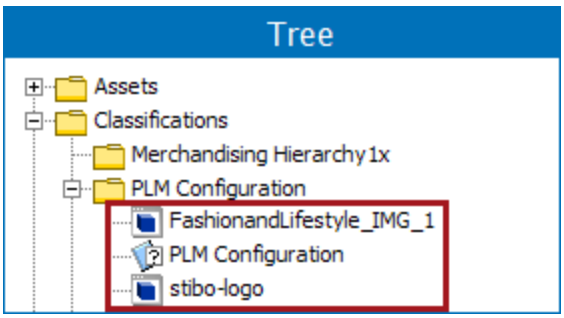
1. In **System Setup**, go to Object Types & Structures > Alternate Classifications > Configurations Root > and create a folder to house PLM configurations.



2. Next, in **Tree**, below the classifications node, create a new classification folder to house the PLMConfiguration.



3. Into this folder, import the background login screen image, the PLM configuration file, and the desired logo using file names as STEP IDs. Make sure that all changes that are needed to be made to the PLM configuration file are made before the file is uploaded. This includes changing any IDs necessary; otherwise, PLM will not work properly.



Note: Depending on your implementation team, these steps may or may not be handled by them. If the implementation team does not handle the steps above, they will be the ones to provide the configuration files. Additionally, both the background image on the login screen and the logo are configurable.

Creating PLM Storyboard Object Types

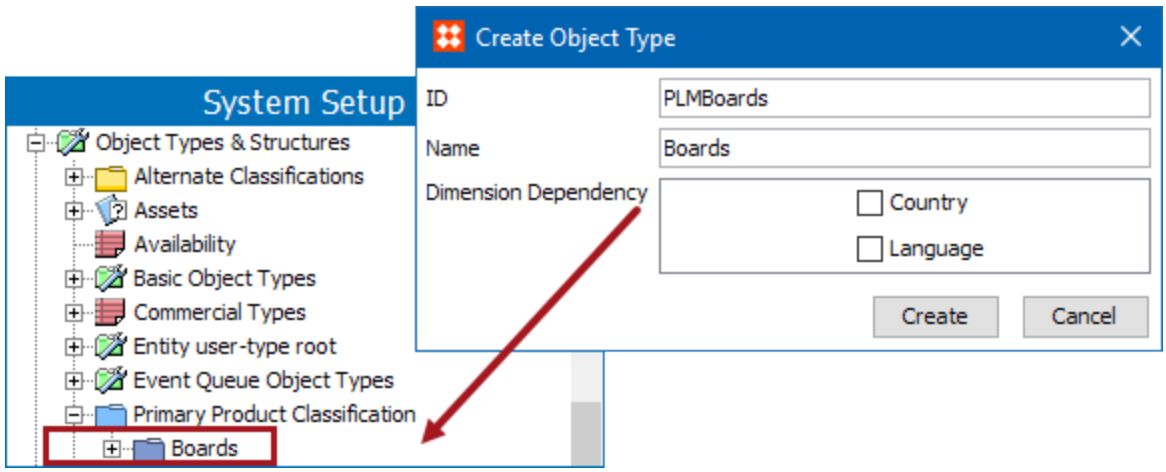
This section describes how to create object types that are needed for the PLM setup. While the object types are different, the steps to create these object types are all the same. The following object types will need to be created:

- PLMBoards
  - PLMBoard
  - PLMBoardCollectionsRoot
  - PLMBoardCollection
- PLMColorsRoot
  - PLMColorType
  - PLMColor
- PLMMaterialsRoot
  - PLMFabricRoot
  - PLMLabelRoot
    - PLMLabelSubType
  - PLMPackagingRoot
  - PLMShippingRoot
  - PLMTrimRoot
    - PLMTrimSubType
- PLMProducts
  - PLMProduct

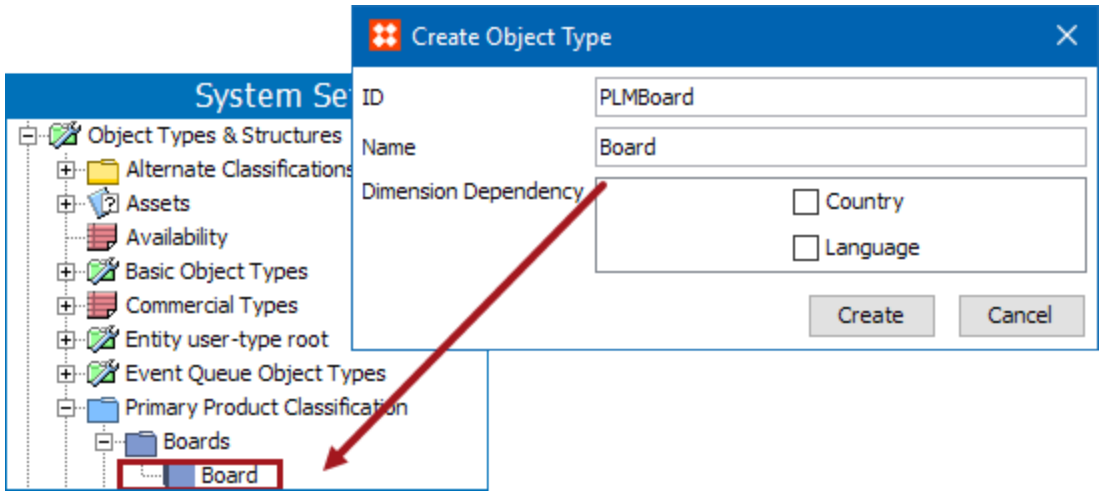
Note: The IDs / names of the above object types can be changed according to company needs. Notify the implementation team of any changes, so updates can be made to the uploaded configuration documents.

In the example below, the 'Boards' and 'Board' object types are used.

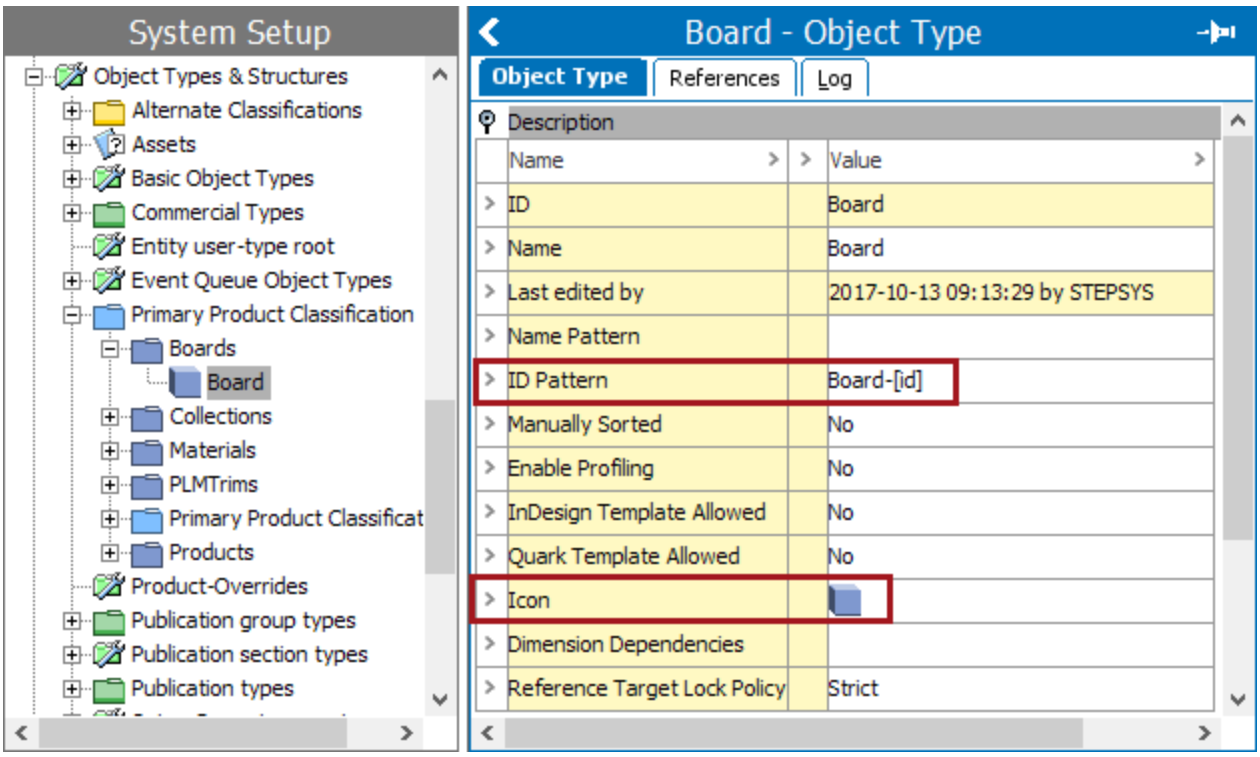
1. In **System Setup** under Object Types & Structures > Primary Product Classification> create a new product object type called **Boards** with the ID of **PLMBoards**.



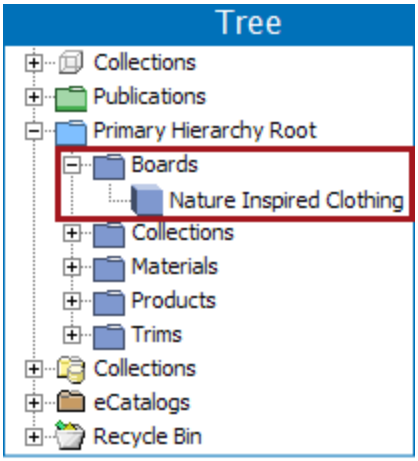
2. Below the new Boards object type create a child called object type **Board** with the ID **PLMBoard**.



3. Make sure that the object type Board has an auto ID of **Board-[id]** in the ID Pattern field, and pick an appropriate icon. For more on how to create an auto ID or how to add icons, see **Autogenerate Using Name Pattern and ID Pattern** topic in the **Object Types and Structures** section of the **System Setup / Super User Guide** documentation.



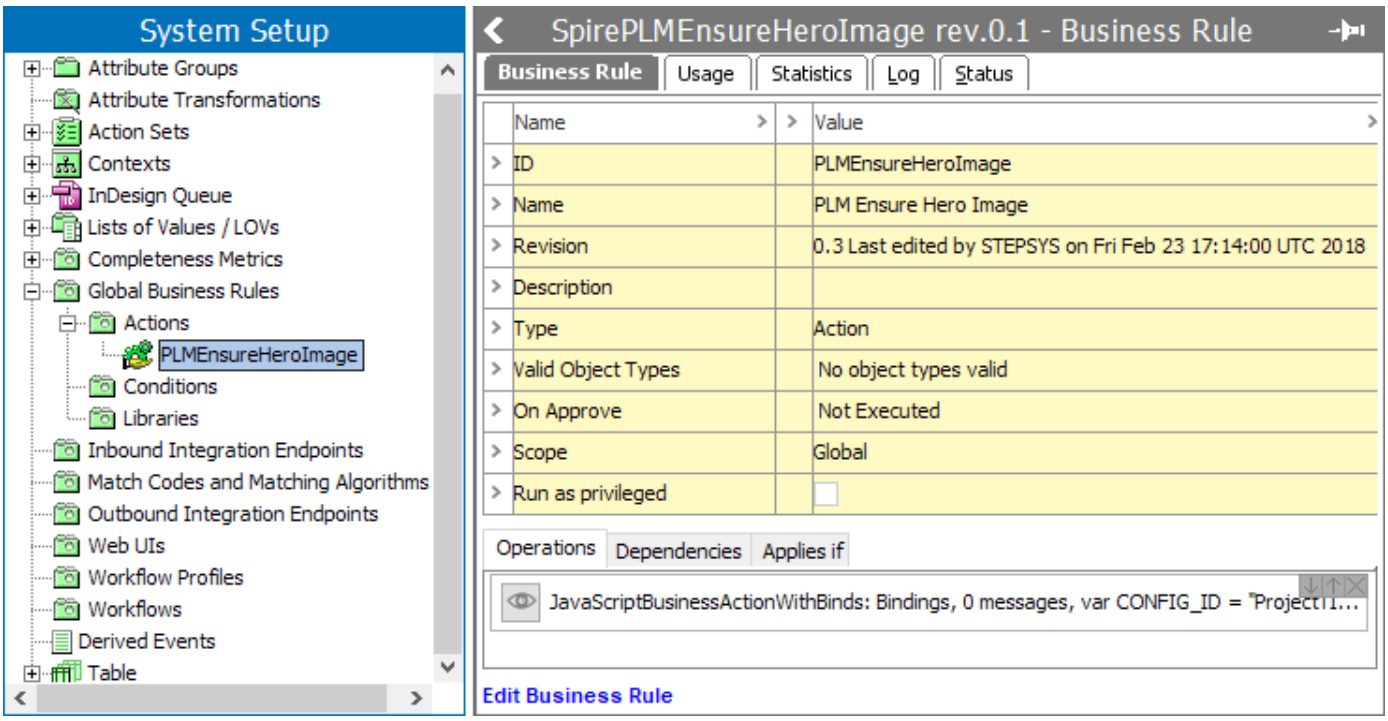
4. In **Tree**, under the Primary Product Hierarchy, make a folder to hold the **Boards** object type created in PLM.



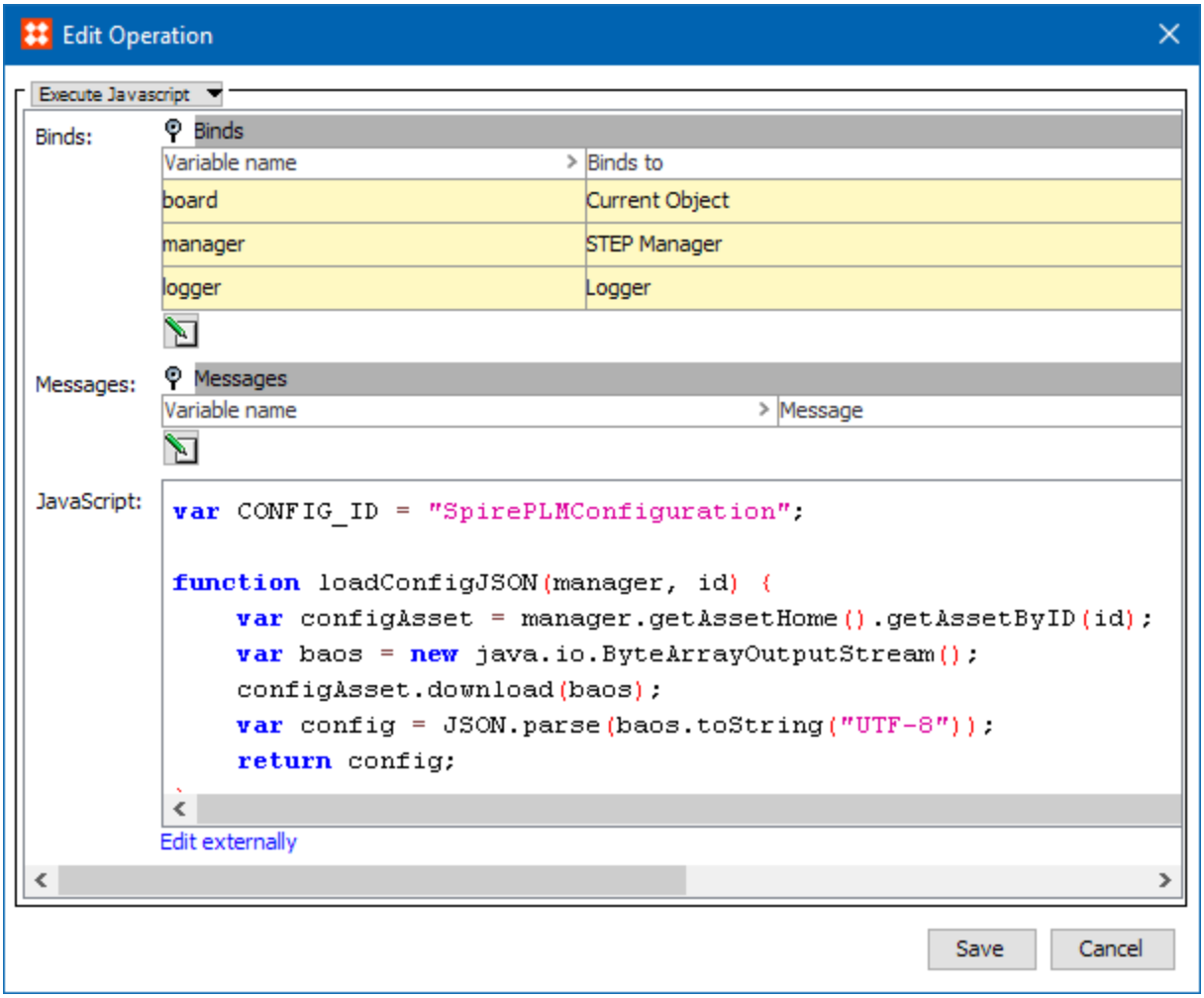
Adding a Hero Image Business Rule

For users of PLM, the 'hero' image is the feature image of the storyboard. This is the image that is displayed at the top of the storyboard, and is the one that represents the storyboard when being viewed in the board gallery.

In order to make the hero image function properly, a business rule needs to be created and applied in System Setup > Global Business Rules > Actions. It should have the ID **PLMEnsureHero Image**.



