Oracle SCM Cloud
Using Product Development

19C
# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preface</td>
<td>i</td>
</tr>
<tr>
<td><strong>1 Develop Products</strong></td>
<td>1</td>
</tr>
<tr>
<td>Overview of Product Development</td>
<td>1</td>
</tr>
<tr>
<td>Overview of Innovation to Commercialization</td>
<td>1</td>
</tr>
<tr>
<td><strong>2 Business Objects and Structures</strong></td>
<td>3</td>
</tr>
<tr>
<td>Overview of Development Objects</td>
<td>3</td>
</tr>
<tr>
<td>Overview of Structures</td>
<td>3</td>
</tr>
<tr>
<td><strong>3 Get Started</strong></td>
<td>5</td>
</tr>
<tr>
<td>Information Tiles on Product Development Overview Page</td>
<td>5</td>
</tr>
<tr>
<td>Search for Business Objects in Product Development</td>
<td>6</td>
</tr>
<tr>
<td>Use the Item Audit Trail</td>
<td>7</td>
</tr>
<tr>
<td>Audit Report on Change Order</td>
<td>8</td>
</tr>
<tr>
<td>Item and Document Clipboard</td>
<td>8</td>
</tr>
<tr>
<td>Use the Clipboard to Paste Items to a Change Order</td>
<td>9</td>
</tr>
<tr>
<td>Overview of Reports and Analytics</td>
<td>9</td>
</tr>
<tr>
<td>Configure Action Links to Items from Reports</td>
<td>10</td>
</tr>
<tr>
<td>Access Product Development with Oracle Social Network</td>
<td>12</td>
</tr>
<tr>
<td><strong>4 Create Business Objects</strong></td>
<td>13</td>
</tr>
<tr>
<td>Overview of Product Development Business Objects</td>
<td>13</td>
</tr>
<tr>
<td>Create an Item and Build an Item Structure</td>
<td>13</td>
</tr>
<tr>
<td>Create a Manufacturer and Manufacturer Part</td>
<td>14</td>
</tr>
<tr>
<td>Create a Change Order and Submit it for Approval</td>
<td>16</td>
</tr>
<tr>
<td>Create Change Requests</td>
<td>17</td>
</tr>
</tbody>
</table>
# 5 Items and Documents

- Items and Documents in Product Development
- View Item and Document Details
- Take Action on Item and Document
- Review Item and Document Changes
- Lifecycle Phases in Product Development
- Considerations for Lifecycle Phases and Effective Dates
- How Item Grade is Calculated
- Access Quality Issues from an Item
- Manage Product Lines
- FAQs About Items and Documents

# 6 Approved Manufacturers List

- Overview of Approved Manufacturer List
- FAQs About Approved Manufacturers List

# 7 Structures

- Item and Document Structures
- Rules About Item Structures
- Actions and Views on a Structure Page
- Import an Item Structure
- FAQs About Structures
# Change Management

- Overview of Change Orders and Change Types 37
- View Change Details 37
- Take Action on Changes 38
- Set Status on Changes 39
- Define a Change Order 39
- Impact Analysis in Change Orders 40
- Secure Access to Changes 41
- Create and Track Tasks 41
- Cancel Change Objects 42
- Access Change Order from OSN Conversation 43
- Edit a Released Item or Document with a Change Order 43
- Use a Change Order to Redline an Item Structure 43
- Use a Change Order to Add a Manufacturer Part to an Item 44
- FAQs About Change Management 45

# Affected Objects and Redlines

- Affected Objects and Change Operations 49
- Redlines in Change Orders 49
- Affected Object Details 50
- Specify Effective Date for Affected Objects 51

# Workflows

- Workflows in Product Development 53
- Define a Workflow 53
- Approve or Reject a Workflow 54
- Terminate and Restart a Workflow 54
- FAQs About Workflows 55

# Relationships

- Relationships in Items and Documents 57
- Relationships in Change Orders 57

# Attachments

- Manage Attachments in Items and Change Orders 59
- FAQs About Attachments 60
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Roll Up Costs</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>Overview of Cost Rollups in Product Development</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>Display Costs in Product Development</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>Business and Validation Rules</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>FAQs About Roll Up Costs</td>
<td>63</td>
</tr>
<tr>
<td>14</td>
<td>Create Items with New Item Requests</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>New Item Requests through Product Hub</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Create NIR Items and Structures</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Create Non-NIR Items and Structures</td>
<td>66</td>
</tr>
</tbody>
</table>
Preface

This preface introduces information sources that can help you use the application.

Using Oracle Applications

Using Applications Help

Use help icons to access help in the application. If you don’t see any help icons on your page, click your user image or name in the global header and select Show Help Icons. Not all pages have help icons. You can also access Oracle Applications Help.

Watch: This video tutorial shows you how to find help and use help features.

You can also read Using Applications Help.

Additional Resources

- **Community:** Use Oracle Cloud Customer Connect to get information from experts at Oracle, the partner community, and other users.

- **Guides and Videos:** Go to the Oracle Help Center to find guides and videos.

- **Training:** Take courses on Oracle Cloud from Oracle University.

Conventions

The following table explains the text conventions used in this guide.

<table>
<thead>
<tr>
<th>Convention</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>boldface</strong></td>
<td>Boldface type indicates user interface elements, navigation paths, or values you enter or select.</td>
</tr>
<tr>
<td><strong>monospace</strong></td>
<td>Monospace type indicates file, folder, and directory names, code examples, commands, and URLs.</td>
</tr>
<tr>
<td>&gt;</td>
<td>Greater than symbol separates elements in a navigation path.</td>
</tr>
</tbody>
</table>

Documentation Accessibility

For information about Oracle’s commitment to accessibility, visit the Oracle Accessibility Program website.

Videos included in this guide are provided as a media alternative for text-based help topics also available in this guide.
Contacting Oracle

Access to Oracle Support
Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit My Oracle Support or visit Accessible Oracle Support if you are hearing impaired.

Comments and Suggestions
Please give us feedback about Oracle Applications Help and guides! You can send an e-mail to: oracle_fusionApplications_help_ww_grp@oracle.com.
1 Develop Products

Overview of Product Development

Product Development tracks the early development phases of products that are going to be designed or built. Product Development uses business objects called items, documents, and manufacturer parts to build development structures that describe the assembly or product to be manufactured, or the content of the subassembly. Another business object, the change order, is used to track a change or multiple changes on an item, document, their structure, or on a manufacturer part that is associated with an item, with a revision attachment, or with the attributes of an item or document.

- **Items and Documents** - Introduce new items or documents to the enterprise, and add information and data to them with easily defined attributes and characteristics;
- **Structures** - Gather items (with associated manufacturer parts) and documents into a structure (Bill of Materials or BOM);
- **Change Orders** - Manage change orders formally and centrally on items, documents, AML, structures, and attachments, and analyze the impact of each change;
- **Quality Issues and Actions** - Quality Actions and Quality Issues from Engineering Quality Management can be carried and processed by change orders in Product Development;
- **Searches** - Find items, documents, manufacturer parts, manufacturers, and change orders with simple or advanced searches;
- **Lifecycle Phases and Item Grades** - Differentiate between items with revision-specific lifecycle phases, and with calculated item grades that help evaluate for production readiness;
- **AML** - Manage manufacturer parts with an Approved Manufacturers List (AML) that can be associated with any item or part;
- **Incorporate Pre-production Proposals** - Incorporate Concepts or Requirements from Oracle Innovation Management Cloud applications;
- **Connect to other Applications** - Connect items, documents, and change orders to Project Tasks; and,
- **Hand over to Manufacturing** - Hand over items, documents, and structures to manufacturing, and track them downstream to production and through to commercialization.