Below is a picture of the business rule configurations for the hero image:



Important: The following script is only an example and should not be used as-is without thorough testing, including updating to match object and link types that exist on your system.

```
var CONFIG_ID = "SpirePLMConfiguration";
function loadConfigJSON(manager, id) {
var configAsset = manager.getAssetHome().getAssetByID(id);
var baos = new java.io.ByteArrayOutputStream();
configAsset.download(baos);
var config = JSON.parse(baos.toString("UTF-8"));
return config;
}
function removeDuplicates(list) {
return list.filter(function(item, pos) {
return list.indexOf(item) === pos;
});
```

```
}
function lookupReferenceType(manager, id) {
return manager.getReferenceTypeHome().getReferenceTypeByID(id);
}
var config = loadConfigJSON(manager, CONFIG_ID);
var contentModel =
config.applications.spireplm.model.boards.boardContent;
var allContentReferenceTypeIds = [
contentModel.image.boardReferenceId,
contentModel.trim.boardReferenceId,
contentModel.material.boardReferenceId,
contentModel.product.boardReferenceId
];
var allHeroImageReferenceTypeIds = [
contentModel.image.heroImageReferenceId,
contentModel.trim.heroImageReferenceId,
contentModel.material.heroImageReferenceId,
contentModel.product.heroImageReferenceId
];
logger.info("content types ids" + JSON.stringify
(allContentReferenceTypeIds));
var contentReferenceTypeIds = removeDuplicates
(allContentReferenceTypeIds);
var heroImageReferenceTypeIds = removeDuplicates
(allHeroImageReferenceTypeIds);
logger.info("content types ids" + JSON.stringify
(contentReferenceTypeIds));
logger.info("hero types ids" + JSON.stringify
(heroImageReferenceTypeIds));
var contentReferenceTypes = contentReferenceTypeIds.map(function (id) {
return lookupReferenceType(manager, id); });
var heroImageReferenceTypes = heroImageReferenceTypeIds.map(function (id)
{ return lookupReferenceType(manager, id); });
function getReferences(source, referenceTypes) {
var result = new java.util.ArrayList();
for (var i = 0; i < referenceTypes.length; i++) {
var refs = source.getReferences(referenceTypes[i]);
result.addAll(refs);
```

```
}
return result;
}
function getHeroImageReferenceTypeFor(reference) {
var refTypeId = reference.getReferenceType().getID();
var idx = -1;
for (var i = 0; i < allContentReferenceTypeIds.length; i++) {
if (allContentReferenceTypeIds[i] == refTypeId) {
idx = i;
break;
}
}
logger.info("Index of " + refTypeId + " is " + idx);
return heroImageReferenceTypeIds[idx];
}
var heroImageReferences = getReferences(board, heroImageReferenceTypes);
if (heroImageReferences.size() > 1) logger.warning("Board has more than
one hero image");
if (heroImageReferences.size() === 0) {
logger.info("Board has no hero images");
var contentReferences = getReferences(board, contentReferenceTypes);
if (contentReferences.size() > 0) {
var anyReference = contentReferences.get(0);
var refTypeId = getHeroImageReferenceTypeFor(anyReference);
var anyContent = anyReference.getTarget();
board.createReference(anyReference.getTarget(), refTypeId);
logger.info("Created hero image reference " + refTypeId + " to " +
anyContent.getTitle());
}
} else {
var contentReferences = getReferences(board, contentReferenceTypes);
if (contentReferences.size() === 0) {
logger.info("Has hero image, but no content. Going to remove hero
images");
for (var i = 0; i < heroImageReferences.size(); i++) {
var ref = heroImageReferences.get(i);
```

```
logger.info("Deleting reference to " + ref.getTarget().getTitle());
ref.delete();
}
} else {
for (var i = 0; i < heroImageReferences.size(); i++) {
var heroImage = heroImageReferences.get(i).getTarget();
var found = false;
for (var j = 0; j < contentReferences.size(); j++) {
var content = contentReferences.get(j).getTarget();
if (heroImage.equals(content)) {
found = true;
break;
}
}
if (!found) {
logger.info("Hero image is not content. Deleting reference to " +
heroImageReferences.get(i).getTarget().getTitle());
heroImageReferences.get(i).delete();
if (i === 0) {
var anyReference = contentReferences.get(0);
var refTypeId = getHeroImageReferenceTypeFor(anyReference);
var anyContent = anyReference.getTarget();
board.createReference(anyReference.getTarget(), refTypeId);
logger.info("Created hero image reference " + refTypeId + " to " +
anyContent.getTitle());
}
}
}
}
}
```

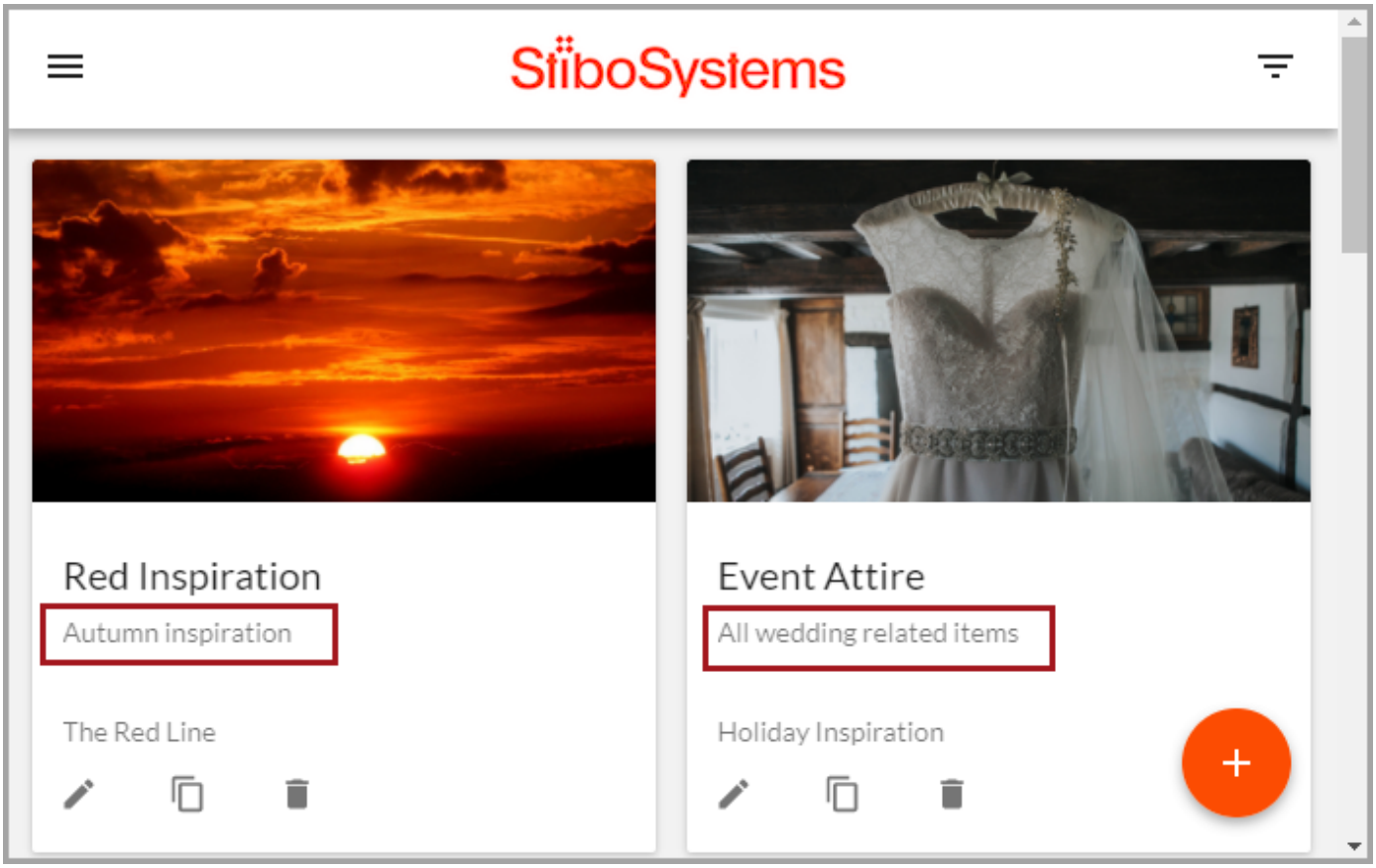
To learn more about business rules, see the **Business Rules** topic in the **Business Rules** documentation.

Setting Up Storyboard Attributes

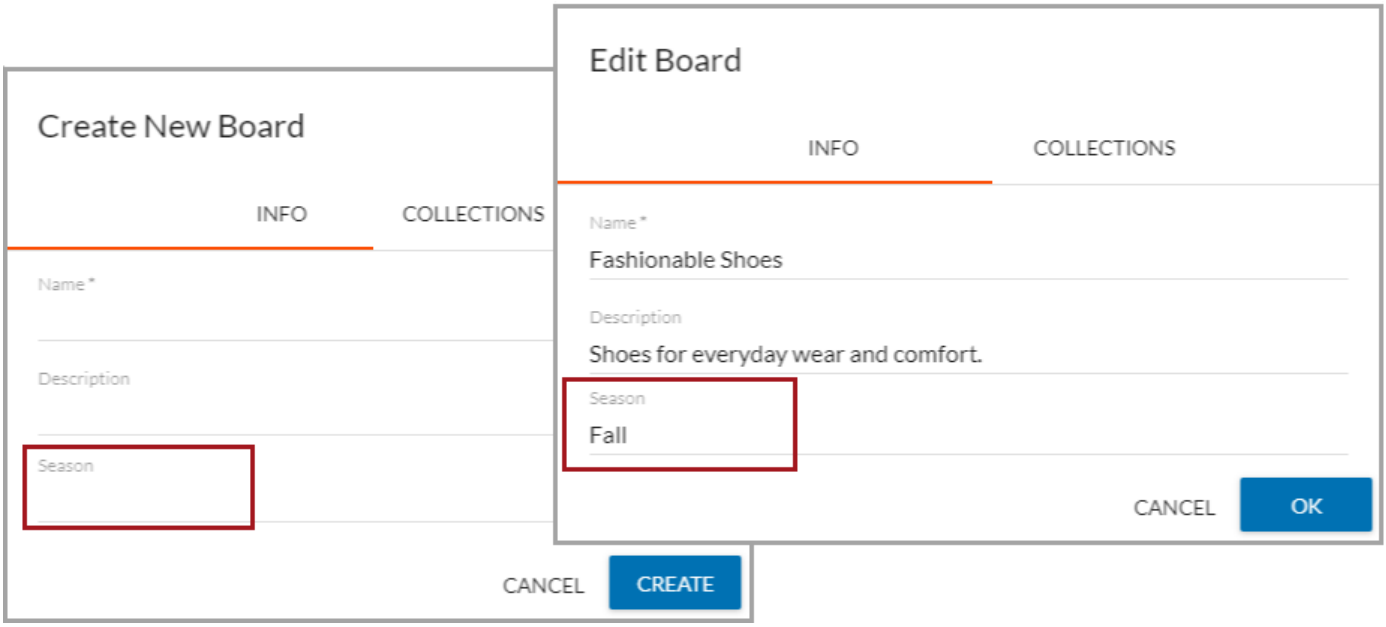
In order for the end user to create data for storyboards, attributes need to be created.

Storyboard Attributes

When creating attributes for storyboards, it is important to keep in mind that the 'Description' attribute is the only attribute that will show on the storyboard when in the board gallery. This attribute ID is used in the uploaded PLM configuration documents, so if the ID needs to be changed, it is important to let the implementation team know; otherwise, this attribute will not work properly.

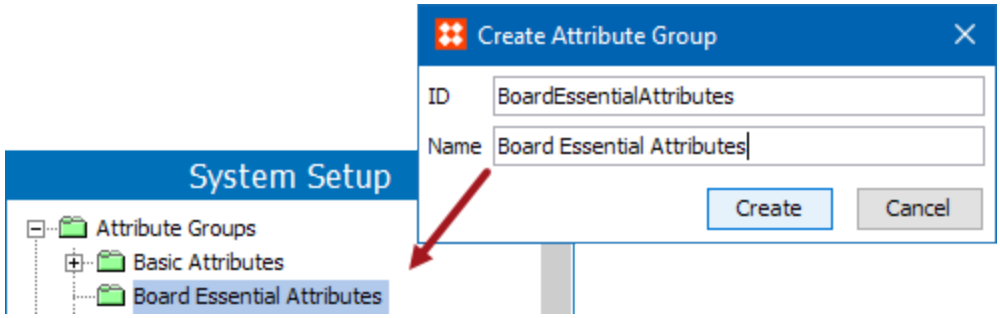


All other attributes for storyboards will only display on the Create New Board or Edit Board dialogs. See below for how to implement Storyboard attributes.

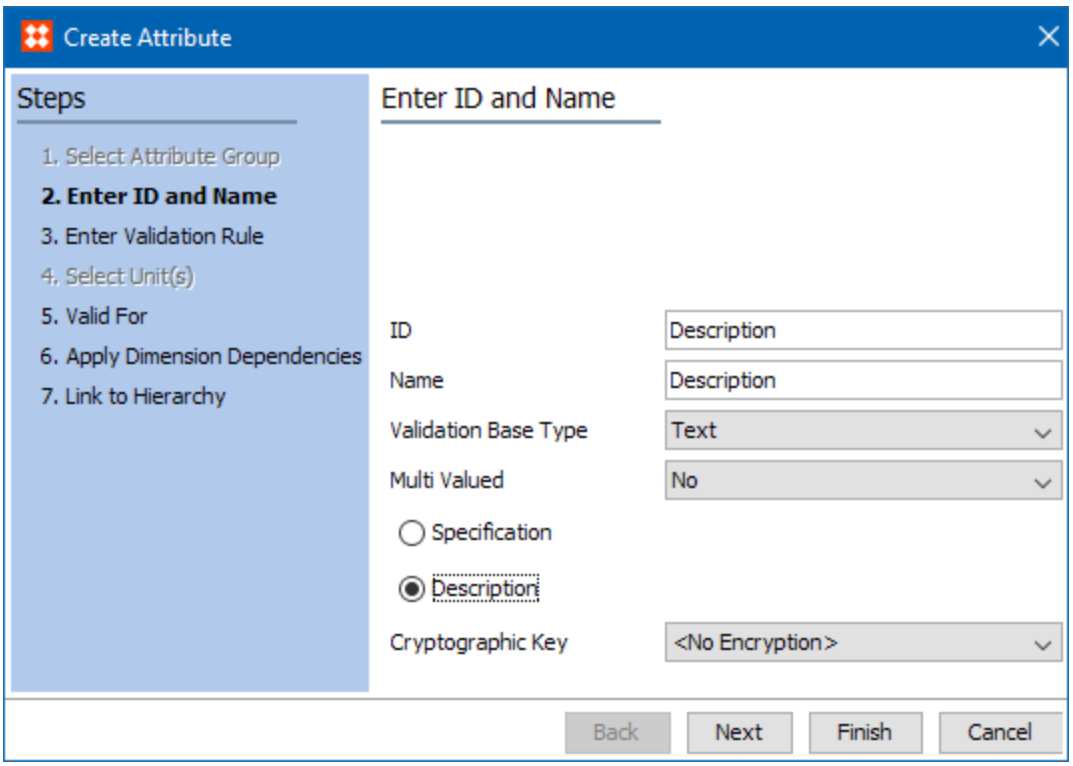


Configuring the Description Attribute

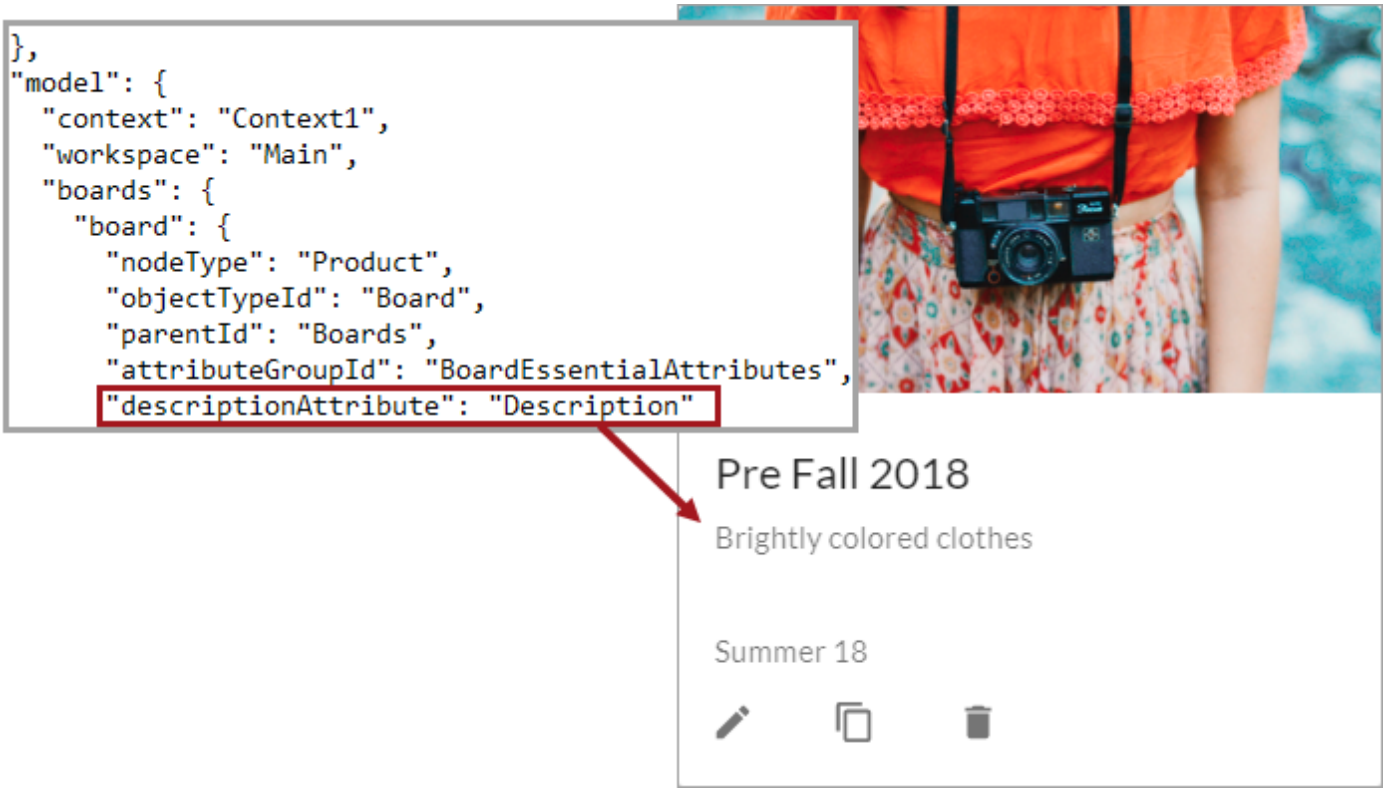
1. In **System Setup**, create a new attribute group to hold all necessary attributes for storyboards called 'Board Essential Attributes.'



2. Next, in the configuration file that is uploaded to STEP, make sure that the correct attribute ID displays in the file under the 'descriptionAttribute' field on the board object. In the example below, the ID 'Description' is used for the 'descriptionAttribute.' It is usually a Text base, Description type attribute that is valid for Boards.



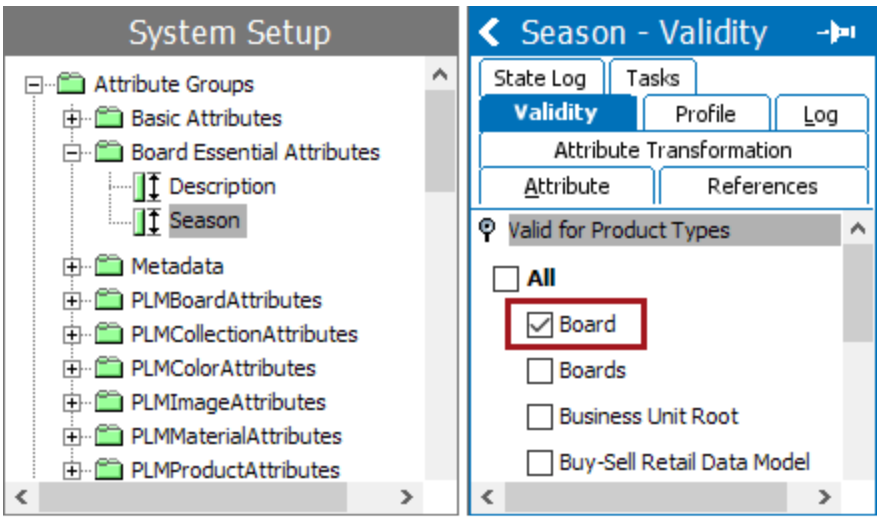
This attribute is the only attribute that displays on the storyboard itself when viewed in the board gallery.

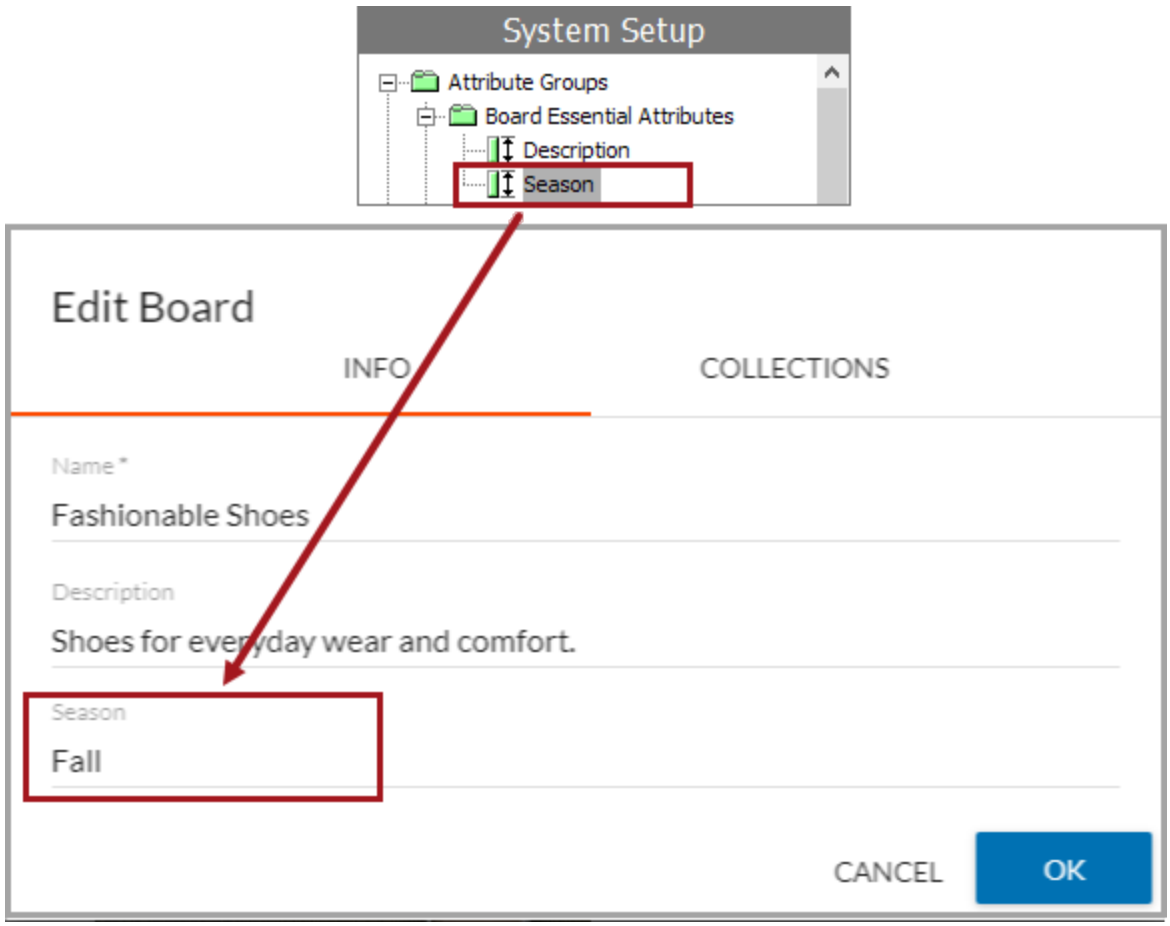


Configuring other storyboard attributes

All other description type attributes that are created and have the 'Board Essential Attributes' folder as their parent will show up on the Create New Board or Edit Board dialog only.

Create any needed description attributes in the 'Board Essential Attributes' folder. Make the attributes valid for the 'Board' object type, and link the attributes to 'Boards'.





For more information on how to create attributes, see the **Attributes** topic in the **System Setup / Super User Guide** documentation.

Creating Tag Attributes

Applying tags to images, materials, trims, colors, and other object types placed on storyboards in PLM is a useful tool to help users organize and find content easier. Each time a user creates a new tag, it is stored in a List of Values (LOV) that is applied to a multi-valued attribute.

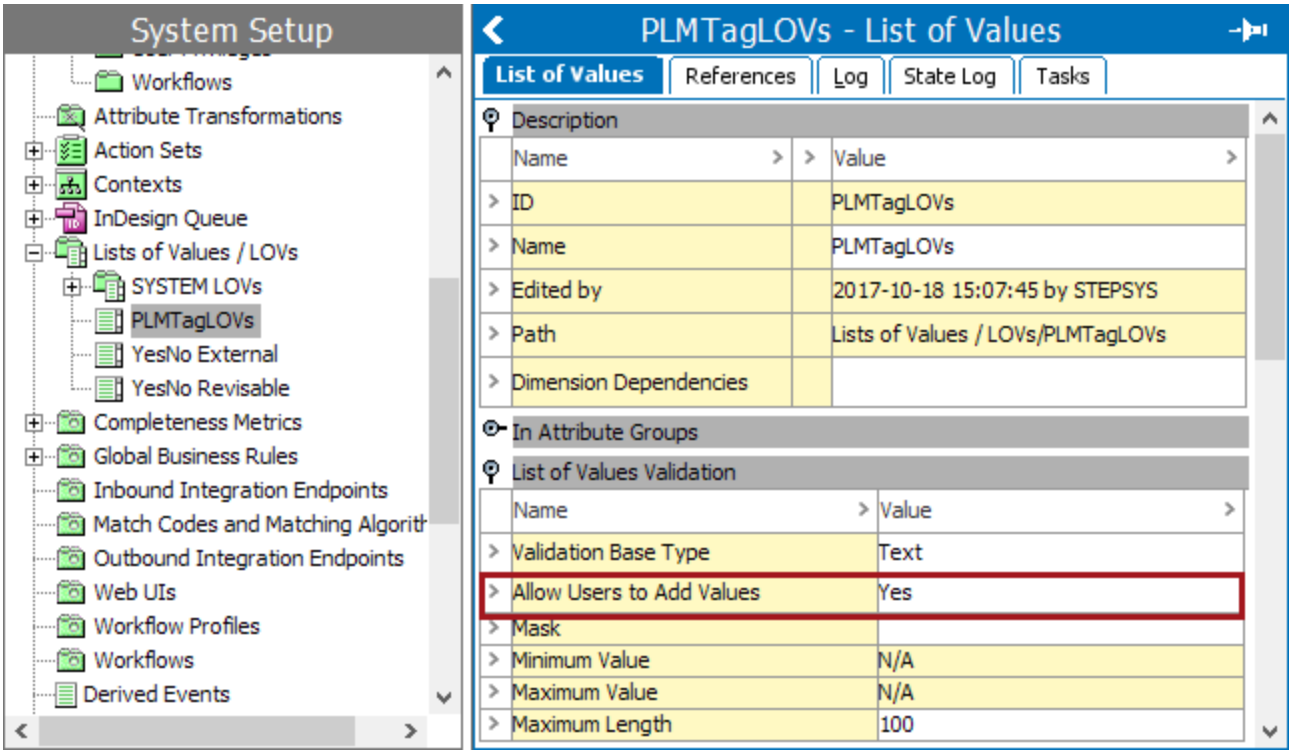
Creating the Tag Multi-Valued Attribute

In order for PLM users to create tags, the proper multi-valued attribute needs to be created first. Follow the steps below to create the attribute.

Creating an LOV for a Tag Attribute

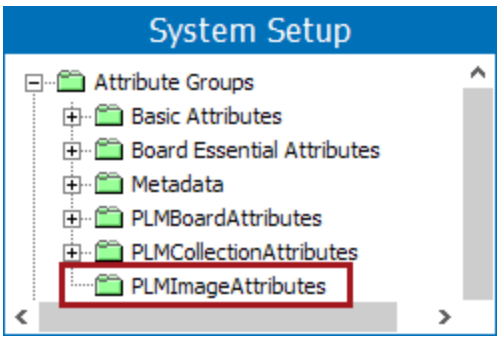
In System Setup (in the appropriate folder set up to house LOVs), create an LOV to hold the tags that users will create when using PLM. The validation base type should be set to 'text' to obtain optimal performance, though it is possible to set the validation base type to the following depending on company needs: number, fraction, number range, numeric text, and numeric text (exclude tags). For more on how to create LOVs, see the **List of Values (LOVs)** topic in the **System Setup / Super User Guide** documentation.

It is important to note that when creating the LOV to hold tags, the value to **Allow Users to Add Values** must be set to '**Yes**.' This allows PLM users to add any needed values or 'tags' to content that might not already exist in the system.

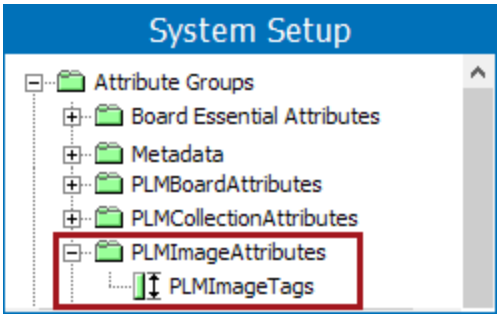


Creating a Tag Attribute

1. Go to System Setup and create an attribute group to hold PLM image attributes.



2. In this attribute group, create a multi-valued attribute. See the **Single and Multi-Valued Attributes** topic in the **Attributes** section of the **System Setup / Super User Guide** documentation to learn more on how to create a multi-valued attribute. In this example it is PLMImageTags.



3. When prompted to select an LOV, select the LOV created to hold tags in PLM (created in the previous section). Make it valid for the following object types:

Prodcut Types

- PLMFabricMaterial
- PLMLabelMaterial
- PLMPackagingMaterial
- PLMShippingMaterial
- PLMTrimMaterial

Asset Types

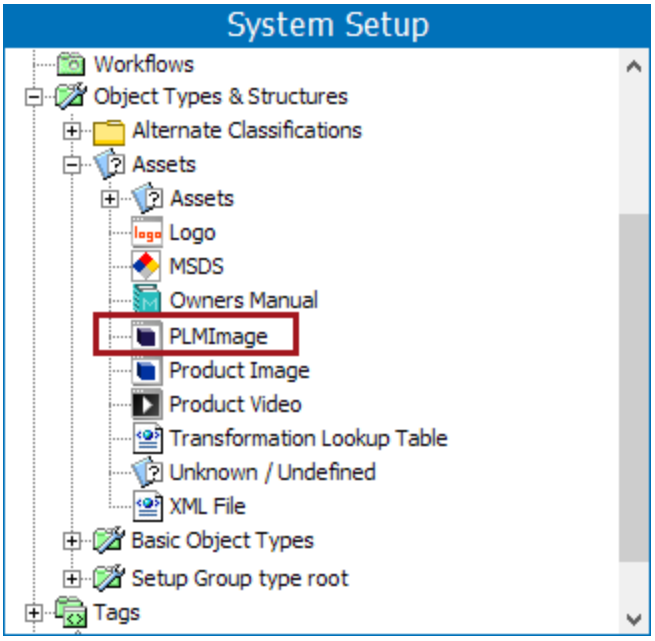
- PLMColorImageAsset

Creating Storyboard Assets

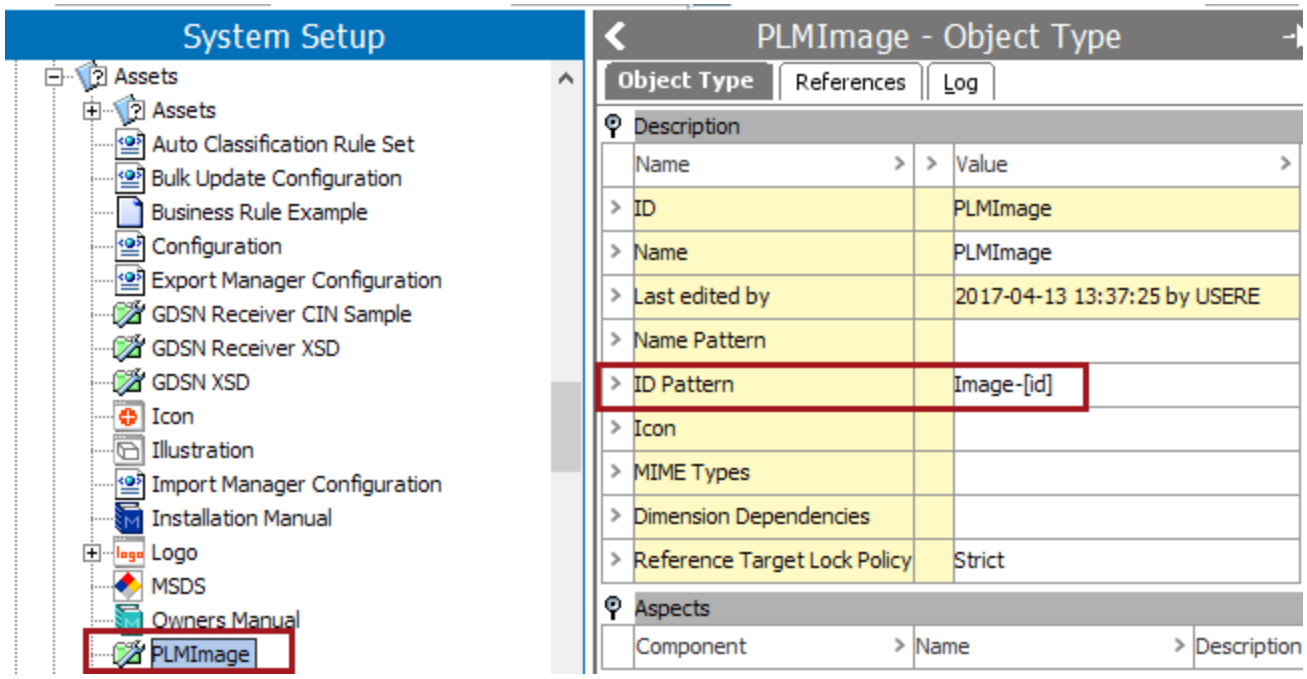
In order for users to import images and colors, assets need to be set up in STEP. All of the setup described in this topic is done in the STEP Workbench.

The following asset object type will need to be created:

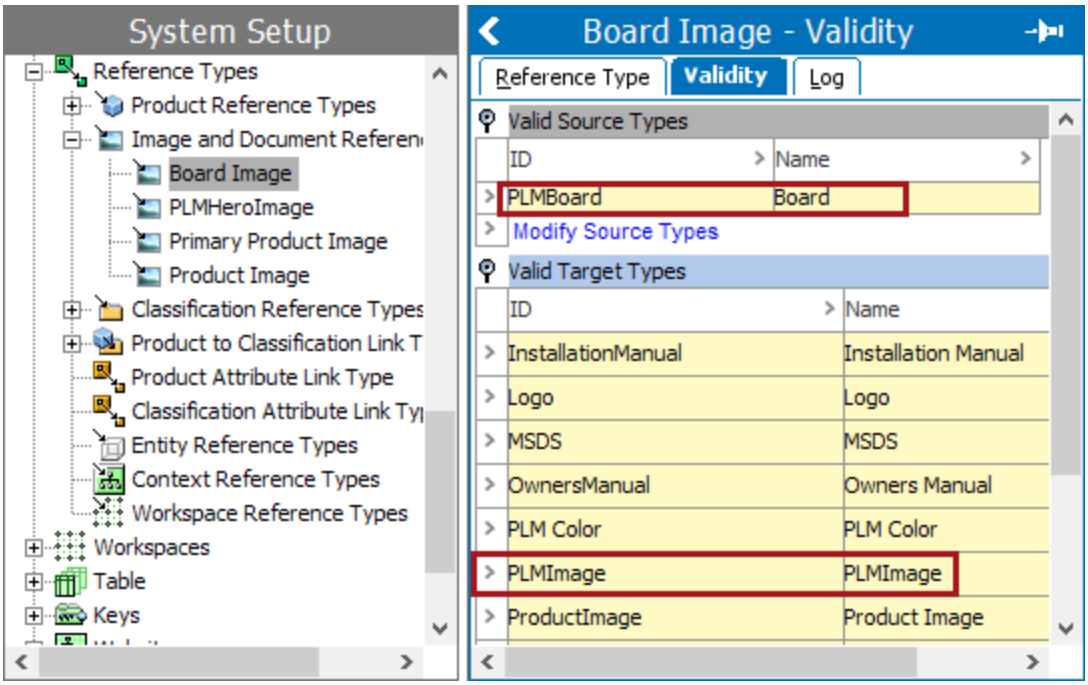
- PLMImage



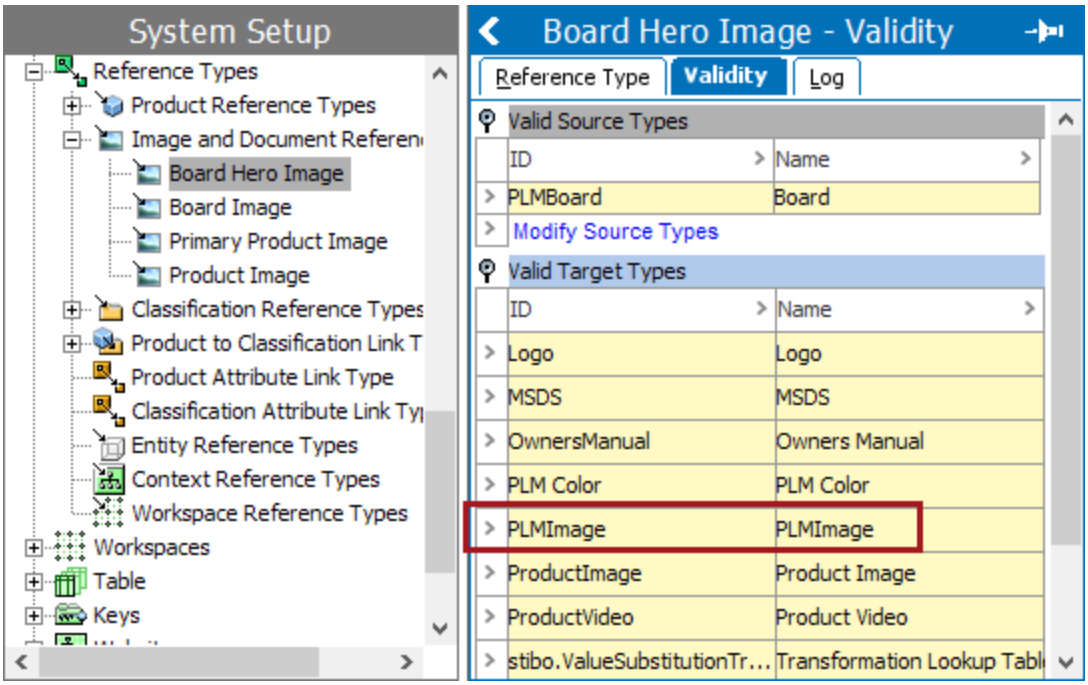
1. In System Setup, go to Object Types and & Structures >Assets > create a new asset object type with **PLMImage** as the ID. Set the ID Pattern field to have the following auto generated ID: **Image-[id]**.



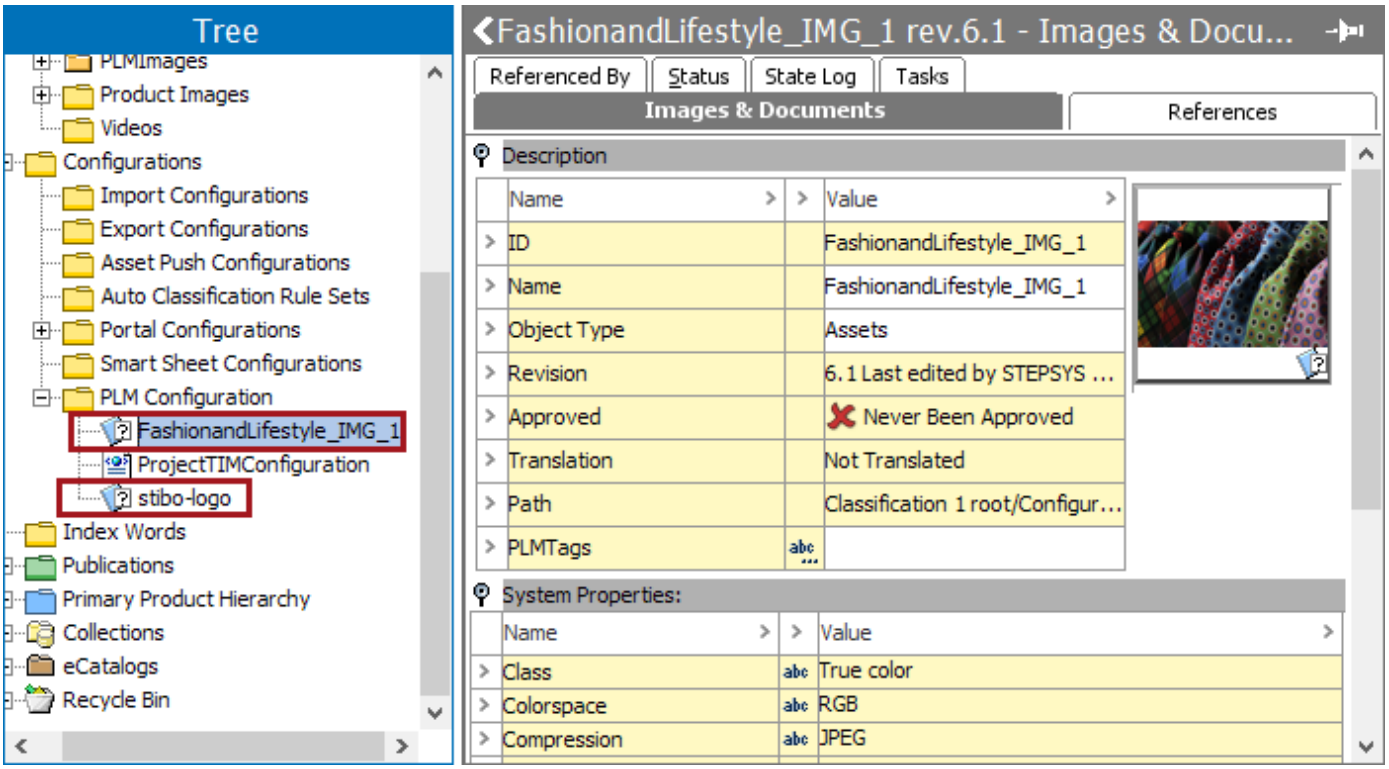
2. Next, go to System Setup > Reference Types > Images and Document Reference Types > create a new reference called **PLMBoardImage**. Ensure that **Board** is a valid source type of this reference. **PLMImage** and all other asset object types should be valid targets.