Related Topics

- Overview of Development Objects

Overview of Innovation to Commercialization

Product Development’s functionality can be broadened by Innovation Management and by Product Hub applications. The enterprise can streamline its end-to-end business processes:

- **Innovation and Proposals**: Innovation Management applications;
- **Design and early Development**: Product Development;
- **Manufacturing to Commercialization**: Product Hub.
Innovation Management

Innovation Management is a suite of Supply Chain Management applications that promotes the abilities of the enterprise to build suitable products. Innovation Management comprises three compatible applications:

- **Ideas** Workspace: supports and simplifies the innovation process to create, aggregate, and review ideas about potential products.
- **Concepts** Workspace: supports defining a product in its conceptual phase, building requirements specifications, concepts, and proposals.
- **Portfolios** Workspace: gathers product proposals into a portfolio. Portfolio scenarios are based on analyses of value, balance, strategy, resources, and product mix.

Product Development to Commercialization

The enterprise brings matured concepts, proposals, and requirements specification forward to become products. A product is designed and developed in Product Development, then handed over to Product Hub to be manufactured and commercialized:

- **Product Development** supports item and document creation and enrichment, and building items and documents into structures. A structure is a list of assemblies - of items and manufacturer parts - or a list of documents, both comprising the design and prototype of the product.

  Using change orders to formally modify items, documents, and structures, the product evolves and moves through initial development stages to readiness for manufacturing.

  Product Development helps users manage Master Organization items and documents, while Product Hub helps users manage Site items.

- **Product Hub** takes the product through stages of manufacturing to commercial release, including multiple versions, packaging, and other downstream processes. Product Hub allows the detailing-out of commercial and operational attributes, and facilitates the management of part catalogs.

Integrations

Product Development integrates with Innovation Management to help streamline product innovation, design, and development processes, and with Project Portfolio Management to manage development projects.

You can also create integrations with your Computer-Aided Design (CAD) applications to enable items, bills of material and change orders to be managed in Product Development, while continuing to manage CAD designs and data in an on-premise CAD product data management application.

To support CAD integration, web services for Changes, Items and Structures are available. You can use these services to develop integrations between Product Development and Agile Engineering Collaboration, other on-premise CAD product data management applications, or cloud-based CAD applications.

For information about web services, see the SOAP Web Services for SCM guide.
2 Business Objects and Structures

Overview of Development Objects

The building blocks to managing the design and development of products are: Items; Documents; Manufacturer Parts and their Manufacturers; Structures; and, Change Orders.

Items and Documents

Design engineers and product managers create items in Product Development or Product Hub to represent the parts and assemblies of a product. A document is another type of item or part, representing description or specification of items. The specific attributes of each new business object describe the characteristics of the item or document and, taken together, the particular product. In this way, item and document business objects carry the necessary technical and engineering information of the product.

Manufacturer Parts and Manufacturers

A manufacturer part is an item produced by a manufacturer. A manufacturer part can be related to any item designed or produced by your company.

Any items on a structure may be sourced with parts from the approved manufacturers list (AML); a document may not be associated with a manufacturer part. An item that is associated with a manufacturer part and belongs to a structure will have an icon next to it on the Structure table that indicates the association with a manufacturer part.

Manufacturer parts are identified with manufacturer part numbers (MPNs). Product Development requires a manufacturer to be created before you may even create a manufacturer part produced by that manufacturer.

Note: Item grade is calculated for items only, not for documents nor for manufacturer parts. However, the configuration of item grade may allow the AML situation to be considered in the calculation of the item grade.

Change Orders

The change control process, also called change management, includes all procedures that manage the alterations or modifications to any item in your company’s design and manufacturing processes. Examples of entities that can be altered by a change order include: item attributes; item revisions; item structures; AMLs; and attachments.

When a change order is used to formalize the enrichment of an item (that is, adding and modifying item attributes) or the construction of a structure, no further modification on any scale can be effected without an additional change order. Change orders, like items, may be initiated in Product Development or Product Hub.

Related Topics

- Overview of Approved Manufacturer List
Overview of Structures

In Product Development, a Bill of Materials is called a **structure**.

A structure is not created as a discrete object: when an item is added to a parent item, a simple structure now exists. As items are added, the structure is always named and referred to by its top-level item. An item without any child items is also considered to be an item structure.

A structure holds all the items and documents that make up an assembly or subassembly. Items and documents may be in the same structure: there is no restriction on maximum or minimum number of either type of business object.

Any item on a structure may be associated to one or more manufacturer parts. On the Structure table, an icon next to an item indicates the presence of manufacturer parts. So, a structure populated with items will likely comprise associated manufacturer parts.

A document structure holds all the documents that make up a meaningful document, such as a specification for a product. When a document is added to a parent document, a simple structure now exists. A structure of documents will be named and referred to by its top-level document. A document structure may be only one document.
3 Get Started

Information Tiles on Product Development Overview Page

The information tiles organize information about the business objects in Product Development. They help you find additional data on favorite items, change orders, and notifications approaching deadlines.

To expand an information tile, click the Go bar. You can then select from, and drill into all the information in that tile.

My Worklist Information Tile

This information tile filters and collects your notifications about tasks that you must act on. Click each category to see your notifications in that category. Or click the Go bar to see your entire worklist.

The calculations for the Worklist categories are based on the Need-by Date attribute that is set in each change order.

- **Overdue Deadline**: Current system date > Need-by Date
- **Approaching Deadline**: Need-by Date minus Current System Date must be 2 days or less
- **Waiting for Review**: All other notifications

For Approaching deadline criteria, the number of days is two, which is not configurable. If the Need-by Date is not specified, it remains in Waiting for Review.

The available Actions on notifications are Approve, Reject, Show in New Tab, Open Task, and Close. For example, you may be notified to review a change order, and you can approve or reject the change order from here. Actions that are not available on a selected notification are disabled.

Comments notifications and Send Object notifications are also displayed on My Worklist.

My Changes Information Tile

This information tile compiles the number of change orders that you created. Click each category to see pertinent change orders.

- **Open** link shows all change orders in Draft or Open status;
- **Pending Approval** link shows all change orders in Interim Approval or Approval status, that is, all changes yet to be approved or to be rejected;
- **Approved** link shows all change orders that have been approved, and are therefore ready to be Scheduled or Completed.

Or click the Go bar to see all your change orders on the My Changes page.

The available Actions on the My Changes page are Create, Edit, Change Status, and Delete.

To create a new change, you may follow either of these paths:

- Click Actions, hover over Create, a fly-out list lets you choose.
- Click the Create + list, which lets you choose.

With either path, select Change Order or a Change Request and follow the dialog.
There is a Delete X icon, to remove a selected object or selected objects.

The My Changes toolbar has several filters to sort the list of changes:

- **Status Changed**: sort by All, Open, Pending Approval, or Approved.
- **Type**: select All or any one of the listed types.

Finally, the toolbar has fields to search changes that are related by date:

- **Date**: Status Changed, Created, or Approved;
- Choose from a list Equal to, Before, or After;
- Click the Select Date icon and click the appropriate date; and
- Click the Search arrow.

**My Favorite Items Information Tile**

This information tile organizes items and structures that you have marked as a favorite.

The categories in the tile - Released, Unreleased, and Obsolete - may be similar or parallel with lifecycle phases that are used by your company. The administrator associates these categories with a lifecycle phase type. When you click each category, you see the items that are currently in the lifecycle phase associated with that category.

**Related Topics**

- Overview of Product Development Business Objects
- Lifecycle Phases in Product Development
- Overview of Change Orders and Change Types
- Take Action on Changes

**Search for Business Objects in Product Development**

You can search for the following business objects: items, documents, change requests, change requests, manufacturer parts, and manufacturers.

**Advanced Searches**

You can modify the search criteria operators, for example, Starts With, Equals, or Contains, using the lists with each field to be searched.

Click the **Add Fields** button to select from a list of Available fields. You can move the ones you want to the Selected side. Then click OK.