3. Also under Image and Document Reference Types, create a new asset cross reference with the ID **PLMHeroImage**. Ensure that **Board** is a valid source type of this reference. **PLMImage** and all other asset object types should be valid targets.



4. Upload the PLM Configuration asset content. Once complete, setup for using assets on storyboards is finished.



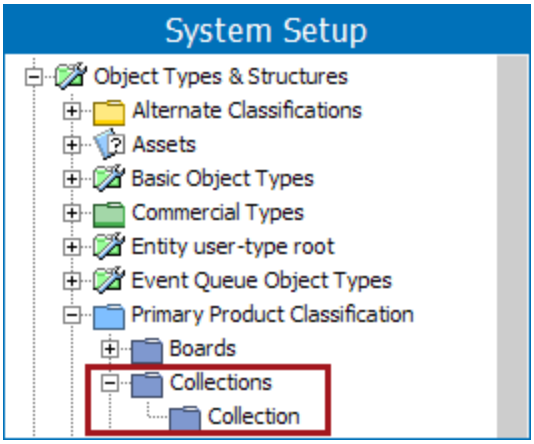
Note: Talk to your implementation team for the PLM Configuration asset content file if you do not already have it on your system.

Creating Storyboard Collection Filters

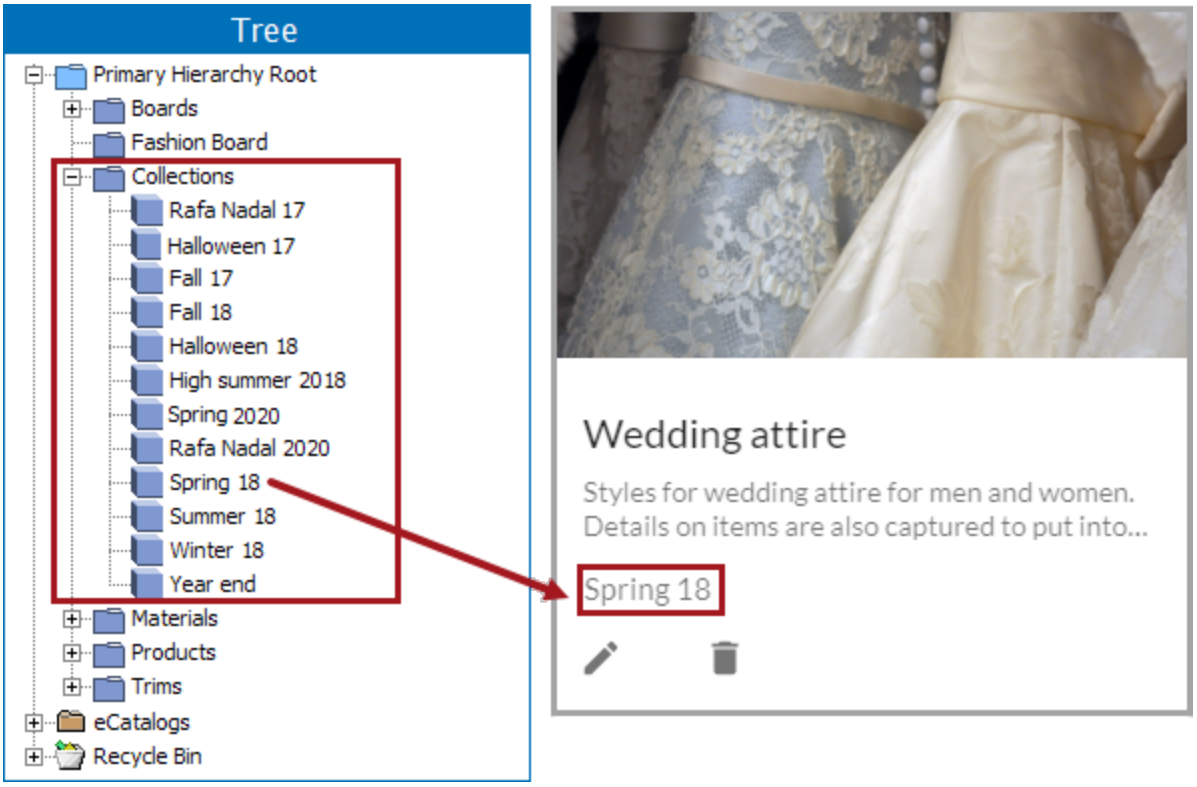
When working with boards in PLM, users can add and filter applied collections to help them find certain storyboards. Collection labels are created on the administration STEP Workbench side ONLY, and are accessed by the user on PLM via the provided web address.

To create collection labels for users:

1. In **System Setup**, go to Object Types & Structures > Primary Product Classifications > create the object type **Collections** with a child called **Collection**.



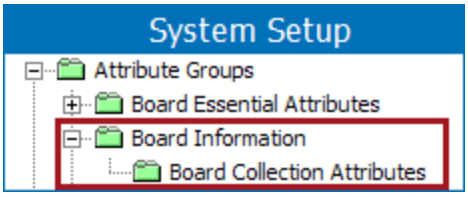
2. Go to **Tree** > Primary Hierarchy Root > add the **Collections** folder and create any needed 'collection children' under this parent folder. The names of these collection children are what will appear on the storyboards in the board gallery on PLM.



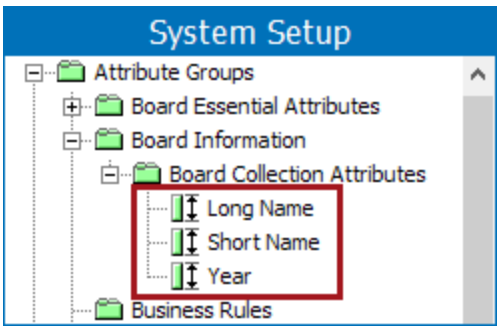
Option to Use Concatenated Attribute Values as Collection Filters

It is sometimes necessary to concatenate attribute values to create new collection filter options. If this is the case, follow the steps below:

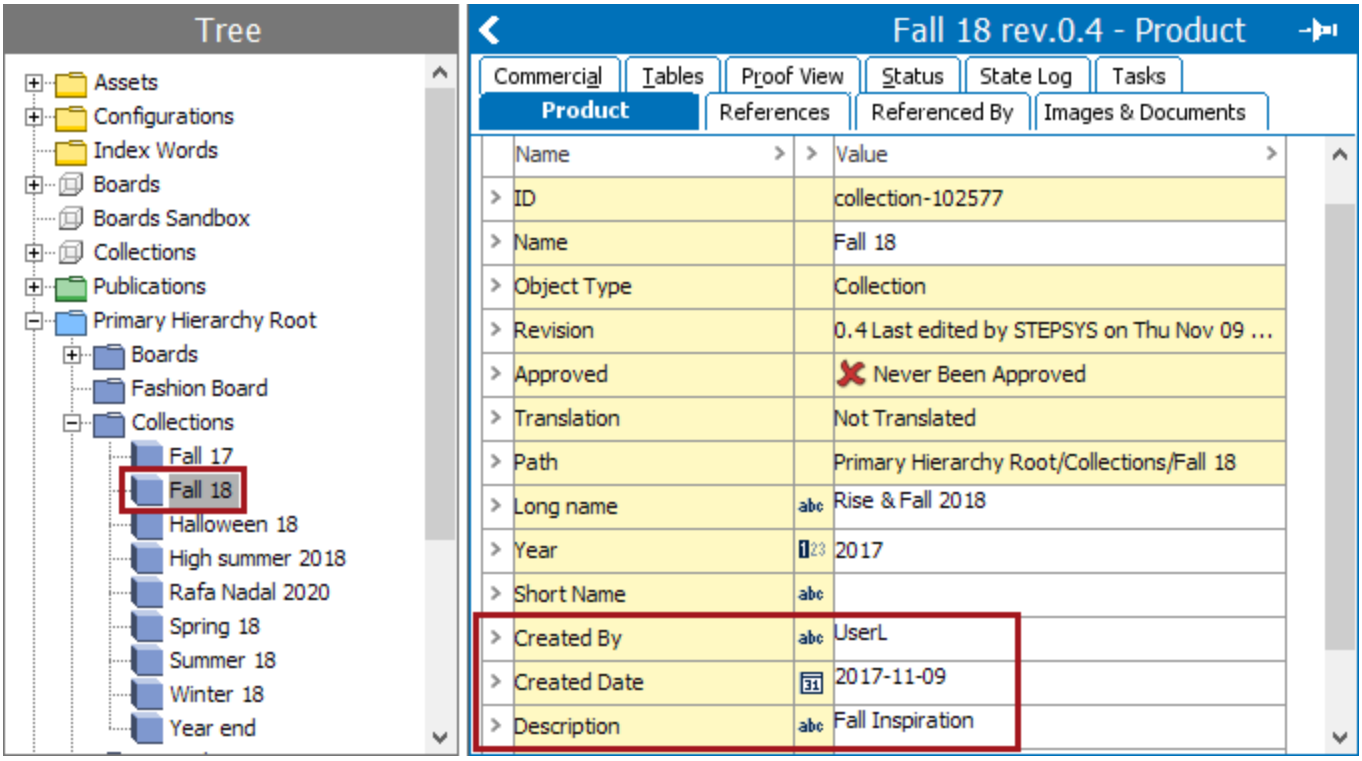
1. Go to System Setup > Attribute Groups > and create two folders. One with the ID **PLMBoardInformation** with the name of **Board Information**, and a child folder with the ID **PLMBoardCollectionAttributes** with the name of **Board Collection Attributes**.



2. In the child folder, **PLMBoardCollectionAttributes**, create any needed collection attributes. These need to be created as description attributes, and they need to be made valid for **Board Collections** and **Board Collection** object types. See the **Attributes** topic in the **System Setup / Super User Guide** documentation for more information on how to create attributes and make them valid for certain object types.



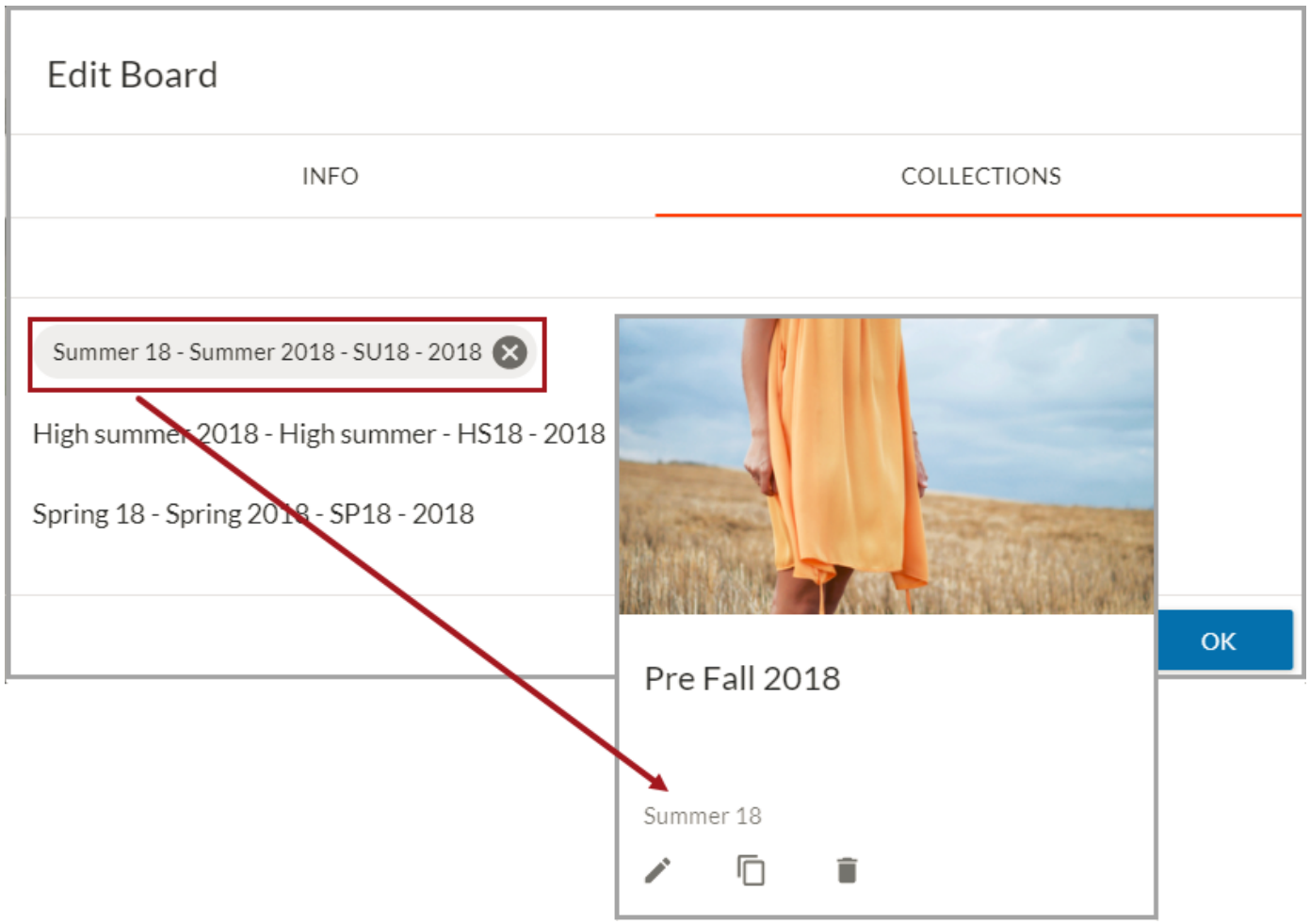
3. After the attributes are applied to the collection object type, fill in any data needed in the value fields.



4. The values for the attributes in the PLMCollection List Attributes folder are then concatenated in the PLM configuration file.

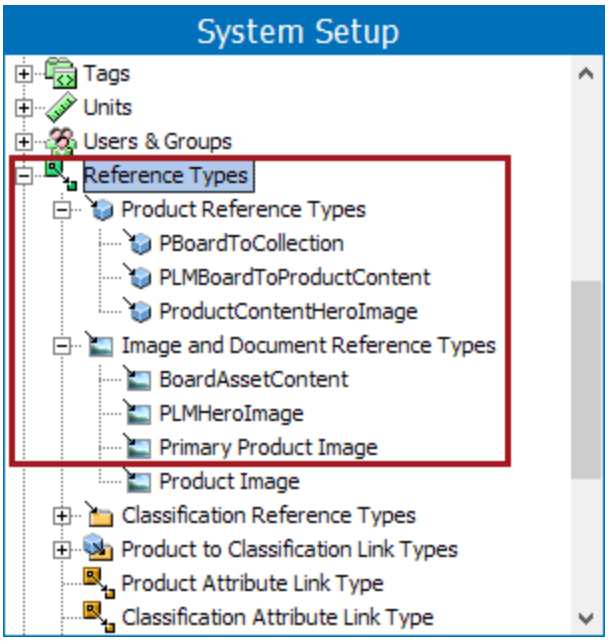
Note: Talk to your implementation team for the order that you need the attribute concatenation to take place.

5. Once concatenated in the PLM configuration file, when a user goes to apply a collection to a storyboard, they only see the full concatenated value when creating or editing a storyboard. When selected, only the collection name appears on the storyboard in the board gallery.


Edit Board
INFO
COLLECTIONS
Summer 18 - Summer 2018 - SU18 - 2018
High summer 2018 - High summer - HS18 - 2018
Spring 18 - Spring 2018 - SP18 - 2018
OK
Pre Fall 2018
Summer 18

PLM Reference Types

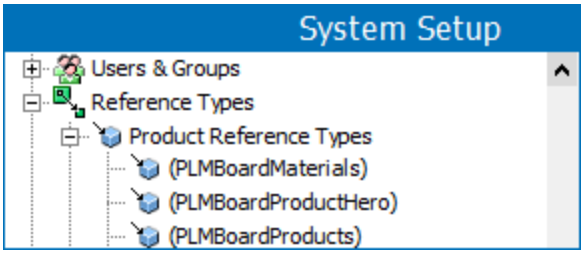
Reference types allow content to appear on storyboards. As part of the setup for PLM, certain **Product Reference Types** and **Image and Document Reference Types** need to be setup to allow PLM to operate correctly for end users.



Below, the necessary reference types are listed:

Product Reference Types

The following product reference types are needed for PLM to function properly. All product reference types listed in this section should have the Board object type as the valid source type. The valid target types are listed within each bullet.



- **PLMBoardMaterials:** PLMColor, PLMOperation, PLMFabricMaterial, PLMLabelMaterial, PLMPackageingMaterial, PLMShippingMaterial, PLMTrimMaterial
- **PLMBoardProductHero:** PLMDesignerSpecification, PLMFabricMaterial, PLMLabelMaterial, PLMPackageingMaterial, PLMShippingMaterial, PLMTrimMaterial
- **PLMBoardProducts:** PLMDesignerSpecification, PLMFabricMaterial, PLMLabelMaterial, PLMPackageingMaterial, PLMShippingMaterial, PLMTrimMaterial

Image and Document Reference Types

The following Image and Document Reference Types are needed for PLM to function properly. Any valid source or valid target types needed are listed below within each bullet.

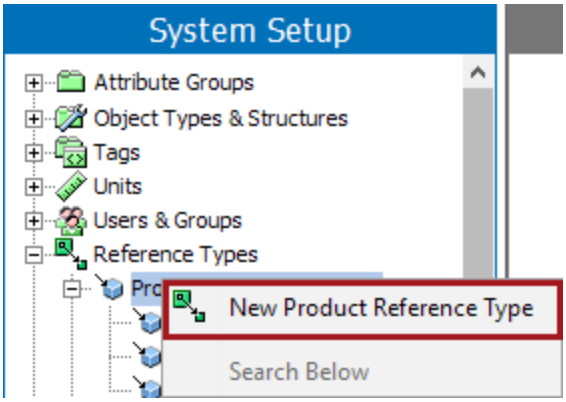
- **BoardAssetContent**: Board object type should be a valid source type; PLMImage object type should be a valid target type.
- **PLMHeroImage**: Board object type should be a valid source type; PLMImage object type should be a valid target type.
- **Primary Product Image**: PLMMaterial, PLMProduct, and PLMTrim object types should be valid source types; ProductImage should be a valid target type.

Note: The names of all mentioned reference types can be changed as long as they are also updated in the configuration documents. Notify your implementation team of any changes.

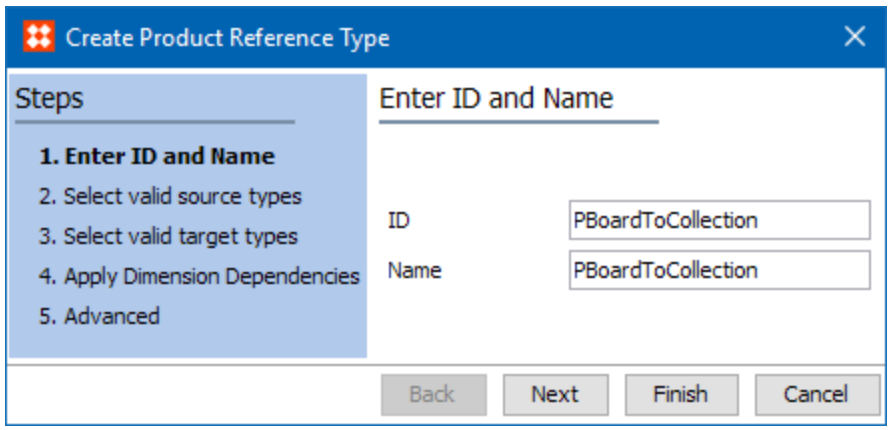
Creating a Reference Type

To create these needed reference types, follow the steps outlined below. Note that in this example, a Product Reference Type is used, though the steps are the same for creating all new reference types. To learn more about different reference types, see the **Reference and Link Types** topic in the **System Setup / Super User Guide** documentation.