You can save and re-use the list of search attributes and their parameters.

- Click the Save button.
- Use the Create Saved Search dialog to give your search an easy-to-remember name.
- Then select or deselect Set as Default and Run Automatically.
- Click OK.
Later, you can modify the parameters of a saved search and save it with a new name or save over the existing one.

Search Results
You can perform actions on the search results. For example, you can publish the structure and where used data for analysis in Oracle Transactional Business Intelligence (OTBI).

Keyword Search and AutoSuggest Features
Some features assist your typing when building structures, or when adding items and documents to a change order.

- **Starts with** searches display a list of objects without requiring you to add a wildcard (for example, the % character) to the search string.
- **Type-ahead** - also called autosuggest - lets you begin typing and, when typing stops for a couple of seconds, a list of objects containing the string you typed is presented. For example, when you add items to a structure or to a change order, the **Select and Add: Items** dialog prompts you with a Search field. Enter, for example, the three letters "tab", and the type-ahead offers you a list of "tablet" items from the database.

An additional type-ahead feature is available without opening the Search function, and is mentioned here as an object-finding utility.

- In the **Structure** table of an item or document, or in the **Affected Object** table (Table view or List view) of a change order:
  - Click the **Select and Add** icon to display a dialog box.
  - Begin typing in the item's ID number.
  - The application displays items with matching numbers.
  - Select an item and press Enter (you can also click the + on the dialog box) to add it to the open table.

The dialog box also has the Search icon, which you can resort to if not finding the items you want. Note that if you click **Actions > Select and Add**, the normal dialog is launched.

Display on Item that Has Open Issues
When users cite problems with an item, they use the Quality Management application to create issues. An issue is considered to be open if the issue’s workflow is not in its final status.

The **Has Open Issue(s)** icon displays on a Search Results table next to an item with an open issue; and on the Structure tables next to a structure that contains an item with an open issue.

Use the Item Audit Trail

Video

**Watch:** This video tutorial shows you how to use the Item Audit Trail. The content of this video is also covered in text topics.
Procedure

An audit report is the history of an item, a listing of all actions or modifications that have been done to the item. Because the audit trail could show a complete history across all items, it is necessary to filter first for the data you need. Your search for items or documents can be restricted by Date, User, Product, Event Type, Business Object Type, and Description.

To use the audit trail, do the following:

1. Use Navigator to go to the Product Management work area. From the list of offerings, click **Product Development**.
2. From the **Tasks** panel tab, click **View Item Audit Trail**.
3. On the **Audit Reports** page, enter the search criteria, including Date, User, and product information, Event Type, Business Object Type, and Description. Also select whether you want to include child objects.
4. Click the **Search** button.
   - Review the history in the search results page. To export the search results to a spreadsheet, click the **Export** icon.

Audit Report on Change Order

To create an audit report on a change order, open a change order, select **Actions > Audit** and select a status. Then open the **Audit Results** side tab and check the results.

It also checks for consistency in the item structure, when the change order holding the structure is moving to Approval status. These consistency checks ensure that child items are in the same or higher lifecycle phase as the parent item; and an Approved parent item does not refer to a child item that is still in Draft.

These checks are reported when you check the Audit Results, either issuing a "no error or warning" message or a list of any errors or warnings it has encountered.

Item and Document Clipboard

Use the **Clipboard** side tab, to quickly add items and documents to structures. It allows faster creation of structures by creating a temporary copy of multiple items and documents.

Here are some of the pages on which you can build structures with the clipboard function:

- Item > Structure table
- Document > Structure table
- Change Order > Affected Object > Structure table
- Change Order > Affected Object table

Here are some of the pages from which you can copy items and structures:

- Change Order > Impact analysis
- Item > Item grade
The Copy and Paste actions on structure and affected object pages work in conjunction with clipboard. Here’s how this works:

- In the source structure, select items or documents and use the Copy icon, or Actions > Copy.
- Open the destination structure and click the Clipboard side tab.
- Review the item (or structure) you want to copy.
- Select and move the item. You can also use the Paste icon or Actions > Paste.

The clipboard is cleared when you log out.

Use the Clipboard to Paste Items to a Change Order

Video

Watch: This video tutorial shows how to use the clipboard to copy items from a structure and paste them into a change order. The content of this video is also covered in text topics.

Procedure

To use the clipboard for pasting items to a change order

1. Navigate to the Product Development work area.
2. Open an item and click the Structure tab.
3. Select the row that you want to copy.
4. Create a change order in which you want to paste the item.
   - From the Tasks panel drawer, click Create Change Orders.
   - From the Change Type list, select the type of change order.
   - In the Name field, enter a name for the change order.
   - In the Description field, enter a brief description.
   - Click Save.
5. Paste the items to the change order.
   - In the change order, click the Affected Objects side tab.
   - Click the Paste icon to paste the item you copied in a previous step.

Similarly, Copy icons in the list-view of the Change-Impact Analysis and the Item-Grade tabs, allow you to select and copy multiple items into the clipboard. The Copy icon in the table-view of the Item-Where Used tab lets you copy only a single row. Selecting a row or multiple rows activates the icon and a description of the item appears on hovering over it in the clipboard.
Overview of Reports and Analytics

To create reports and analytics about business objects in your system, click the Reports and Analytics side tab.

The Reports and Analytics pane is a central place for you to quickly view or run analytics and reports that are related to your work. If you have the permission, you can create and edit analytics and reports here.

Or, add reports and analytics to the pane from the Business Intelligence catalog. You may find this pane in a panel tab, or in the regional area on some work areas. In the Reports and Analytics work area (Navigator > Tools > Reports and Analytics), the pane appears as the Contents pane.

An analysis is an interactive display of data, for example, in a table or graph. You use analyses to:

- Summarize or break down simple, real-time data.
- Help you make short-term decisions.

A report is output of data in a predefined format that provides little or no interaction. Print reports in these situations:

- To get high-volume data in a high-fidelity output optimized for printing.
- For documents to support internal operations, statutory requirements, and other business needs.

For more information about configuring reports and dashboards, refer to these guides:

- Oracle SCM Cloud Using Analytics and Reports
- Oracle SCM Cloud Creating and Editing Analytics and Reports

Configure Action Links to Items from Reports

Video

Watch: This video tutorial shows how you configure action links to items from reports. The content of this video is also covered in text topics.

Procedure

You can create action links (or deep links) to navigate from Oracle Transactional Business Intelligence (OTBI) reports to specific items.

1. Navigate to the Product Development work area.
2. To create an analysis, click the Reports and Analytics side tab and click Browse Catalog.
3. To create a report about items and add fields:
   a. In the Catalog page, from the New menu, click Analysis.
   b. Select Product Management: Item Revision Real Time from the Select Subject Area menu.
From the Subject Areas panel, click Item > Main. Use the scroll bar to select Item Name, Item ID, and Organization ID. Other columns of data are optional.

4. The Item ID and Organization ID do not work with a decimal value. To set a non-decimal value for the item ID:
   - Click Inventory Item ID. From the menu, click Column Properties.
   - In the Column Properties dialog, click the Data Format tab.
   - Select the Override Default Data Format check box.
   - Set the value in Decimal Places to a non-decimal value. Click OK.
   - Similarly set the Organization ID to a non-decimal value.

5. To configure the name column as a URL that opens the selected object in another tab:
   - In Selected Columns, select the Item Name.
   - From the menu, click Column Properties. In the Column Properties dialog click the Interaction tab.
   - From the Primary Interaction menu, select Action Links and create a link format.
   - Click the + icon to add an action link.
   - From the New Action Link dialog, select Navigate to a Web Page.
   - In the Create New Action dialog, add the URL. This creates a web page and passes dynamic values to load the selected object. The template of the dynamic URL is:
   - Note that:
     • Object Type is Item
     • Action is Edit
     • Object Key is Item ID

6. To define parameters:
   - Click Define Parameters. The value for the object key is dynamic and the object ID is retrieved from the report data.
   - Click the menu available in the Values column and the third row. Select Column Value and then select Item ID.
   - Click the menu available in the Values column and the fourth row. Select Column Value and then Organization ID.
   - To ensure that the URLs work automatically, select the Fixed and Hidden check boxes in all the rows.

7. In the Create New Action dialog, add the reference to Item ID in the URL field.
8. Click Options to open the Action Options window.
9. Select the Open in New Window check box and click OK. You return to the Create New Action window.
10. Click OK. You return to the New Action link window.
11. Click OK. In the Column Properties window, select the ‘Do not display pop-up if only one addition link is available at runtime’ check box. This helps when there are multiple links with different actions. Click OK.
12. Click Save Analysis.
13. Click the Results tab. Click a link in the search results and notice that the object opens in a new window.

Related Topics

- Configure Deep Links in Oracle Product Lifecycle Management Cloud
Access Product Development with Oracle Social Network

Oracle Social Network (OSN) is a secure private network with a broad range of social tools. Embedded integration with OSN can be an additional tool in the Product Development framework, for example, pushing forward a dialogue with team members on the purpose of a change order. Some uses of Oracle Social Network include:

- Set up reviews, document sharing, or discussion to help you quickly correspond and make decisions;
- Capture information from people, enterprise applications, and business processes;
- Facilitate collaboration between individual users and teams of people both within and across your enterprises.

A conversation can be initiated from Product Development about a change order, an item, or a document. From the OSN conversation, the View Details button takes you to Product Development Cloud, and opens the change order being discussed.

Related Topics

- Access Change Order from OSN Conversation
- Oracle Social Network Objects in Product Development
- Where to Find Information About Social Networking
- What are the prerequisites for Oracle Social Network integration
Oracle SCM Cloud
Using Product Development

4 Create Business Objects

Overview of Product Development Business Objects

The Tasks panel tab opens to links to create and manage each type of business object in Product Development. You can create business objects regardless of any other task you are doing in the user interface. While you are building a structure of items, for instance, you may decide that your structure needs an item that does not yet exist: you can create the item starting in the Tasks panel and add it to your structure; or, you can create and add the new item from within the structure itself (that is, the Structure page of the parent item).

You can add information to any object as you create it; or, you can save it in simple form and add more data later.

There are two restrictions on manufacturer parts. When one is created, it must be associated with a manufacturer. This rule adheres to standard practices of the Approved Manufacturers List (AML). Also, manufacturer parts only become part of a structure by being associated with items.

Note: An item created in Product Development is in the Approved status from the outset. However, your company may require an Item Class that sends the creation of an item through a more formal process of validation, called New Item Request (NIR). An "NIR item" begins in a Draft status, and it goes through a workflow in Product Hub for detail enrichment and formal signoff, before it becomes available for further steps in Product Development.

Related Topics

- View Item and Document Details
- Overview of Change Orders and Change Types
- Overview of Approved Manufacturer List
- New Item Requests through Product Hub

Create an Item and Build an Item Structure

Video

Watch: This video tutorial shows you how to create an item and build an item structure. The content of this video is also covered in text topics.
Procedure

This topic covers how to create an item and build an item structure. A structure contains information on the parent item, components, and descriptive elements.

1. Use Navigator to go to the Product Management work area. From the list of offerings, click Product Development.
2. Create an item using the following steps:
   - From the Tasks panel tab, click Create Item.
   - In the Create Item dialog, select the class in which you want to create the item.
   - Enter a name for the item and provide a brief description. The name and description can be generated automatically by configuring the item class.
   - Select the primary unit of measure for the item.
   - Enter the value for item attributes. The attributes appear only if they are configured for the item class.
   - Click Save and Close
3. To copy existing items that you want to use for building the item structure, do the following:
   - From the Tasks panel tab, click Manage Items.
   - Enter a criteria to search for existing items and click Search.
   - In the search results page, select the items you want to add to the item you created. Note that you can use the control key to select multiple items.
   - Click Copy and click Done. The items are copied to the clipboard.
4. To build the item structure using the items you copied, do the following:
   - In the item that you created, click the Structure tab.
   - Click the Paste icon. The items are pasted to the structure.
   - Click Save.
5. To create a new item and add it to the structure, do the following:
   - In the item that you created, click the Structure tab.
   - Click the Create icon.
   - In the Item Create dialog box, enter the details of the new item.
   - Click Save and Close.
6. To add an existing item to the structure, do the following:
   - In the item that you created, click the Structure tab.
   - From the Actions menu, click Select and Add.
   - Enter the criteria to search for the existing item and click Add.
   - In the Select and Add dialog box, select the item.
   - Click Apply and Close.
Create a Manufacturer and Manufacturer Part

Video

Watch: This video tutorial shows you how to create a manufacturer and a manufacturer part, with some rules about working with the Approved Manufacturers List. The content of this video is also covered in text topics.

Procedure

Perform the following steps to create a manufacturer and manufacturer part:

1. Use Navigator to go to the Product Management work area. From the list of offerings, click Product Development.
2. Create a manufacturer, using the following steps:
   o From the Tasks panel tab, click Create Manufacturer.
   o In the Create Manufacturer dialog, enter the manufacturer name and provide a brief description. Click Save and Close.
   o Enter any additional information, if required. Click Save and Close.
3. Create a manufacturer part, using the following steps:
   o From the Tasks panel tab, click Create Manufacturer Part.
   o In the Create Manufacturer Part dialog, select the corresponding manufacturer or search for it.
   o Enter a manufacturer part number and provide a brief description.
   o Select whether you want to activate the manufacturer part, retain it as pending, or retain it as inactive. Click Save and Close.
   o Enter any additional information. Click Save and Close.
4. Assign the manufacturer part to an item, using the following steps:
   o From the Tasks panel tab, click Manage Items.
   o Enter the search criteria to search for the item that you want to associate with the manufacturer part.
   o Click Search and then click the item you want to associate with the manufacturer part.
   o Navigate to the AML tab in the item and select the row of the item to which you want to assign the manufacturer part.
   o Click Select and Add.
   o Select the manufacturer and the part number. You can also search for manufacturer and the part number.
   o Select whether the part is preferred or alternate. This is because you can assign multiple manufacturer parts to an item
   o Click OK and click Save.

The new manufacturer part is assigned to an item in the structure.
Create a Change Order and Submit it for Approval

Video

Watch: This video tutorial shows you how to create a change order and submit it for approval. The content of this video is also covered in text topics.

Procedure

Changes are created to modify an item. Use the Product Development work area to create a change order and submit it for approval.

Create a Change Order from Scratch

1. Use the Navigator to go to the Product Development work area.
2. Open the Tasks panel tab.
3. Click Change Order > Create Change Order.
4. From the Create Change Order window, select one of the predefined change order types.
5. In the Name field, enter a name for the change order.
6. In the Description field, enter a brief description of the change order.
7. Click Save and Close.
8. Click the Affected Objects tab and then click Add Item.
9. Search for an item and click Add to add it to the list of affected objects.
10. Click Save. By default, the change order is in Draft status.
11. Click the Change Status button to move the Change Order from Draft status to Open status.
12. Click the Approval option in the Change Status list to submit the Change Order for approval.
13. Add Approvers, as needed, and click Submit.

You can enter other information to the new change, or save it and later add more information.

Create a Change Order by Copying an Existing Change Order

From the Actions menu in a change order, use Save As to create a new change order of the same type or a different type. Here’s what you can copy over from the existing change order: descriptive flexfields, attachments, affected objects, and relationships. Note that you can copy relationships only in engineering change orders and change orders without revision control.