1. Go to System Setup > Reference Types > Product Reference Types > right-click and select **New Product Reference Type**.



2. Continue to work through the 'Create Product Reference Type' wizard, entering in the necessary ID, Name, valid source types, and valid target types. Select **Finish** when complete.


Create Product Reference Type
Steps
1. Enter ID and Name
2. Select valid source types
3. Select valid target types
4. Apply Dimension Dependencies
5. Advanced
Enter ID and Name
ID
PBoardToCollection
Name
PBoardToCollection
Back
Next
Finish
Cancel

Multi-Reference Editor in PLM

The Multi-Reference Editor in Web UI has two actions unique to PLM:

- PLM Create References Action
- PLM Edit Reference Action

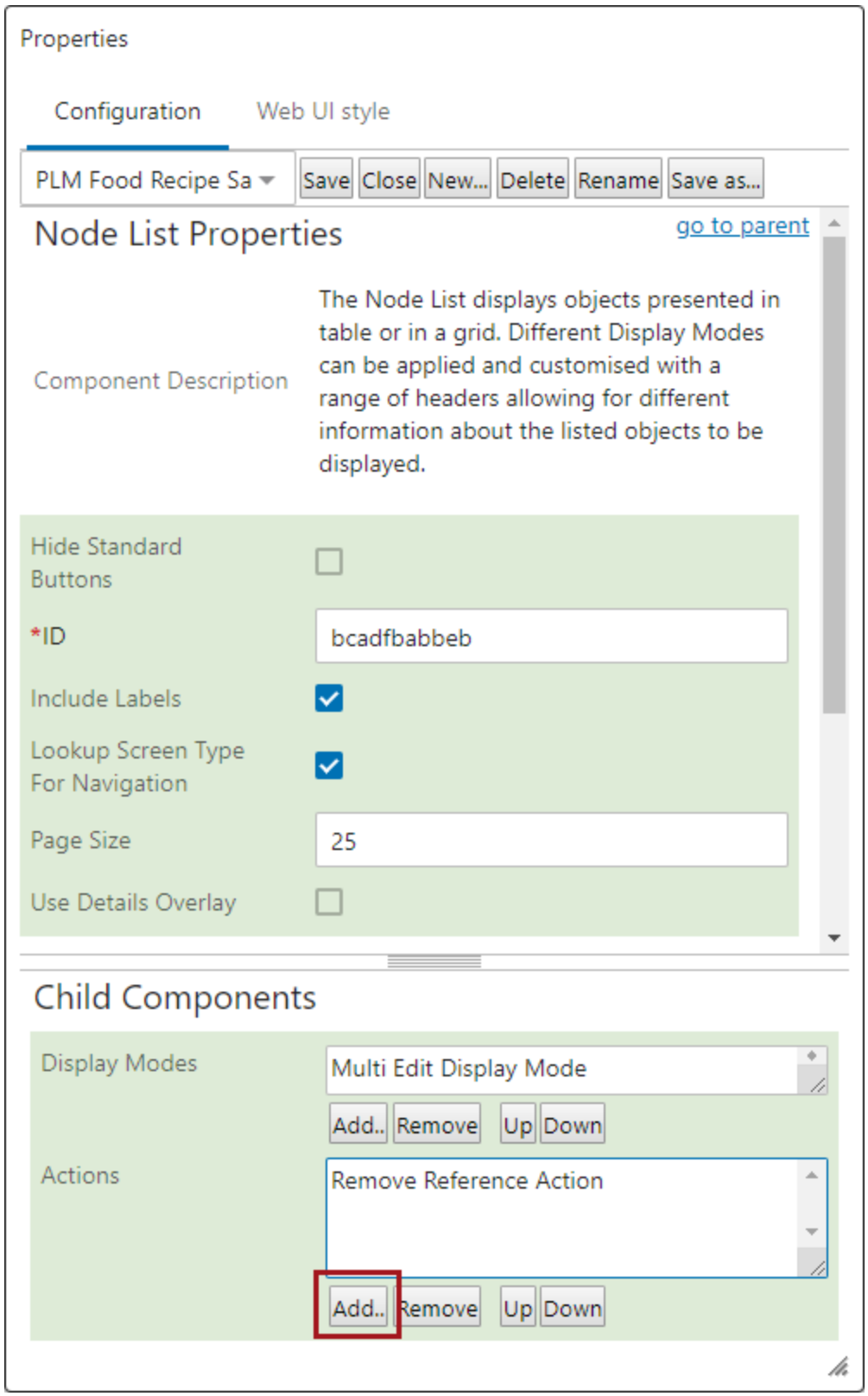
This topic will focus on configuring these actions within a pre-configured Multi-Reference editor.

Prerequisites

This topic assumes that the user has the necessary permissions to access the designer as well as familiarity with the Web UI designer. For more information on the designer, see the **Design Access** topic in the **Web User Interfaces / Web UI Getting Started** documentation. As mentioned, this topic will add actions to an existing Multi-Reference editor. For more information, see the **Multi-Reference Editor** topic in the **Web User Interfaces / Web UI Getting Started** documentation. Finally, this topic also assumes that the user has configured a Reference Metadata Flex Value Header component. see the **Reference Metadata Flex Value Header Component** topic in this documentation.

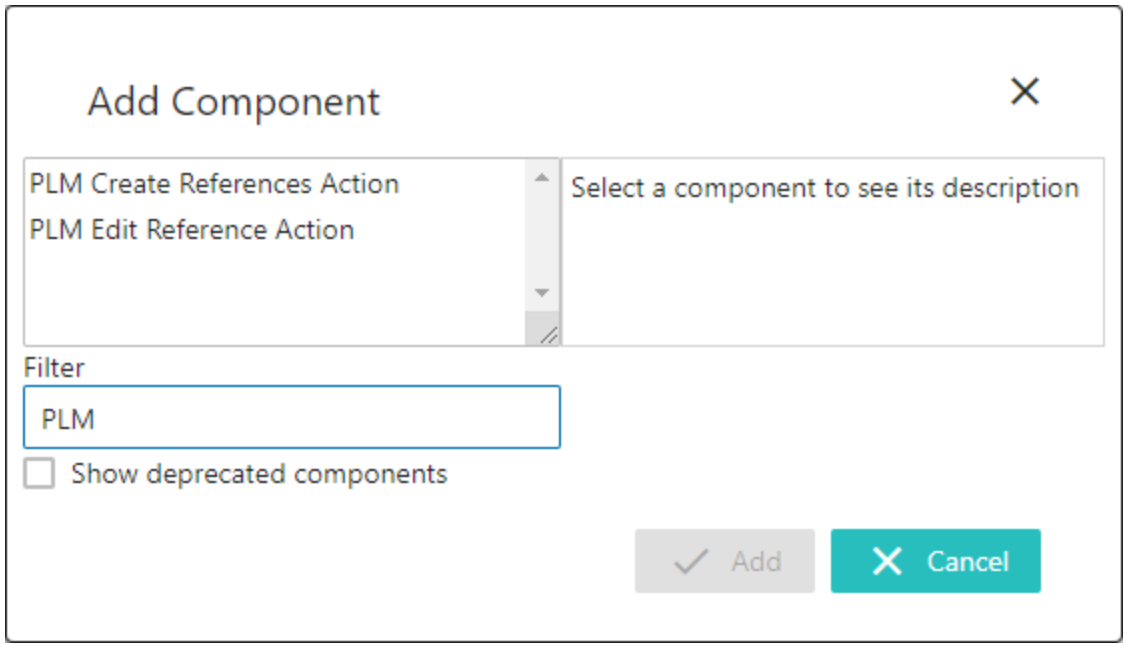
Configurations

1. In Web UI Designer, from a screen containing a Multi-Reference Editor, navigate to a node list screen > child components > Actions. Click **Add**.



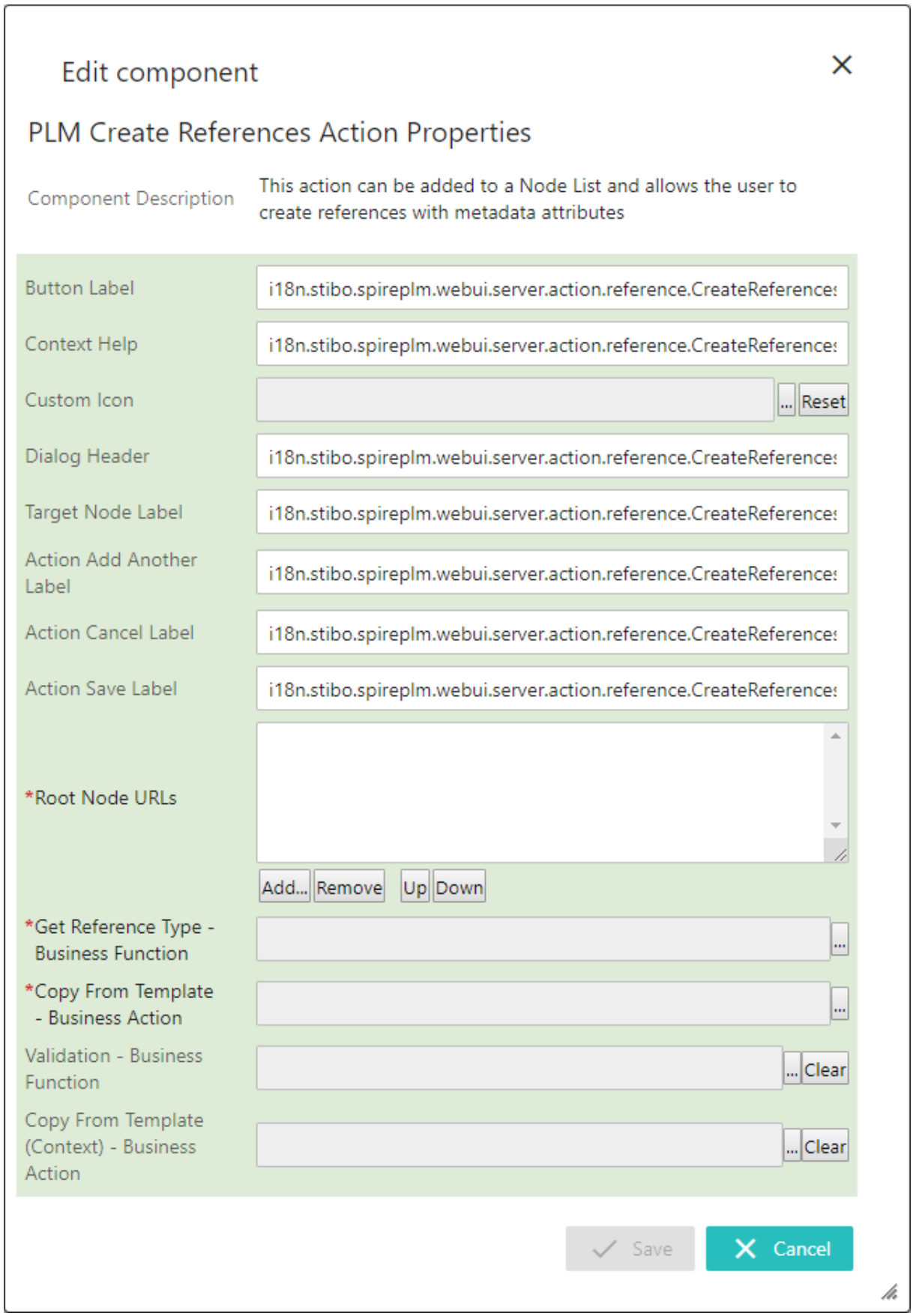
2. From the 'Add Component' dialog, type 'PLM' into the Filter field below the Action box. Either select **PLM Create References Action** or **PLM Edit Reference Action**, and click Add to configure further. See below

for details.



PLM Create References Action

The 'PLM Create References Action' allows users to configure a button that adds references to an object when used with the Multi-Reference Editor. This action can be configured to specify business rules for consistent creation, object nodes to restrict applicable references, and validation methods to ensure that the created reference is allowed.


Edit component
PLM Create References Action Properties
Component Description
This action can be added to a Node List and allows the user to create references with metadata attributes
Button Label
i18n.stibo.spireplm.webui.server.action.reference.CreateReference
Context Help
i18n.stibo.spireplm.webui.server.action.reference.CreateReference
Custom Icon
...
Reset
Dialog Header
i18n.stibo.spireplm.webui.server.action.reference.CreateReference
Target Node Label
i18n.stibo.spireplm.webui.server.action.reference.CreateReference
Action Add Another Label
i18n.stibo.spireplm.webui.server.action.reference.CreateReference
Action Cancel Label
i18n.stibo.spireplm.webui.server.action.reference.CreateReference
Action Save Label
i18n.stibo.spireplm.webui.server.action.reference.CreateReference
*Root Node URLs
Add...
Remove
Up
Down
*Get Reference Type - Business Function
*Copy From Template - Business Action
Validation - Business Function
Clear
Copy From Template (Context) - Business Action
Clear
Save
Cancel

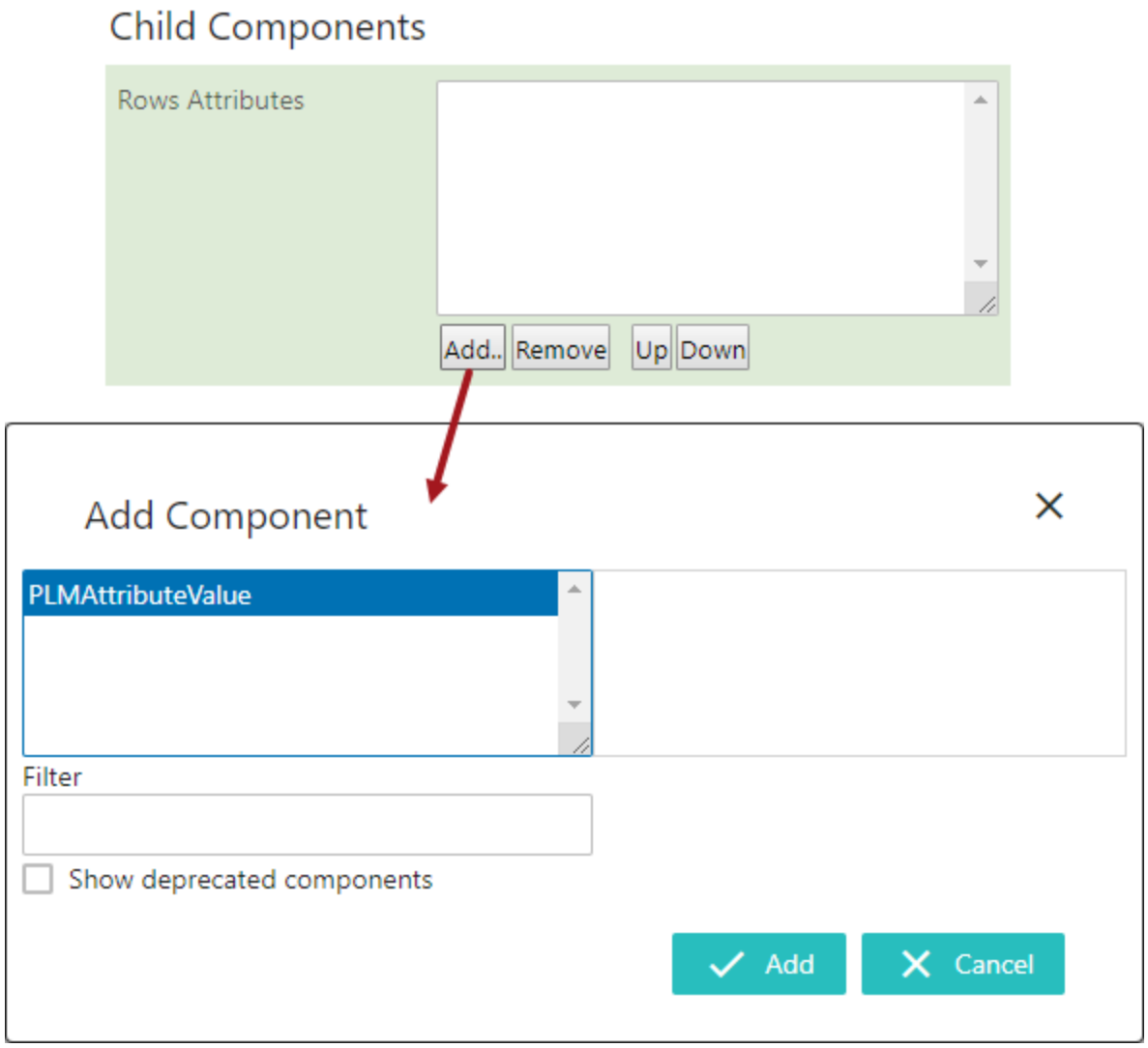
Note: While most fields are optional, the 'Root Node URLs' field, the 'Get Reference Type - Business Function' field, and the 'Copy from Template - Business Action' field are required.

1. Fill out the necessary fields:
   - **Button Label**: This field sets the displaying name for the action button. This field only works if the 'Include Label' parameter on the parent Node List is selected.
   - **Context Help**: This field provides a description when the user hovers over the action button to assist users in the their tasks.
   - **Custom Icon**: This allows users to select an icon to represent the action.
   - **Dialog Header**: When the action is selected, this field will be populated as the title of the dialog that displays.
   - **Target Node Label**: This field will is the one displayed as the title for the target node.
   - **Action Add Another Label**: This field changes the label of the 'create another' button on the dialog that appears for this action. The default label is 'Add Another.'
   - **Action Cancel Label**: This field changes the label of the cancel button on the dialog that appears for this action. The default label is 'Cancel.'
   - **Action Save Label**: This field changes the label of the save button on the dialog that appears for this action. The default label is 'Save.'
   - **Root Node URLS**: This field will establish from where the user may select the targets of the created references. This field is required.
   - **Get Reference Type - Business Function**: This field sets which business function is used when getting the reference type ID. This is a required field.
   - **Copy From Template - Business Action**: This field sets the business action that is used for copying the defaults to be displayed in the dialog box. This is a required field.
   - **Validation - Business Function**: This field sets the business function that validates the data for the reference.
   - **Copy From Template (Context) - Business Action**: This field sets the business action that is executed for copying default values from other contexts.