Create a Change Order from a Change Request

From the Actions menu in a change request, use Create Change Order. Here’s what you can copy over from a change request: affected objects, descriptive flexfields of affected objects, attachments, and relationships.

Related Topics

• Overview of Change Orders and Change Types
Create Change Requests

To create a change request, click the Tasks side tab and click Create Change Request. You can also create the change request from an item's General Information page. From the Actions menu, click Assign to Change Request.

You can search for change requests using the Search side tab. The application provides simple search, as well as advanced search incorporating other attributes.
5 Items and Documents

Items and Documents in Product Development

Items and documents have many features in common. Both types of business objects are derived from the same original class type. From the primary Root Item Class, the administrator may create a Root Document Class. Additional class types may be created based on the root classes. Different class types allow different kinds of items and documents. Items created from the same item class inherit the same template of attributes. Documents created from the same document class inherit the same template of attributes.

The document business object behaves in much the same way as the item business object. A document that contains information or specification about an item or assembly can be added to an item structure. Or, a document structure could be built with documents that contain item requirements or specifications in parallel with every item of an item structure.

The differences between items and documents are:

- Documents cannot be associated with manufacturer parts;
- Documents do not use the item grade function and attributes.

Related Topics

- New Item Requests through Product Hub

View Item and Document Details

An item's General Information side tab is the starting point to access its basic information. Depending on configuration and company needs, the attributes of an item might number a dozen or go well beyond a hundred.

These side tabs are available on items and documents:

- General Information - the default or cover page of an item or document.
- Attachments - text or graphic files, or URL, with more information about the item or document; attachments can be classified in a category.
- Structure - the Bill of Materials for assemblies, products, and other collections of items and documents.
- Quality - tab displays those quality issues or quality actions to which this item or document has been added.
- Changes - lists change orders or change requests that the item or document is on.
- Relationships - user-set association between any two business objects or structures.
- Team - users and groups who have access to the item or document.
- Where Used - tab displays those item-structures to which this item is added.

These side tabs are only available on items:

- AML - Approved Manufacturers List; manufacturer parts supplied by approved manufacturers are associated with items to be added to structures.
- Item Grade - notifies conditions of risk for the item.
General Information

When you open an item or document, the General Information page is displayed. When you’re on another page, you can always click the General Information side tab to return to the General Information page.

Fill in attributes for the item. The fields may be predefined in the application or they may be extensible flexfields (EFFs) that were added by your administrator. Your administrator can also decide whether you can view or edit EFFs by assigning privileges to attribute groups and users. The EFFs are defined in the item classification; so, available fields are derived from the item class hierarchy and respective attribute assignments.

You can also add a thumbnail or graphical image of the item on the General Information page.

Product Line Attribute

If configured, the Product Line attribute is used to assign the item to a product line in your company. This enhances the supply chain’s operational information.

Operational Attributes

An enterprise may have hundreds of additional operational attributes for any item or product. These attributes don’t need to be displayed on its main development pages, in fact, they may not become relevant until later on the path to commercialization. An administrator defines the visibility of operational attributes to Product Development users.

Note: Operational attributes are modified in the Product Information Management work area. Open an item, open its Specifications tab, see operational attributes in Item Organization.

Change-controlled Item Attributes

These attributes that can only be modified through the change order page.

Note:
- Canceled item and document revisions don’t appear in the revisions menu on the item and document page.
- Previously effective revisions of the item can’t be edited.

Where Used

Show Structure Levels: Filter items based on the level in which this item is used in another structure.
- First level: view first level of the structure in which the item is used.
- Top level: view topmost level of the entire bill of material in which the item is used.
- All levels: view all levels from the item to the topmost level in which the item is used.

Show items: Filter items based on their approval status in a change order.
- Implemented: view items that are already effective.
- All: view items that are effective and items that are yet to go through the change order approval process.

Date: The reference date used when running the where-used query. Let’s say that the date appears as 7/18/19. Then it’s the where used data as on 7/18/19. The table shows how the date differs based on the selected item revision.

<table>
<thead>
<tr>
<th>Selected Item Revision</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past effective</td>
<td>Revision end date</td>
</tr>
</tbody>
</table>
Team

At the item class level, your administrator defines users and groups who have access to items and assigns privileges. When you create items, you can add additional users and groups. Also assign privileges to the new users and groups. Note that you can't delete or modify the users and groups defined by the administrator.

Related Topics

- Manage Attachments in Items and Change Orders
- Item and Document Structures
- Relationships in Items and Documents

Take Action on Item and Document

These tasks can be accomplished from the Actions menu on an item or a document:

- **Assign to Change Order** or **Assign to Change Request**: you can be working in an item, document, structure, AML, or attachment and quickly get the item or document assigned to a new change order or change request.
- **Save As**: click the action to create an item or document from the one you’re working in. The new object duplicates the content of the first one.
- **Delete**: If an item is used in a structure it can’t be deleted. If an item or document is in Draft or Approved status, it can be placed in a Delete Group. An administrator can then delete the item from the Product Information Management work area.
- **Send Object**: this feature works for items, documents, and change orders. A message about the business object is sent to another user.
  - Messages displaying the list of recipients can be sent to a single user or multiple users. If there is a need to restrict a user from viewing the recipient list, it is recommended to send notifications to a single user.
- **Refresh**: use this action to quickly refresh an item or document without saving, closing, and reopening it.
- **Generate Report**: click a report on the fly-out list; the **Item Structure Report** can be generated and downloaded.
- **Download Attachments**: click Single Level or All Levels on the fly-out list.
- **Publish for Analysis**: Publish the structure and where used data for analysis in Oracle Transactional Business Intelligence (OTBI).

✏️ **Note**: Some of the tasks can also be accomplished from other user interface components.
This action is found on items, not documents:

- **Refresh Cost**: use this action to retrieve the latest costs for the item or structure, and to perform the **cost rollup**.

**Related Topics**

- Display Costs in Product Development
- Overview of Product Development Business Objects
- Overview of Change Orders and Change Types
- Manage Attachments in Items and Change Orders

### Review Item and Document Changes

The **Changes** page contains two subcategories, **Pending** and **Released**. When you click the Changes side tab of an item, the **Item Changes** and **Structure Changes** tabs appear. They display either the **Pending Changes** or **Released Changes** in a table format. The Item Changes tab displays the pending change orders and change requests of the item. The Structure Changes tab displays the pending change orders across all the items in all the revisions in the structure.

#### Pending Changes

Displays change orders and change requests that are in the following status: Draft, Open, Interim Approval, Approval, Hold, and Canceled.

#### Released Changes

Displays change orders that are in the Scheduled, and Completed status.

### When to Use Change Orders

Manage item revisions by submitting the item for approval by a change order. Attachments and AML must also be modified through a change order. You can't directly modify a manufacturer or an attachment.

**Related Topics**

- Create a Change Order and Submit it for Approval

### Lifecycle Phases in Product Development

Lifecycle Phases are used as an indicator of the stage for an item or document during the design and development process. Each phase represents a set of standard tasks or deliverables that are required before promoting an item to the next phase.

Each item or document must have a lifecycle phase associated with it. An object from a given class can be assigned to any of the lifecycle phases associated with that class. Before you can create or import items or documents or structures, the appropriate lifecycle phases must be created and assigned to the class used to create that object or structure (or to a parent
class of the class used to create the object). When a business object is assigned to a lifecycle phase, that phase is visible as part of the object’s attributes. In item or document structures, lifecycle phases name specific processes that are somewhat different - or in any case named differently - than the phases for the objects on the structure.

Four lifecycle phase types are predefined in the application:

- Design;
- Preproduction or Prototype;
- Production;
- Obsolete.

To change the lifecycle phase of an item, you must assign it to a change order.

The administrator may have created names for the lifecycle phases that are particular to your company’s processes. There may also be multiple phases based on the same predefined phase; for example, the predefined Production phase may be split into phases named Production and In Manufacturing, each having company-specific meaning in the steps to build and ship products.

Related Topics

- Create a Change Order and Submit it for Approval

**Considerations for Lifecycle Phases and Effective Dates**

When changing the lifecycle phase or effective date, consider the following restrictions:

**Restrictions on Promoting Lifecycle Phase**

In an item structure containing child items created in Product Development and Product Hub, there is a restriction when promoting the item lifecycle phase. On promoting the parent item, the application restricts promotion of Product Development items. However, Product Hub items are automatically promoted.

For example, consider the following item structure that includes items in the Prototype lifecycle phase:

**Item-1 (created in Product Hub)**

- Item-2 (created in Product Development)
  - Item-3 (created in Product Development)
  - Item-4 (created in Product Development)
- Item-5 (created in Product Development)
- Item-6 (created in Product Hub)
  - Item-7 (created in Product Hub)

On changing the lifecycle phase of Item-1 from Prototype to Production, note the following:

- Lifecycle phase of child items created in Product Development remains unchanged.
- Lifecycle phase of child items created in Product Hub changes to production.
Restrictions on Demoting Lifecycle Phase
In an individual item, the application restricts demoting the item lifecycle in the following scenarios:

- Production to Design
- Production to Prototype
- Prototype to Design

Restrictions on Future Effective Date
If you set a future effective date for an item in the design lifecycle phase, the application prompts you to select whether you want to change the effective date or retain it. Note that the best practice is to make the item effective on approval. A future effective date might initiate a complex process after the item approval.

How Item Grade is Calculated
The Item Grade side tab displays the Item Grade page. The application computes a temporary grade for the item, using standard rules from the industry. Your administrator has configured the application’s grading rules.

Documents or manufacturer parts do not support the Item Grade function.

Grade Items in Risky Conditions
Grading is computed for all the items from the entire item structure. It takes into account certain risk conditions of the item and its structure to compute the grade. Risky conditions that merit attention and modification may include the following:

- A child item at leaf node that has no approved manufacturers list (AML).
- A child item that has an unapproved manufacturer part number (MPN).
- A child item that is at a lower lifecycle than its immediate parent item or the structure’s top-level item. For example, a bicycle wheel might be at the Production phase of its lifecycle, while the bicycle itself is still in Pre-production: because there are other subassemblies that are not yet ready for Production, this is appropriate. You would not want the bicycle to have achieved Production phase while its wheel is still in Design. The grade rule provides an alert on the bicycle’s Details tile.

Default Rules
Grade computation can be configured to ignore or take into account any of the rules. You can select one to five of these issues to be involved in item grading:

- Lifecycle Mismatch
- Unapproved MPN
- Inactive Items
- Unreleased Items
- No AML
Standards for Grading
These are the default grading standards. The application does not count all the instances of violations; it counts an issue or criteria as "1 issue" no matter how many times the issue is violated:

- An item with 0 issues that has an Approved status is graded A.
- An item with 1 issue is graded B.
- An item with 2 issues is graded C.
- An item with 3 issues is graded D.

It can also be configured to use a numeric grading system, so that the number 5 corresponds with the letter grade "A", 4 with "B", and so forth.

Click an element on the Item Grade tab to discover what issues or conditions affect its grade.

Access Quality Issues from an Item
This topic describes how you can navigate from an item to related quality issues.

The quality tab of an item displays the quality actions and quality issues related to the item. When an item has an issue, the Has Issue icon appears in the search results table or the item’s structure table.

- Click the Has Issue icon in the table. The item shows up as a new tab and the quality tab opens automatically, displaying the quality issues and quality actions in separate tables.
- Click the link appearing in the quality issues and quality actions tables and the respective quality events open in a new tab.

Attributes that appear on the quality issues and quality actions table are similar to the ones that appear on the Manage Quality page.

Manage Product Lines

Video

Watch: This video tutorial shows how you manage product lines. The content of this video is also covered in text topics.

Procedure
Perform the following steps to manage product lines:

1. Use Navigator to go to the Setup and Maintenance work area. In Setup, click Product Management.
2. In Functional Areas click Catalogs.
3. Add a catalog to Product Development, using the following steps:
   - On the **Manage Functional Area Catalogs** page, select Product Development.
   - Click **Create**.
   - Enter the details of the catalog.
   - Click **Save and Continue**.

4. Add product line names to the category hierarchy, using the following steps:
   - On the **Catalog Hierarchy** page, click the create icon.
   - In the **Create Functional Area Catalog** dialog, enter the details of the catalog and click **OK**.
   - On the **Catalog Hierarchy** page, click **Save and Close**.

5. Assign a product line to an item, using the following steps:
   - Navigate to the Product Development work area.
   - Search for the item against which you want to add the product line.
   - On the **General Information** tab, click the plus icon next to **Product Lines**.
   - Select one or more product lines and use the arrow button to move them to the **Select Product Lines** column.
   - Click **OK**.

---

**FAQs About Items and Documents**

**How do I set the parameters used to calculate Item Grade?**

Open the **Tasks** panel, click **Manage Configurations**. Select the **Items** tab, and make selections in the **Grade** and **BOM Grade** sections.

**What's the difference between an item and a manufacturer part?**

An item is produced or assembled by your company, and it is tracked using an internal part number (IPN). A manufacturer part is entirely produced by an outside manufacturer. It is identified by a manufacturer part number (MPN).

**How do I configure the display of operational attributes in the Product Development work area?**

Open the **Tasks** panel, click **Manage Configurations**. Select the **Items** tab, and make selections in the **Item Attributes Display Settings** section.
How can I quickly edit the details of an item attachment?

On the item’s **Attachment** side tab, click the **Direct Edit** icon.

Can I activate an obsoleted item?

No. The **Obsolete** lifecycle phase is considered as the end of life for an item. You can still search for the obsoleted item and view its details.
6 Approved Manufacturers List

Overview of Approved Manufacturer List

Items are associated with manufacturer parts. A document object is never associated with a manufacturer part; of course, there is no restriction to a document object containing information about an item assembly that consists of associations to manufacturer parts.

Create or search and add manufacturer parts to the approved manufacturers list - AML. Manufacturer parts can be created only per manufacturer: the manufacturer is always created first, and every manufacturer part is associated with a manufacturer. Once you set that association, a change order pointing to the specific AML is required to authorize and approve AML modifications. In other words, an alteration to the manufacturer part.

Additional attributes can be described on the manufacturer part. Administrator-defined attributes are displayed in a dialog when you click the Additional Information icon.

Manufacturer parts can be associated with any item in a structure. The same manufacturer part can be added to multiple items in a structure. Use the Where Used side tab on the manufacturer part to locate where it is assigned across all items and structures. Manufacturer parts cannot be associated with document objects.

When you click the approved manufacturers list side tab, the Item AML and Structure AML tabs are displayed. The Item-AML tab displays the AMLs corresponding to that item. The Structure-AML tab displays the AMLs across all the items in the structure in a table format that is read-only.

In the Item AML tab, click the manufacturer name. Use the Attachments tab on the manufacturer details page to add attachments related to the manufacturer. You can then perform controlled check in and check out of attachments.

A manufacturer has a status of Active or Inactive.

Each manufacturer part has one of three simple statuses: Active, Inactive, or Pending.

The relationship between manufacturer part and item can be marked Preferred, Alternate, or Obsolete. The Preferred status indicates that manufacturer part can be sourced from its manufacturer or suppliers.

You cannot modify AML on a released item. Again, any change to AML on an item at that point requires a change order.

FAQs About Approved Manufacturers List

How do I create a manufacturer?