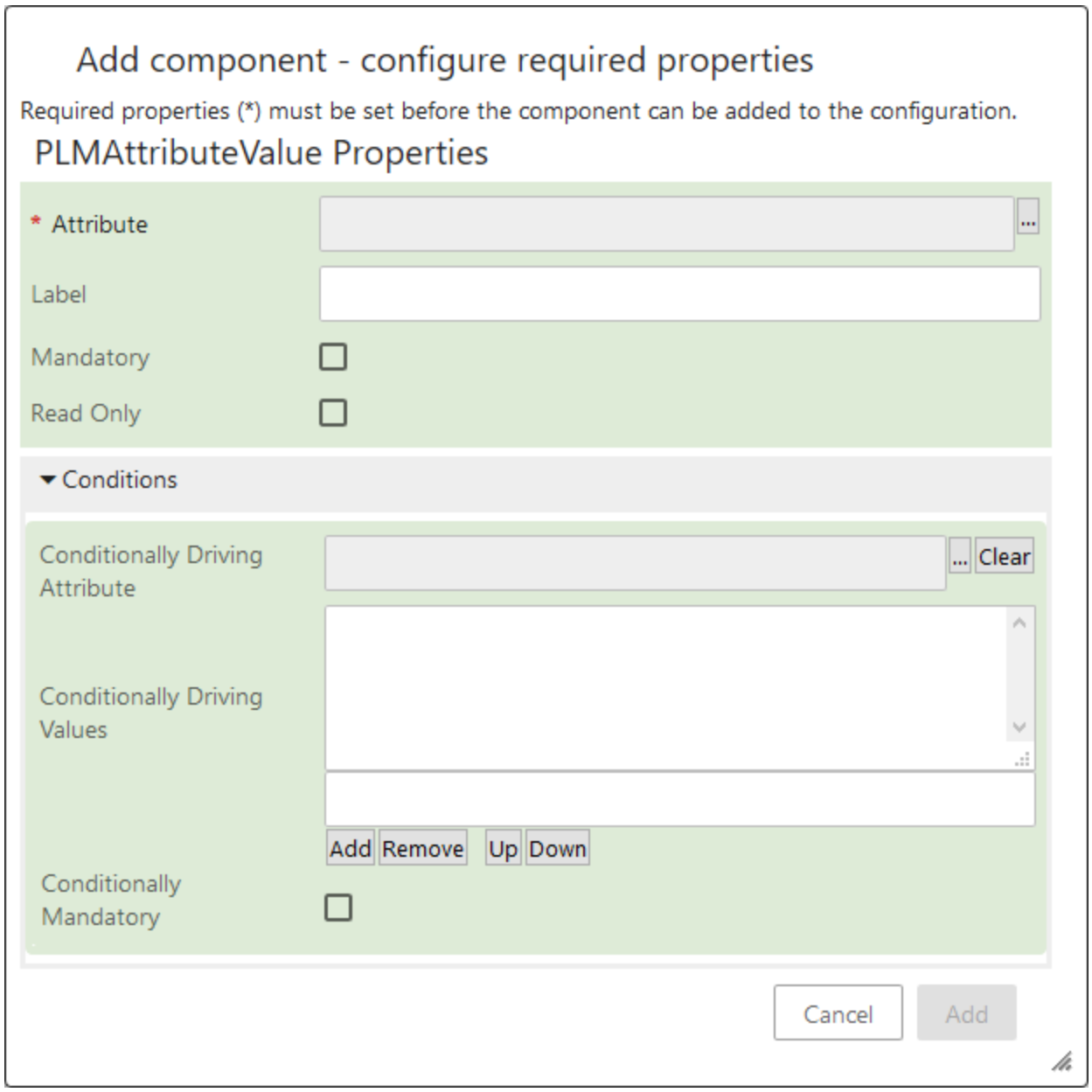
In this example, the action was titled as 'Add Parameter.' The completed configured Create Reference action looks like the following:

Button Label	Add Parameter
Context Help	Add Parameter
Custom Icon	... Reset
Dialog Header	Add Parameter
Target Node Label	Parameter
Action Add Another Label	i18n.stibo.spireplm.webui.server.action.reference.CreateReferences/
Action Cancel Label	i18n.stibo.spireplm.webui.server.action.reference.CreateReferences/
Action Save Label	i18n.stibo.spireplm.webui.server.action.reference.CreateReferences/
*Root Node URLs	step://product?id=PLMParametersRoot Add... Remove Up Down
*Get Reference Type - Business Function	PLMGetRequirementParameterReferenceType ... **Caller parameters:** **Function input parameters:** Target: target Source: source
*Copy From Template - Business Action	PLMFoodCopyRequirementParameterTemplate ... PLMFoodValidation ... Clear
Validation - Business Function	**Caller parameters:** **Function input parameters:** Target: target Source: source
Copy From Template (Context) - Business Action	PLMFoodCopyRequirementParameterTemplate ... Clear

2. Once created, under Child Components in the Rows Attributes field select 'Add.' The only option is 'PLMAttributeValue.'



3. Select 'Add,' and the PLMAttributeValue Properties dialog will display.



- **Attribute**: Select the desired attribute type to be answered.
- **Label:** Sets the display name for the attribute.
- **Mandatory**: If selected, this make the field required to fill out before a user can submit their answers.
- **Read Only**: If selected, this means that the field cannot be edited.
- **Conditionally Driving Attribute**: If an attribute is selected for this field it will only display if the attribute that was selected for the Attribute field is answered in a certain way that is determined by the Conditional Attribute Value field.
- **Conditionally Driving Values**:The values of the Conditionally Driving Attribute that trigger the current attribute to be displayed.

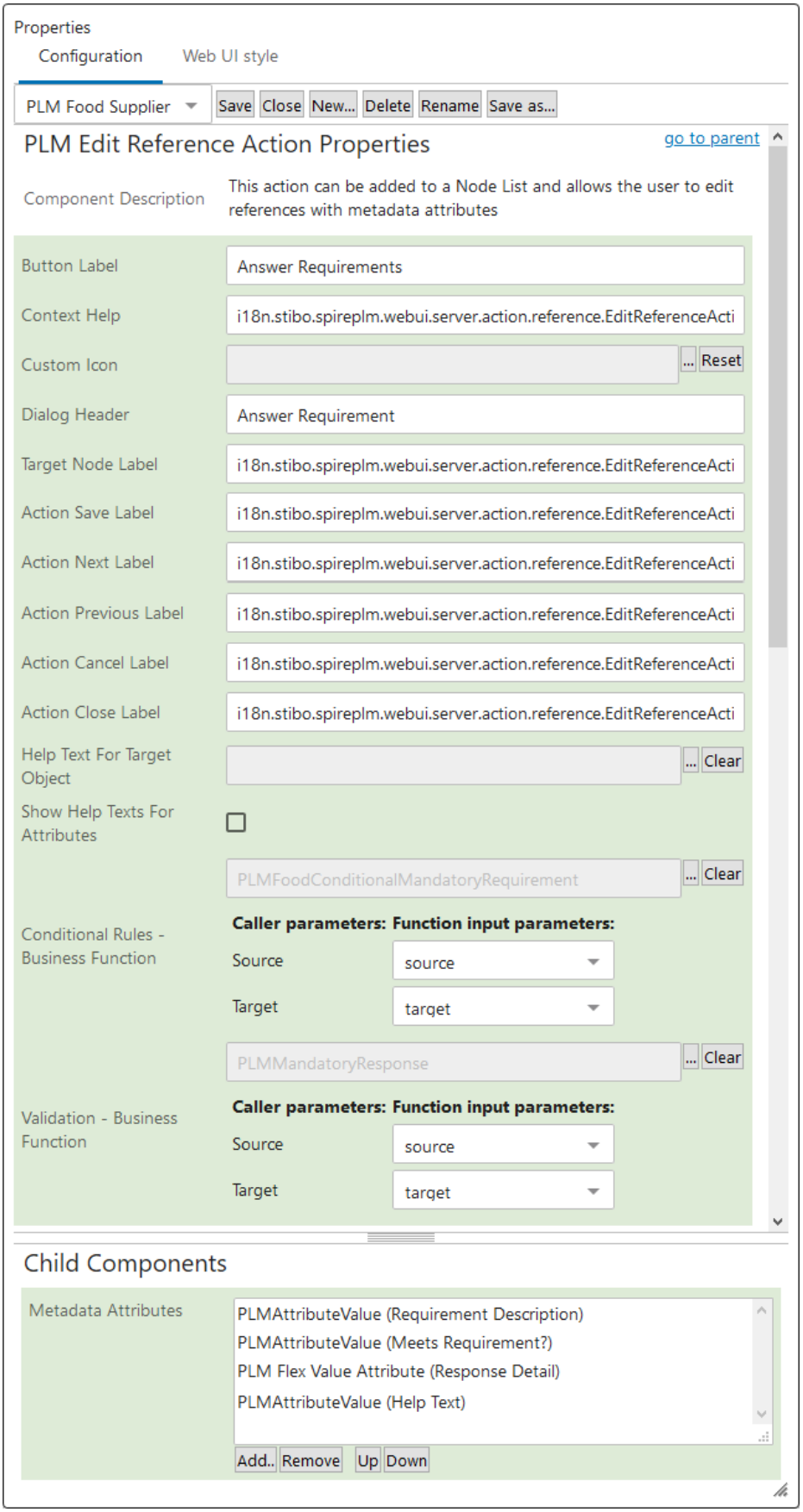
- **Conditionally Mandatory**: If checked, if the attribute that was selected for the Attribute field is answered in a certain way that is determined by the Conditional Attribute Value field, then the attribute set for the Conditional Attribute field will display and must hold a value before the dialog can be submitted.

Once configured as needed, the button will be ready for adding new references. For more on how to use the PLM Create References Action, see the **Multi-Reference Editor Actions in Web UI** topic in this documentation.

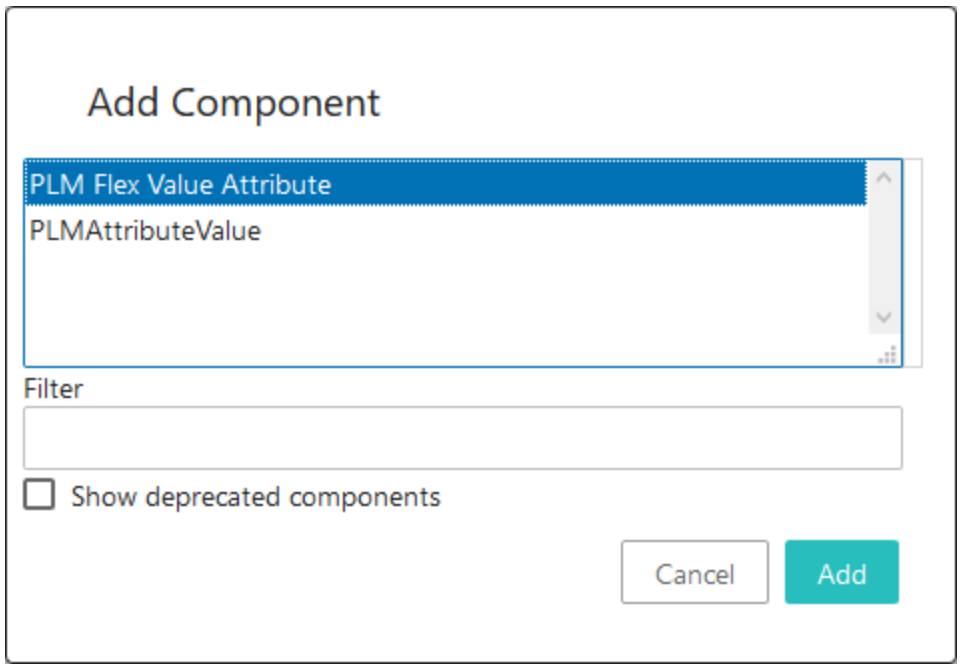
For more information on how to use the Conditional settings, see the **Setting Conditional Settings in a MRE** topic in this documentation.

PLM Edit Reference Action

The 'PLM Edit Reference Action' allows users to configure metadata to append to the dialog menu, limiting what values on an object's references may be modified.

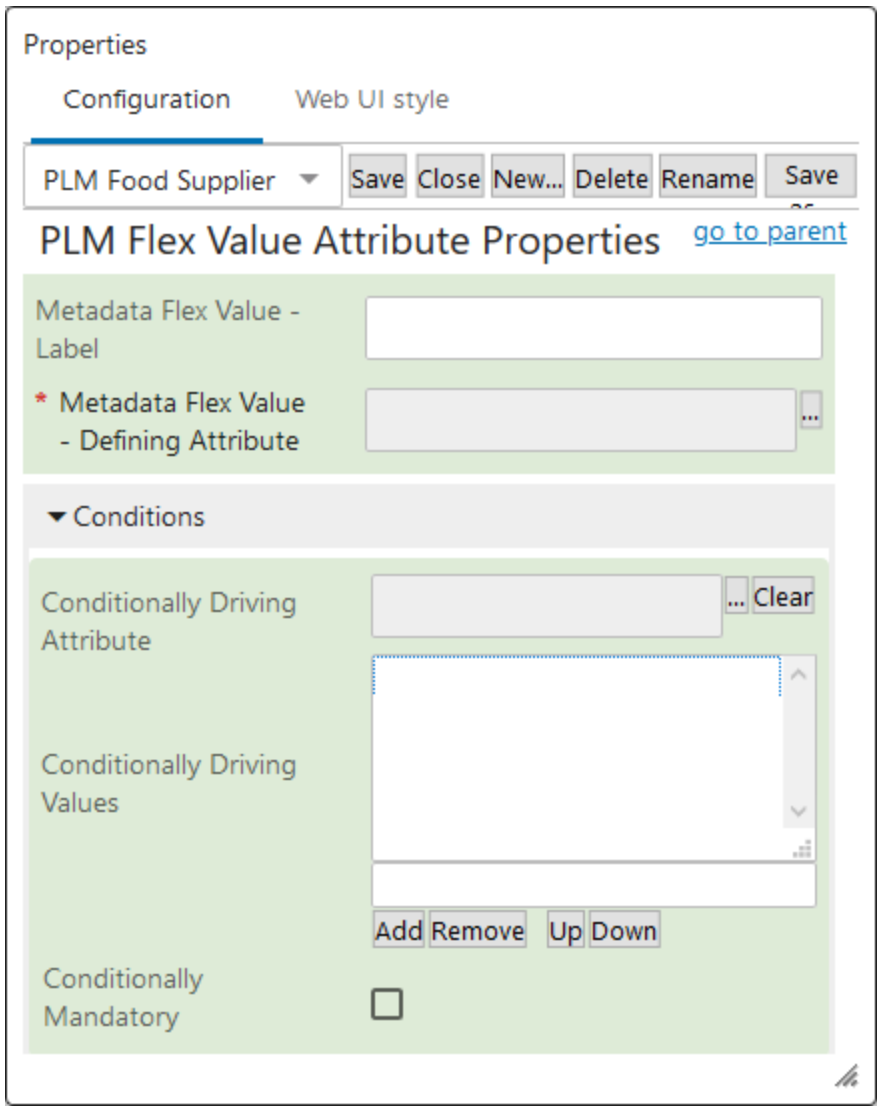

Properties
Configuration
Web UI style
PLM Food Supplier
Save
Close
New...
Delete
Rename
Save as...
PLM Edit Reference Action Properties
go to parent
Component Description
This action can be added to a Node List and allows the user to edit references with metadata attributes
Button Label
Answer Requirements
Context Help
i18n.stibo.spireplm.webui.server.action.reference.EditReferenceActi
Custom Icon
Reset
Dialog Header
Answer Requirement
Target Node Label
Action Save Label
Action Next Label
Action Previous Label
Action Cancel Label
Action Close Label
Help Text For Target Object
Clear
Show Help Texts For Attributes
PLMFoodConditionalMandatoryRequirement
Conditional Rules - Business Function
Caller parameters:
Function input parameters:
Source
source
Target
target
PLMMandatoryResponse
Validation - Business Function
Child Components
Metadata Attributes
PLMAttributeValue (Requirement Description)
PLMAttributeValue (Meets Requirement?)
PLM Flex Value Attribute (Response Detail)
PLMAttributeValue (Help Text)
Add..
Remove
Up
Down

1. Fill out the necessary fields:
   - **Button Label**: This field sets the displaying name of the action button. This field only works if the 'Include Label' parameter on the parent Node List is selected.
   - **Context Help**: This field will provide a description when the user hovers over the action button to assist users in the their tasks.
   - **Custom Icon**: This allows users to select an icon to represent the action.
   - **Dialog Header**: When the action is selected, this field will be populated as the title of the dialog that displays.
   - **Target Node Label**: This field is the one displayed as the title for the target node.
   - **Action Save Label**: This field changes the label of the save button on the dialog that appears for this action. The default label is 'Save.'
   - **Action Next Label**: This field changes the label of the next button on the dialog that appears for this action. The default label is 'Next.'
   - **Action Previous Label**: This field changes the label of the previous button on the dialog that appears for this action. The default label is 'Previous.'
   - **Action Cancel Label**: This field changes the label of the cancel button on the dialog that appears for this action. The default label is 'Cancel.'
   - **Action Close Label**: This field is for the label on the close action button. It is shown when the last reference is edited.
   - **Help Text for Target Object**: This field selects the attribute that holds the help text value of the target object.
   - **Show Help Texts for Attributes**: If this option is selected, then the help text metadata of the selected attributes will be included.
   - **Conditional Rules- Business Function:** The business function that provides the conditionally mandatory rules. If a business function is configured, any values configurations configured on any of the Child Components in the Metadata Attributes section are ignored, including any parameters set for mandatory or read only.
   - **Validation - Business Function**: This field sets the business function that validates the data for the reference.
   - **Metadata Attributes**: This child component allows for multiple metadata attributes to be added to the edit reference dialog.
2. Once created, under Child Components in the Metadata Attributes field, select 'Add.' The options to choose from are 'PLMAttributeValue' or 'PLM Flex Value Attribute.'



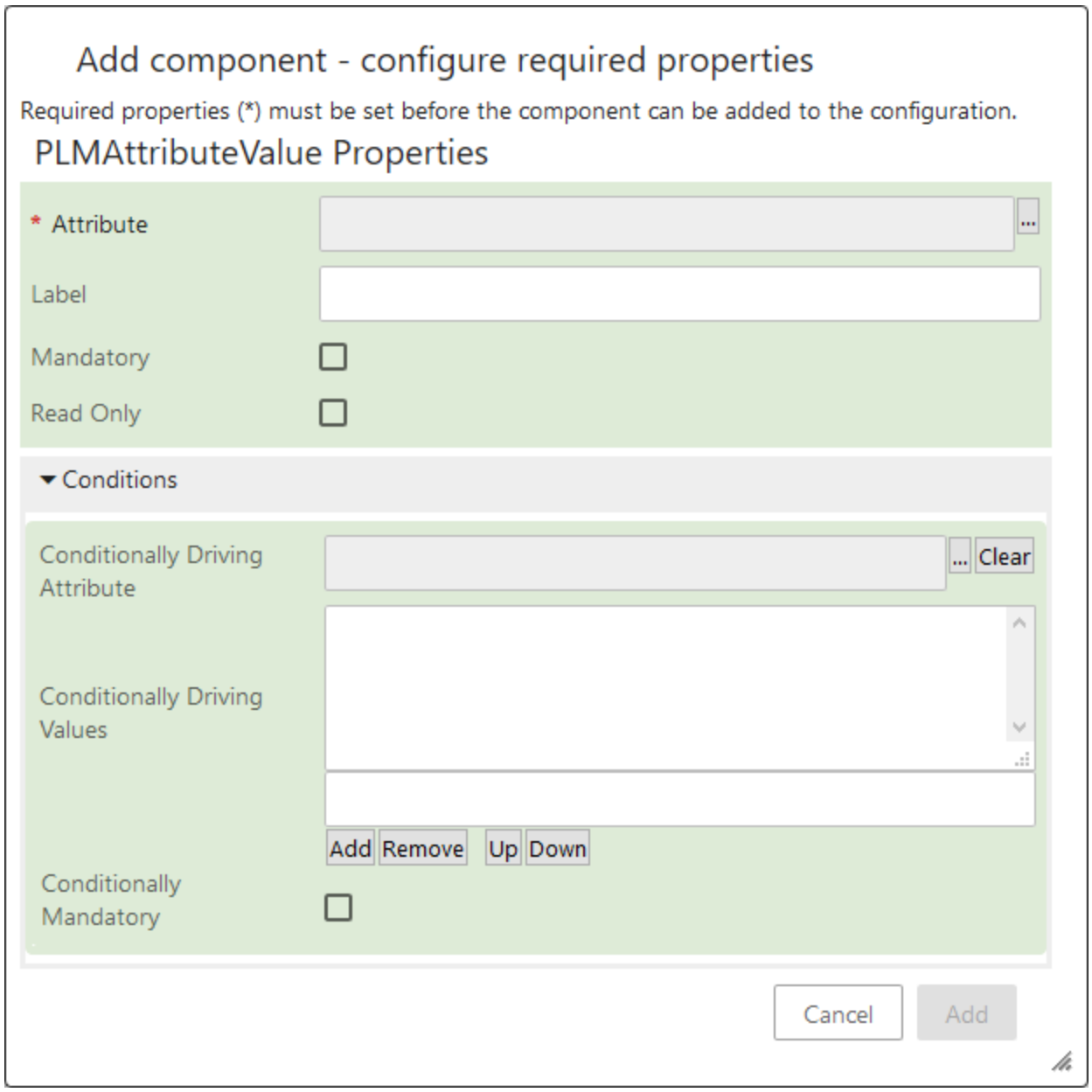
3. For the PLM Flex Value Attribute, the following fields can be configured:

Note: When adding a PLM Flex Value Attribute you are adding a defining attribute. A defining attribute is an LOV that contains a list of other attribute IDs that are used to control the format of data in a column in a Multi-Reference Editor. Users can choose one of the LOV values to define how the attribute's format should be controlled for the supplier' response.



- **Metadata Flex Value - Label:** Sets the display name for the defining attribute.
- **Metadata Flex Value - Defining Attribute**: Select the desired defining attribute to be answered.
- **Conditionally Driving Attribute**: If an attribute is selected for this field it will only display if the attribute that was selected for the Attribute field is answered in a certain way determined by the Conditional Attribute Value field.
- **Conditionally Driving Values**:The values of the Conditionally Driving Attribute that trigger the current attribute to be displayed.
- **Conditionally Mandatory**: If checked, if the attribute that was selected for the Attribute field is answered in a certain way determined by the Conditional Attribute Value field, then the attribute set for the Conditional Attribute field will display and must hold a value before the dialog can be submitted.

For the PLM Flex Value Attribute, the following fields can be configured:



- **Attribute**: Select the desired attribute type to be answered.
- **Label:** Sets the display name for the attribute.
- **Mandatory**: If selected, this make the field required to fill out before a user can submit their answers.
- **Read Only**: If selected, this means that the field cannot be edited.
- **Conditionally Driving Attribute**: If an attribute is selected for this field it will only display if the attribute that was selected for the Attribute field is answered in a certain way which is determined by the Conditional Attribute Value field.
- **Conditionally Driving Values**:The values of the Conditionally Driving Attribute that trigger the current attribute to be displayed.

- **Conditionally Mandatory**: If checked, and the attribute that was selected for the Attribute field is answered in a certain way, which is determined by the Conditional Attribute Value field, then the attribute set for the Conditional Attribute field will display and must hold a value before the dialog can be submitted.

For more on how to use the PLM Edit References Action, see the **Multi-Reference Editor Actions in Web UI** topic in this documentation.

For more information on how to use the Conditional settings, see the **Setting Conditional Settings in an MRE** topic in this documentation.

For more on how to use the PLM Create References Action or PLM Edit Reference Action buttons, see the **Multi-Reference Editor Actions in Web UI** topic in this documentation.

Reference Metadata Flex Value Header Component

Prerequisites

All the steps provided in this topic assume the Web UI designer is in design mode and on a Multi Reference Editor screen prior to starting the configuration process. It is also assumed that all users (designers and end users) have the proper privilege to work with the Multi Reference Editor and its features. For more information about privileges and user setup, see the **Users and Groups** section and **Adding User Privileges for a Group** section of the **System Setup / Super User Guide** documentation.

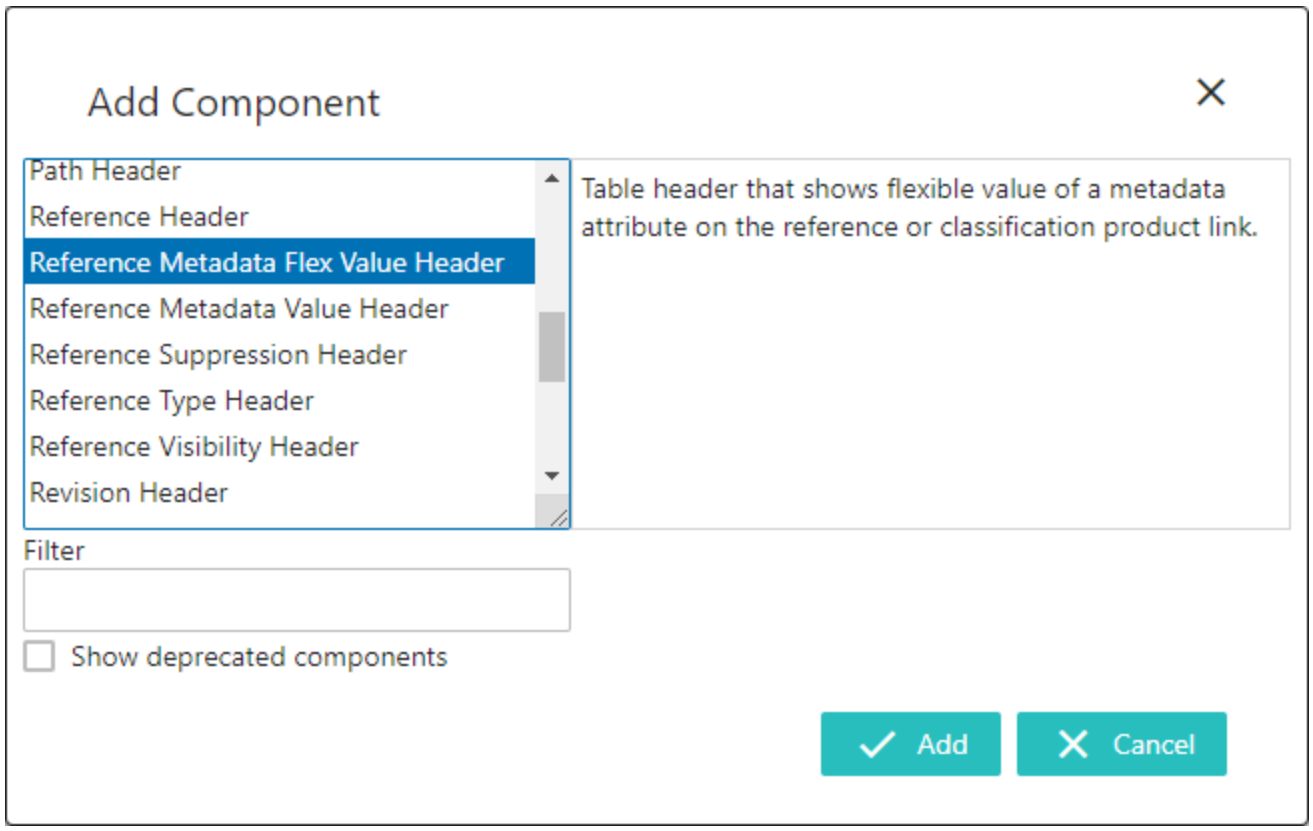
Defining Attribute

A defining attribute is an LOV that contains a list of other attribute IDs that are used to control the format of data in a column in a Multi-Reference Editor. Users can choose one of the LOV values to define how the attribute's format should be controlled for the supplier' response.

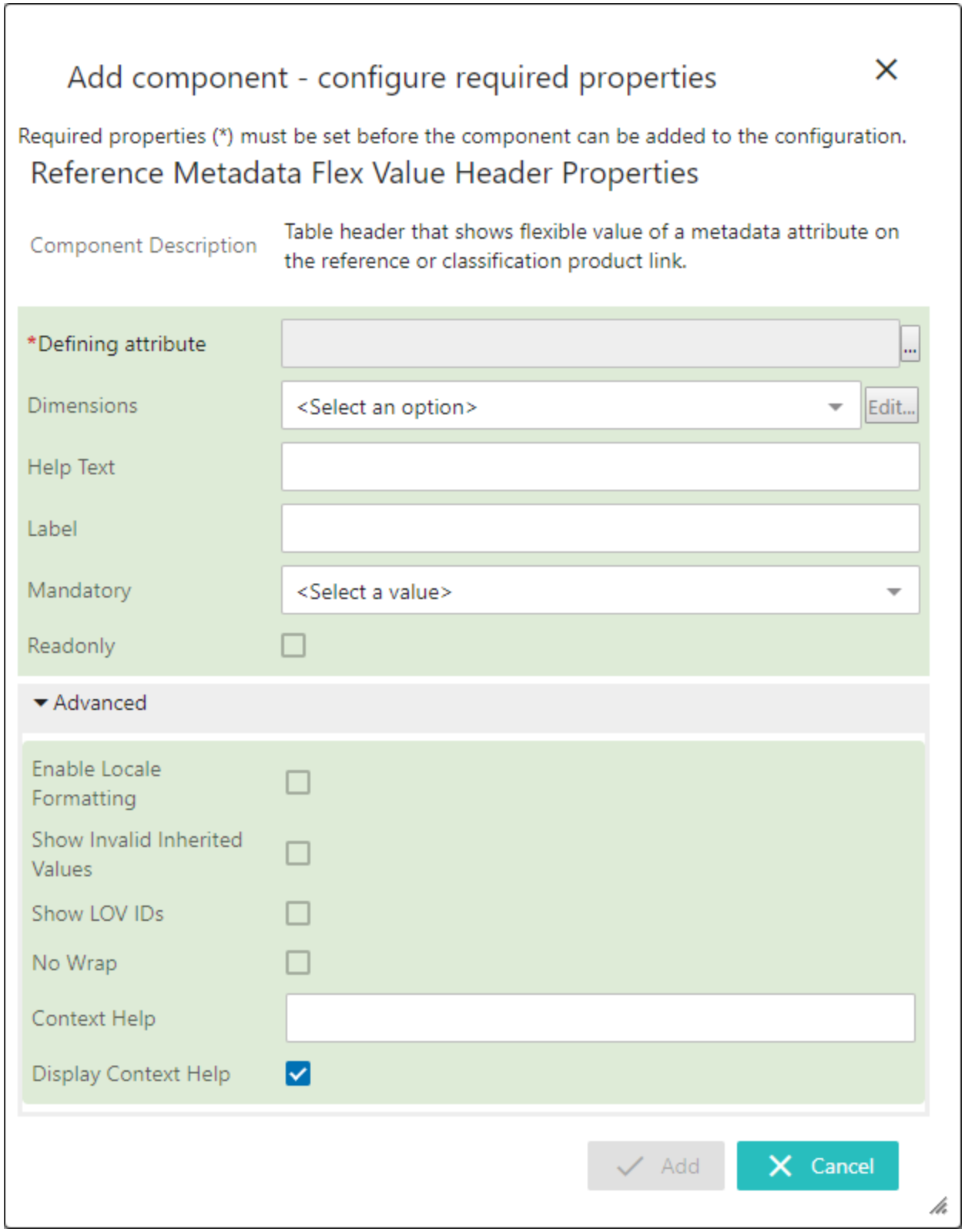
The Reference Metadata Flex Value Header is a defining attribute to be added on a Multi Reference Editor as a header component.

Configuration

The Reference Metadata Flex Value Header is a component to be added on a Multi Reference Editor as a header component.



Once added, the Reference Metadata Flex Value Header Properties dialog will display.



While these fields are the same as other Header properties, the 'Defining attribute' field is a unique and required field. To understand how this attribute works, consider the following use case.

Parameter	Parameter Description	Responses Required For	Supplier Response Detail
Haemolytic Streptococci	Not detectable in 25g	Method Meets Requirement? Response Detail	August 8, 2020
Mercury	Not detectable in 25g		0 µg
Coliforme Germs	Not detectable in 25g	Meets Requirement?	0 µg

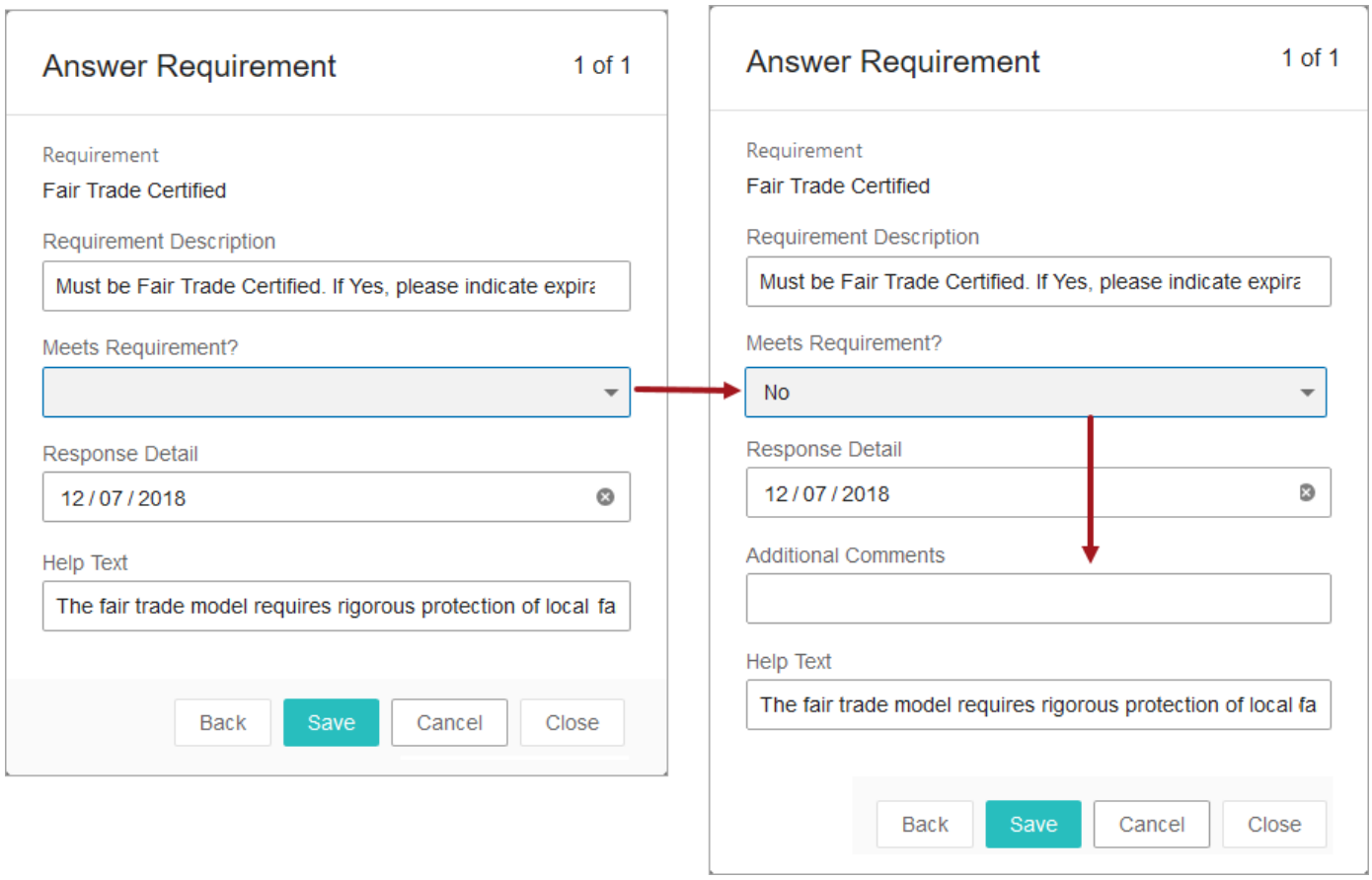
The defining attribute must be a LOV, and it is used to define what the 'Supplier Response Detail' attribute base type is for each parameter. For example, with the parameter 'heamolytic streptococci,' the 'Supplier Response Detail' attribute is defined as 'PLMDate' with a base type of 'ISO Date.' Any value entered for the 'Supplier Response Detail' are stored in the 'PLMDate' attribute. However, for the parameter 'Mercury,' the 'Supplier Response Detail' is defined as 'PLMNumberAndUnit,' which is a number with a unit. Values entered are stored in the 'PLMNumberAndUnit' attribute.

Setting Conditional Settings in a MRE

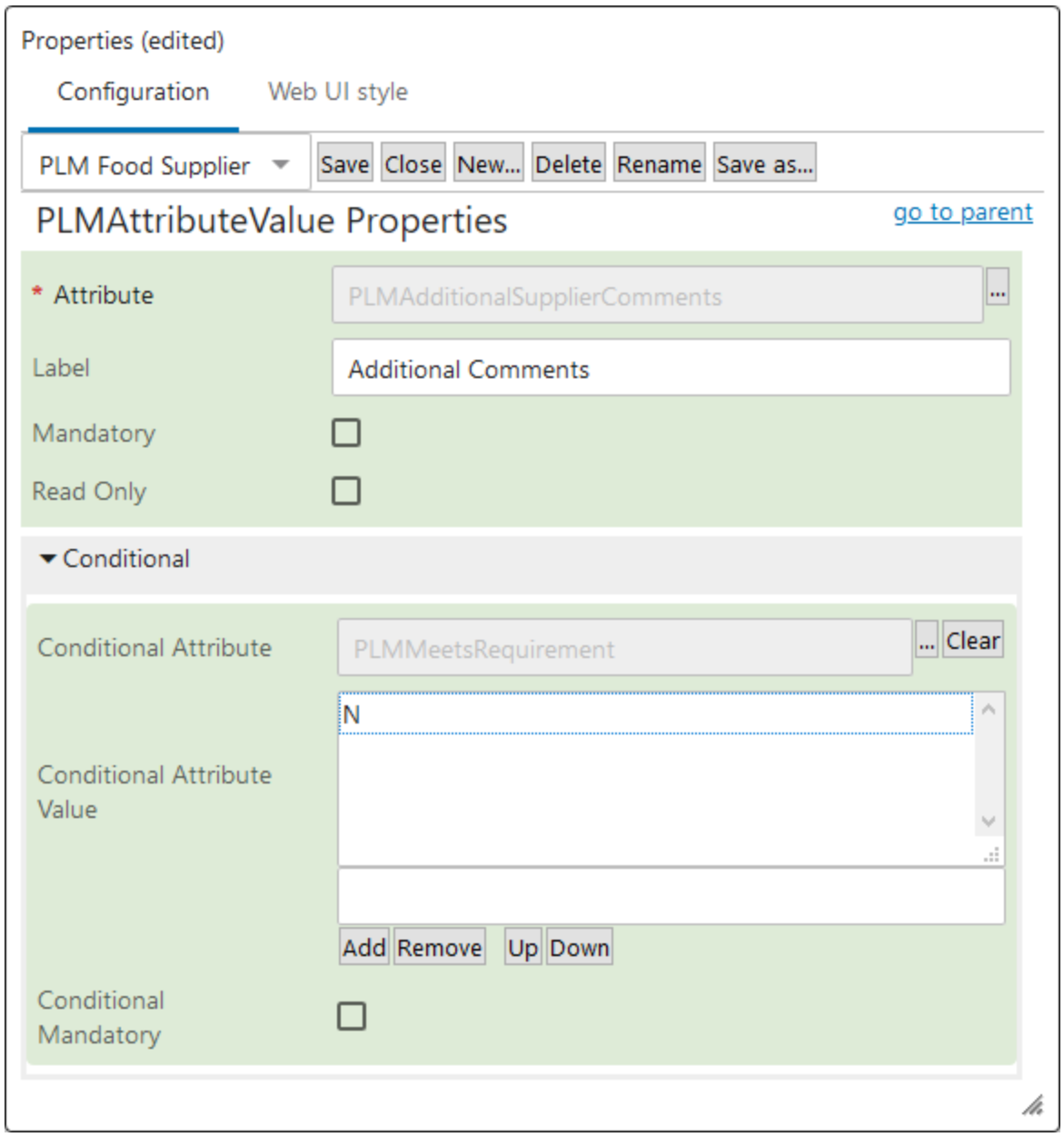
Product Developers can ensure the completeness of suppliers' responses to project requirements in a Multi-Reference Editor (MRE) based on conditions. Attributes (including flex attributes) can be configured to be conditional, conditional mandatory, or conditional with mandatory.

This can be configured in the Web UI designer on the PLM Create Reference Action or PLM Edit Reference Action on either the PLMAttributeValue or PLM Flex Value Attribute child components.