Before you can create a manufacturer part, there must first be an existing Manufacturer to assign to that manufacturer part. Click the Tasks side tab and select Create Manufacturer.
How do I create manufacturer parts?
You are involving a new Manufacturer in your product designs. Therefore, you must assign their manufacturer part numbers to your item structure. Click the Tasks side tab and select Create Manufacturer Part.

How can I search for manufacturer parts based on specific attributes?
On the Manage Manufacturer Parts page, you configure the search criteria and search for manufacturer parts. Click Add Fields to add more attributes to the search criteria. The attributes appear depending on the descriptive flexfields configured by the administrator.

How do I assign a manufacturer to a manufacturer part?
You are creating manufacturer parts for a new Manufacturer account. While creating the manufacturer part, select the correct manufacturer from the Manufacturers list.

Why can't I add a manufacturer part to an item?
The item might be assigned to a change order with a pending revision.
7 Structures

Item and Document Structures

The Bill of Materials is called a **structure** in Product Development. A structure is referred to by the parent or top-level item or document. A structure contains all the items required by the parent item for manufacturing an assembly, a subassembly, or possibly the entire product. Structures may be made up entirely of items - with associated manufacturer parts - or entirely of documents, or any mixture of both items and documents.

Build a Structure

A structure can be built up by either selecting and adding existing items, or creating new items (“on the fly”). The Actions menu and View menu assist you in building and modifying a structure.

**Related Topics**

- Overview of Change Orders and Change Types

Rules About Item Structures

Here are some rules about item structures.

**During Lifecycle Phase**

- You can assign an item in Draft approval status to an item structure.
- A component’s lifecycle phase should be the same or higher than the parent assembly’s lifecycle phase; this applies to items of lifecycle phase Preproduction or Production only.
- If an assembly is approved, components in the draft status cannot be added. This applies to items of lifecycle phase Preproduction or Production only.
- A hand-over of a structure to the downstream processes is triggered by changing the lifecycle phase of the parent item to Preproduction or Production.

**When You Execute Change Orders**

- You can edit an item without going through change management control, as long as the item is not assigned as an affected object to a change order.
- If you try to add an item to a structure but find that you cannot, it might be due to one of the following reasons:
  - There is another, later revision of the structure.
  - The structure is on a change order with a Pending revision.
The item was earlier assigned to a change order and the change order is complete. So you are not allowed to modify the item’s attributes, structure, AML, or attachments. To modify the item, assign it to a new change order.

When You Obsolete Items

- You can obsolete an item if it is not used in another structure.
- A child item can still be active if its parent is obsoleted.
- A child item cannot be obsoleted if the parent item is active.

To Calculate Item Grade

- Users can add items or other subassemblies to the top-level item. After the items are added, the grade of the top-level item must be refreshed. This results in a display of a newly calculated value of the grade.
- The grade of the entire top-level assembly or item takes into account various statuses of the child items within the structure.
- A structure can be examined further to see which items do not have an AML or which ones have pending changes. Based on all these conditions, the user can decide to improve the grade, and then publish the Item to Product Hub for manufacturing readiness.

Actions and Views on a Structure Page

This topic describes the actions, views, and other elements on Structure pages.

Actions on a Structure Page

These are the Actions that are available to a structure. Several of the Actions found on the list are also represented by icons on the toolbar (each displays a hover name). It can help to do a little practicing on some test structures. If you prefer to work with live structures as you learn, it is good to save what you have before you execute some action that can quickly change the entire structure.

- Create
- Duplicate
- Remove
- Export to Excel
- Assign to Change Order
- Assign to Change Request
- Copy and Paste
- Fill Up or Control-U Fill Down or Control-D, and Fill Selected: you can quickly fill in attributes when you have added new items (this is also available when modifying a change order).
  - Fill Up or Control-U
  - Fill Down or Control-D are available when you have selected a consecutive range of rows.
  - Fill Selected is available when you have used Control-click to select nonconsecutive rows.
Note that the Effectivity Date attribute is not automatically populated.

Views on a Structure Page

These are the Views that are available to a structure.

- **Columns** offer a Show All list that you simply select and deselect for column visibility.
- **Manage Columns** lets you select which columns are Visible Columns and which are Hidden Columns.
- **Reorder Columns** lets you work directly with the Visible Columns list.
- Collapse
- Expand All
- Collapse All
- Scroll to First
- Scroll to Last

Other Icons on a Structure

Click the dot or icon in a row to switch to pages about the structure:

- **Add Attachment or Add AML** - click the plus icon to add an attachment or AML. Note that this icon appears if the item does not have an attachment or AML.
- **Changes**
- **Attachment or AML** - click the dot icon to view an attachment or AML. Note that this icon appears if the item has an attachment or AML.

These represent larger areas of functionality, which are described in other topics.

Each item on a structure indicates if it has attachments, AML associations, or whether a child item is assigned to a change order. Pending Changes information is also included.

**Related Topics**

- Create a Change Order and Submit it for Approval

Import an Item Structure

**Video**

**Watch:** This video demonstrates how to import an item structure. The content of this video is also covered in text topics.
Procedure

Importing structures of items is similar to importing regular items. When you intend to collect items in a structure and then import that structure, the regular items must first exist in the application. If some or all items going into the structure do not exist already in the application, these items must be created or imported before you design and import the structure.

1. Open the ItemStructureImportTemplate.xlsx file.

   ✔ Note: For information about the template, see the File-Based Data Import for Oracle Supply Chain Management Cloud guide.

2. Enter the item information on the EGP_STRUCTURES_INTERFACE tab:
   - Set the Transaction Type to SYNC.
   - Enter a Batch ID such as 200.
   - Enter the Structure Name such as Primary.
   - Enter an Organization Code such as 000.
   - Enter the Item Name.

   In the EGP_SYSTEM_ITEMS_INTERFACE tab, you need not enter the item version start date. The application calculates this value based on item effectivity date in the EGP_ITEM_REVISIONS_INTERFACE tab. In case of multiple item revisions (or effectivity dates), the least date is considered.

3. Enter the structure information on the EGP_COMPONENTS_INTERFACE tab:
   - Set the Transaction Type to SYNC.
   - Enter the same Batch ID as on the EGP_STRUCTURES_INTERFACE tab.
   - Enter the Structure Name as Primary.
   - Enter the same Organization Code as on the EGP_STRUCTURES_INTERFACE tab.
   - Enter a child item in Component Item Name.
   - Enter the parent item in the Structure Item Name.
   - Enter a number for the component item sequence which determines the order in which child items are listed. In the absence of a sequence number or in case of a duplicate sequence number, the application automatically generates the sequence number.
   - Enter a number for the quantity of each item.

4. Generate CSV files:
   - Select the Instructions and CSV Generation tab and click the Generate CSV File button.
   - Click save each time the macro prompts to do so.
   - Locate the Zip file that was generated by the macro.

5. Import the Zip file:
   - From Navigator, open File Import and Export.
   - Click the Create New + icon.
   - Click the Browse button and locate the Zip file that was generated by the macro.
In the Account field, select SCM / item / import.
Click Save and Close.

6. Load data to interface tables:
   - From Navigator, open Scheduled Processes.
   - Click the Schedule New Process button.
   - Search for and select Load Interface File for Import as the process name.
   - Click OK.
   - Select Item Import as the Import Process.
   - Select your Zip file as the Data File.
   - Click Submit.
   - Note the process number.
   - Click the Refresh icon on the Scheduled Processes Overview page to watch for the process to complete.

7. While still in Scheduled Processes, click the Schedule New Process button.
   - Search for and select Item Import and click OK.
   - Enter the same Batch ID that you put in the spreadsheet.
   - Select the same organization that you put in the spreadsheet.
   - Set the other fields as desired.
   - Click Submit.
   - Note the process number.
   - Click the Refresh icon on the Scheduled Processes Overview page to watch for the process to complete.