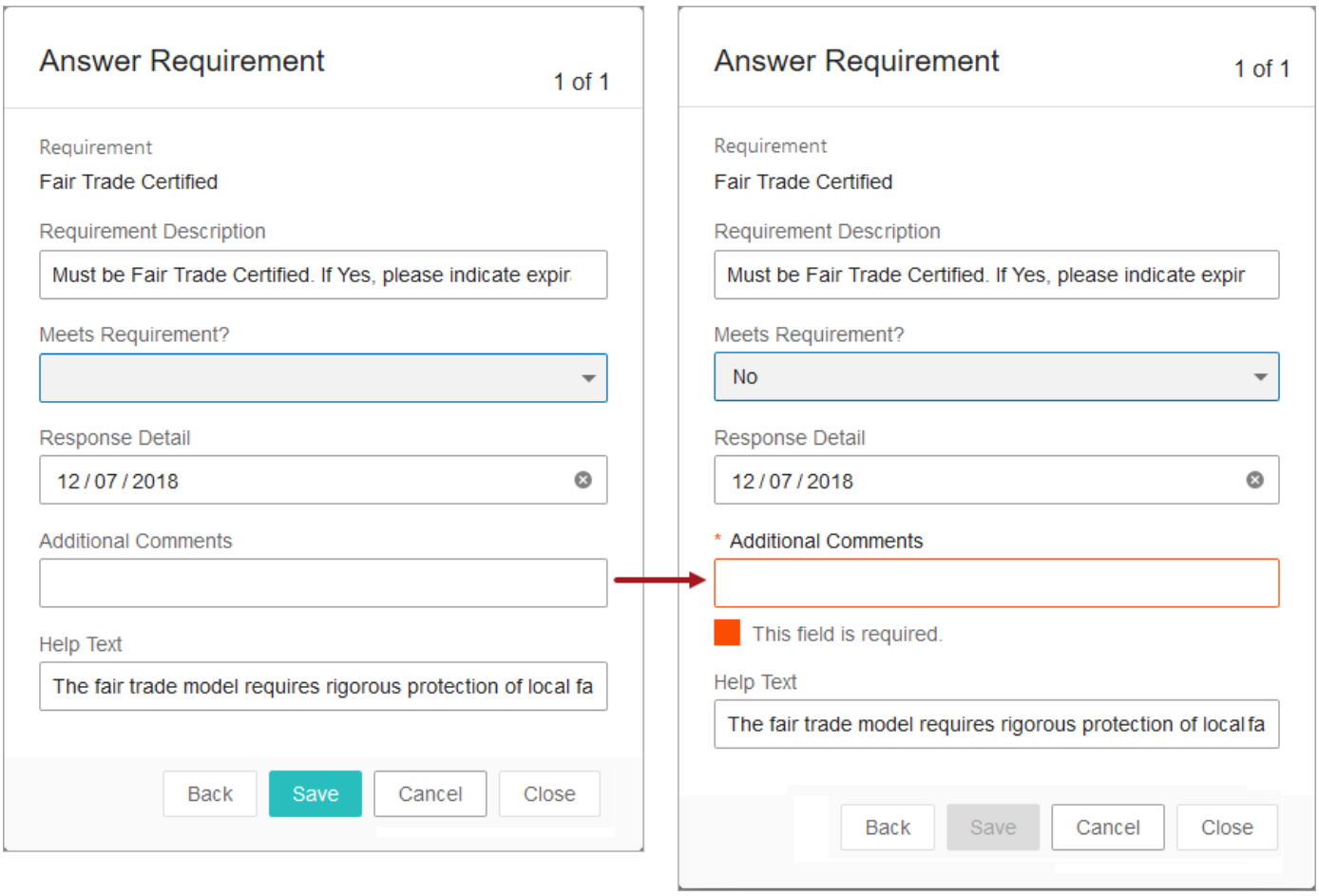
For example, the attribute, 'Additional Comments,' is set with a condition where it will only display if a specific value of 'No' is given for 'Meets Requirements.' This 'Additional Comments' field is not mandatory, and the response can still be saved if left blank.



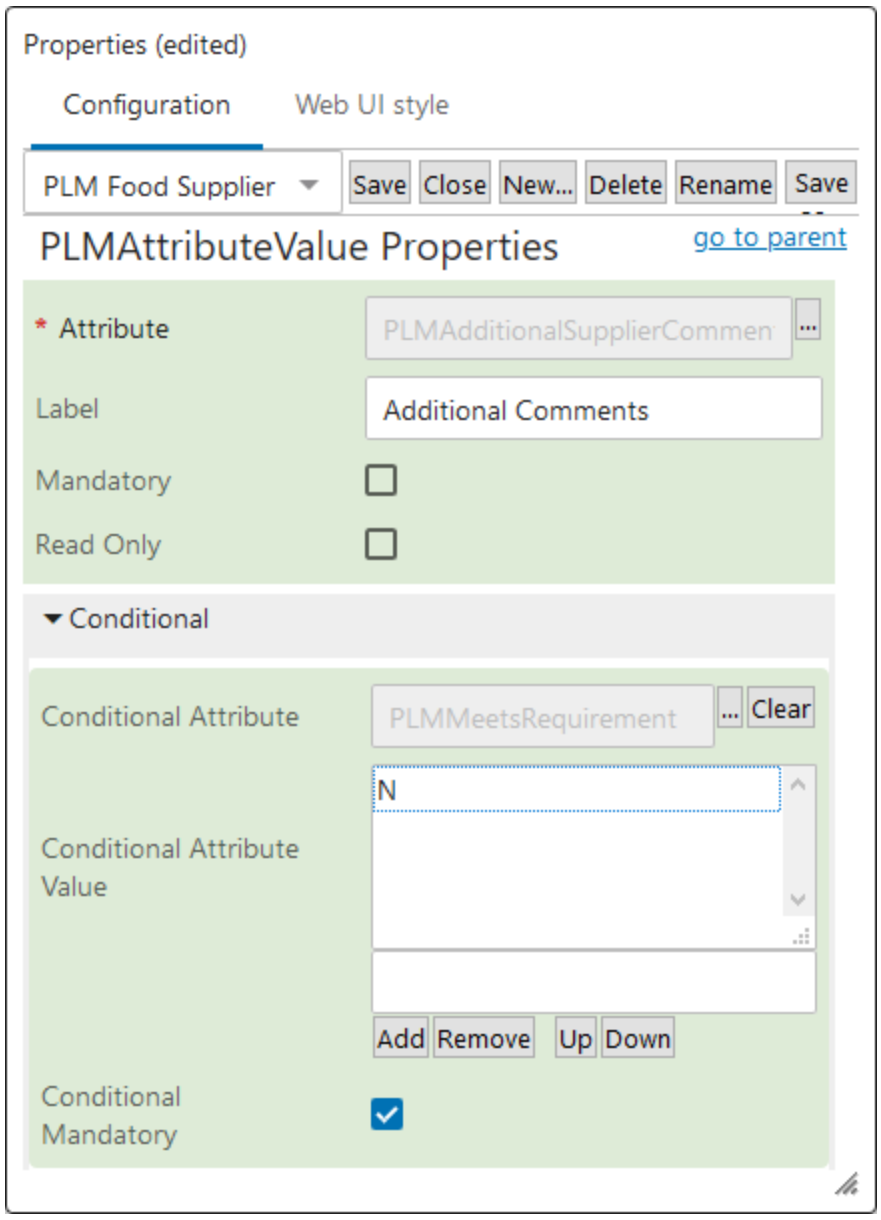
To configure the conditional setting based on the previous example, the PLMAttributeValue Properties screen in the designer would look like the following:



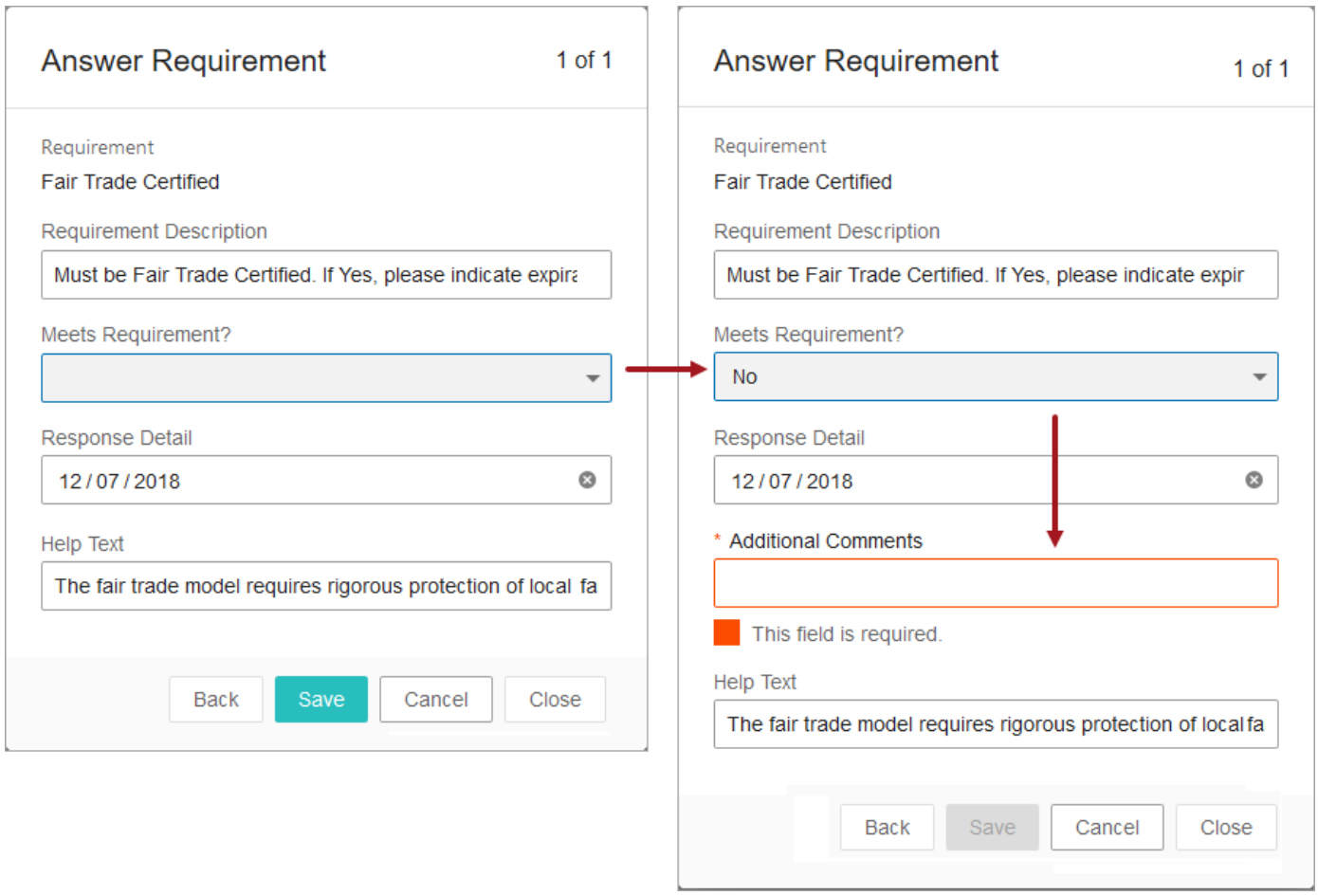
If the attribute is set as conditional mandatory, then when a supplier answers the 'Meets Requirements' attribute with 'No', the attribute field, 'Additional Comments' becomes mandatory, and must have a value to save the dialog.



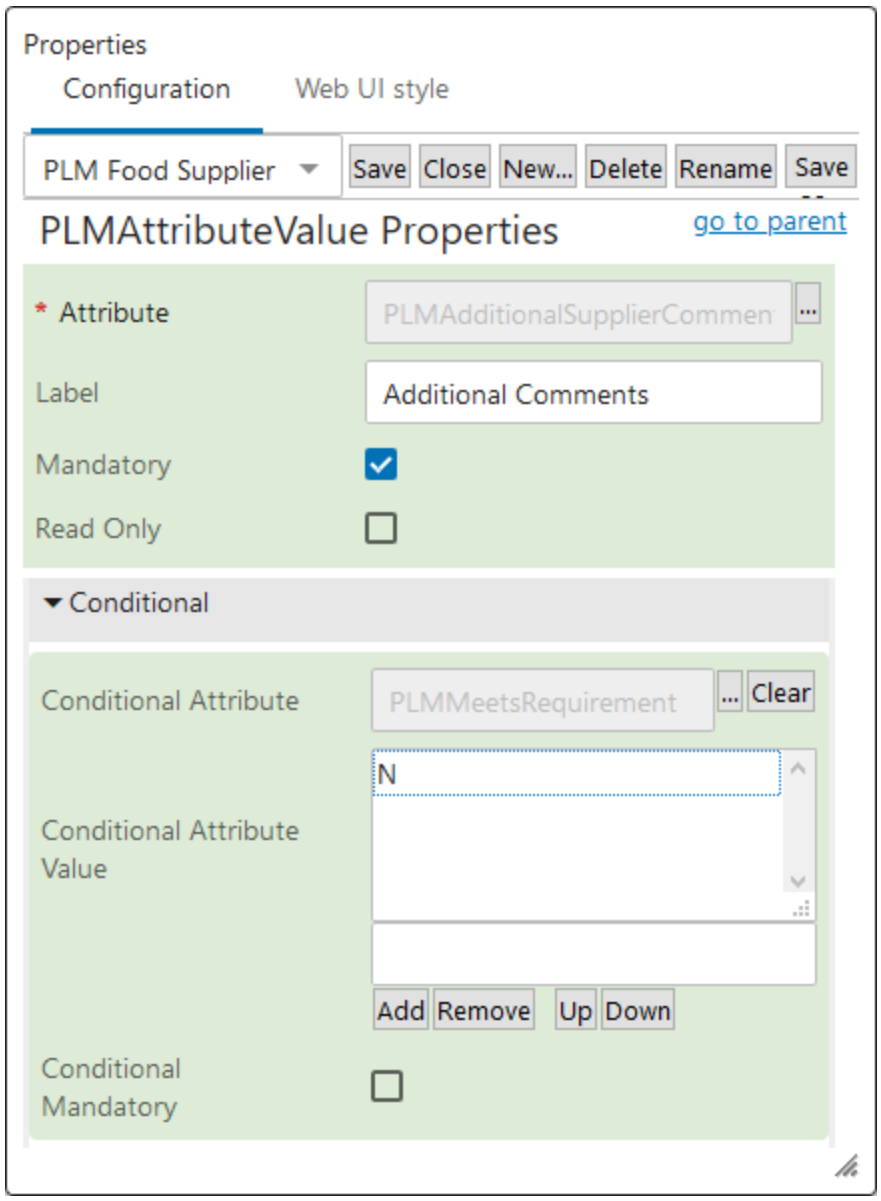
To configure the conditional mandatory setting, the designer would look similar to the following:



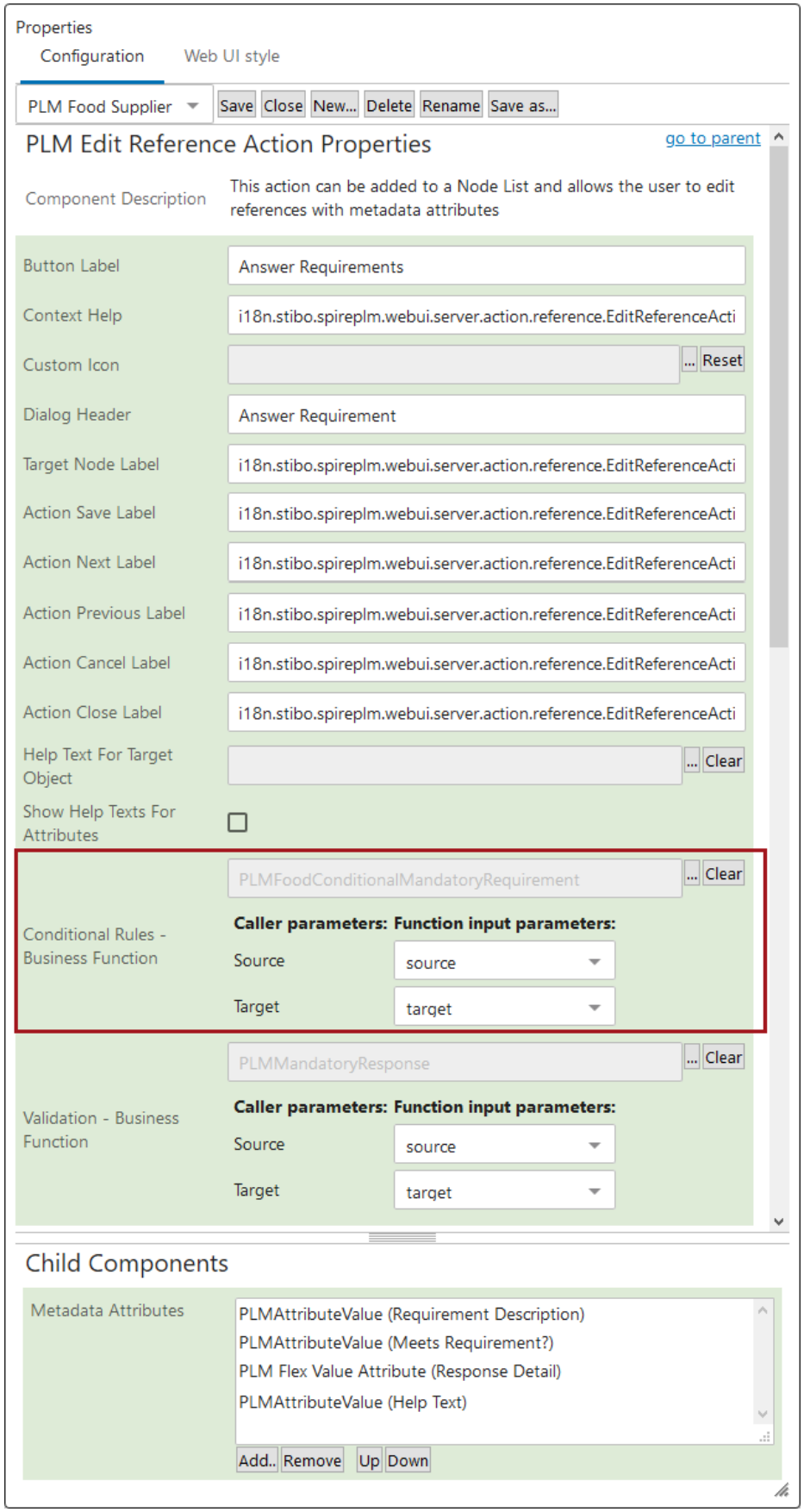
If the attribute was set as conditional with mandatory, then when a supplier answers the 'Meets Requirements' attribute with 'No', the additional attribute field, 'Additional Comments,' displays, and it must have a value to save the dialog.



To configure the conditional with mandatory setting, the designer would look similar to the following:



An additional option for configuring conditional or conditionally mandatory attributes or flex attributes is the use of the 'Conditional Rules- Business Function' field found on the PLM Edit Reference Action. If this is configured, it will override any child component configurations on the PLM Edit Reference Action, including anything configured on the PLMAttributeValue or the PLM Flex Value Attribute child components (mandatory, read only, and any conditional properties).


Properties
Configuration
Web UI style
PLM Food Supplier
Save
Close
New...
Delete
Rename
Save as...
PLM Edit Reference Action Properties
go to parent
Component Description
This action can be added to a Node List and allows the user to edit references with metadata attributes
Button Label
Answer Requirements
Context Help
i18n.stibo.spireplm.webui.server.action.reference.EditReferenceActi
Custom Icon
Reset
Dialog Header
Answer Requirement
Target Node Label
Action Save Label
Action Next Label
Action Previous Label
Action Cancel Label
Action Close Label
Help Text For Target Object
Clear
Show Help Texts For Attributes
Conditional Rules - Business Function
PLMFoodConditionalMandatoryRequirement
Caller parameters:
Function input parameters:
Source
source
Target
target
Validation - Business Function
PLMMandatoryResponse
Child Components
Metadata Attributes
PLMAttributeValue (Requirement Description)
PLMAttributeValue (Meets Requirement?)
PLM Flex Value Attribute (Response Detail)
PLMAttributeValue (Help Text)
Add..
Remove
Up
Down

See the **Business Rules** documentation for more on how to create business rules.