Related Topics
- Import an Item Structure
- Import Agile PLM Business Objects to Oracle Cloud

FAQs About Structures

How can I view the manufacturer parts used in an item structure?
On the Edit Item page, use the Actions menu to generate the report containing manufacturer parts used in an item.

How can I view attachments for all the components of an item structure?
On the Edit Item page, use the Actions menu to download the report containing attachments for all the components of an item structure.
How can I find out when the component is added and removed from the structure?

The start date and end date fields on the item structure page indicate the date when the component was added and removed from the structure.

Why can't I modify the structure?

You attempt to add an item to a structure, but find that nothing is happening. This may be because the item structure either has another Revision or is on a change order with a Pending revision.

How can I compare different revisions of the same item?

On the Structure tab of the item, use the Actions menu and select Compare Structure. In the Compare By list, select Revision. You can compare different revisions of the same item or different items.

How can I inform other users about my new item structure?

Select Send Object in the Actions menu and add the users you want to inform. Or, you can post the structure on Oracle Social Network and invite users to the discussion.
8 Change Management

Overview of Change Orders and Change Types

Change orders let you process changes to items, documents, and structures.

Product data stewards and product managers can manage product change orders. They can create change orders within predefined change order types, author and view product changes, submit changes for review and approval, track change statuses, and implement changes on a scheduled date.

Changes are submitted through a formal review and approval workflow to ensure successful and validated completion of change orders.

Note: Change objects may be referred to generally as change orders, change requests or changes. However, when being specific about Change Types that your company may use to create individual change objects, you must differentiate between Change Order and Change Request types.

Change Types

Depending on your administrator’s setup, when you create a change order in Product Development, it will be of one of these Change Types:

- **Engineering Change Order** - The most comprehensive change order type, as it forces a revision on a changed item (or document or structure) when it’s submitted for review and released. The engineering change order displays redline modifications in these entities: structures, AML, and attachments.

- **Change Order without Revision Control** - An engineering change order that doesn’t impose revision control. It displays redline modifications in these entities: AML, extensible flexfields (EFF), and Item details (attributes on General Information page).

  Note: In Engineering Change Order and Change Order without Revision Control, you can only add items created in Product Development.

- **Commercialization Change Order** - Is from Product Hub and it’s read-only in Product Development.

Types of Change Requests

- **Engineering Change Request** - It doesn’t display redline modifications. You can assign items that are currently effective or scheduled to be effective in future.

- **Deviation Change Request** - It requests that the items or structures deviate - for a specific time period - from a process or specification. The deviation is against the non-latest released revision (non-LRR) of an item. It doesn’t display redline modifications.

Related Topics

- Overview of Product Development Business Objects
- Create a Change Order and Submit it for Approval
View Change Details

A change order’s **General Information** side tab is the starting point to access its basic information. When a change order is created, the Change Order Type is assigned and cannot be modified later.

These are the side tabs that are available on changes, that is, change orders and change requests:

- **General Information** - the default or cover page of a change order
- **Affected Objects** - items or documents or structures that are the subject of the proposed change or modification.
- **Attachments** - text or graphic files, or URL, with more information about the change order; attachments are classified in a category.
- **Workflow** - the sequence of statuses through which the change order advances
- **Impact Analysis** - impacted assemblies are those that are impacted by modifications to items or structures on this change order
- **Relationships** - user-set association between any two business objects or structures
- **Security** - add reviewers to the change order; search and select by Person (user name) or by Role.

When the role is expanded into a comma separated list, the number of characters in the list should not exceed 2000.

**General Information**

When you open a change order, the General Information page is displayed. Fill in attributes for the change order. The change order ID may be filled in during creation by the user, or, depending on the configuration, it can be automatically numbered. Attributes such as descriptive flexfields may be added by your administrator. Depending on the configuration, you can enter up to 4000 characters in the descriptive flexfield.

By default the Priority is set to Low. Priority can be defined during initial creation or later.

Customer-specific attributes for the change order are also displayed on the screen.

**Attachments**

Click the **Attachments** side tab, the Attachments page displays. Files can be associated with this change order using the + Add icon or **Actions > Add**. If you select a listed attachment, the X Delete icon and **Actions > Delete** are enabled.

When you want to modify an attachment, you must first distinguish the purpose and place where the attachment appears. An attachment on a change order is a document that further explains something about the change order itself. This attachment can be modified directly, as long as the change order is in an editable status; there is no need for an additional change order.

Attachments on items are managed with the mechanism of a change order, in which proposed modifications to the attachment are described, reviewed, and approved, much like proposed modifications to the item’s design or attributes.

**Related Topics**

- Affected Object Details
- Define a Workflow
Take Action on Changes

The following change order actions appear in the Product Development work area:

- **Change Order Details Report**: This action generates a report of the change order. You're prompted on optional settings, such as a Template (if more than the default is set up by your administrator), the Format of the report (for example, HTML), and the Locale.

- **Delete**: If you want to remove a change order from the company’s database, first it must be moved to the Cancel status. From the Actions list, select Delete: this moves the change order to Product Hub, where it’s placed in a Delete Group. The change must meet constraints that ensure it’s not incorrectly deleted; when the constraints are satisfied, the deletion of the change order is completed.

- **Send Object**: this feature works for items, documents, and change orders. A message about the business object is sent to another user. Messages displaying the list of recipients can be sent to a single user or multiple users. If there is a need to restrict a user from viewing the recipient list, it’s recommended to send notifications to a single user.

- **Audit**: Along with Audit Results side tab, this action creates an audit report on a change order. Select Audit, and select a status from the fly-out list. This generates the audit. (Which statuses are displayed depends on workflow definition.) Now, click the Audit Results side tab. The audit checks for any problem or violation of the entry or exit criteria on the Status changes in the workflow of the change order. The Audit Results lists all these as well as more general issues with the change order.

- **Download Redlined Attachment**: This action appears on the list when this change order has one or more attachments. Selecting the action prompts you to go to Scheduled Processes, which is on the Tasks panel in Settings. You may need to accept the data on the Scheduled Process page if you're not able to modify it.

- **Move Change Lines**: Move the selected affected objects to a new change order within the same organization. You can move affected objects in the following status: Draft, Open, Canceled, or Rejected.

Set Status on Changes

The list of default statuses that can be set from the Change Status button on changes depends on the workflow definition. The workflow in Product Development always has an Approval status.

- **Approval**: Select this status when you create the change order or change request and want to send it to reviewers for their review and approval or return.

- **Hold**: Select this status when the change must be withdrawn from active evaluation and review.

- **Cancel**: Select this status if you must delete the change order.

Define a Change Order

This is a sequence of steps to define and distribute a change order: Once items or documents are added to the change, you can view the Summary of Changes that displays all change operations and redline information for each affected object.
The change operations are **Add**, **Withdraw**, or **Modify**. The change operations describe the specific modification to an item, document, or structure.

1. Create the change order, giving it an appropriate name and purpose or description.
2. Assign only necessary items and documents, that is, business objects that you anticipate should be affected by the change order. This can be one or more items or documents.
   - Manufacturer parts cannot be added to a change order; you must add a manufacturer part’s associated or parent item.
3. Edit the item or document and modify their definitions:
   - Update the item or document attributes; or,
   - Modify the structure, in these ways:
     - by adding new structure components;
     - by withdrawing existing structure components; or,
     - by modifying structure attributes.
4. Check the impact of the change by analyzing the impacted products.
5. Adapt the change, to make only the intended products being impacted.
6. Define the list of approvers for the change - individual users or user group. If the user group is expanded into a comma separated list, the number of characters in the list should not exceed 2000.
7. Submit the change order for approval.
8. Approvers review and then approve or reject the change.
9. If rejected, rework the change and resubmit for approval.

**To add an affected object to the change:**

1. Open the Affected Objects panel.
2. Open the **Actions** list and select **Add**. Or use the + Add icon.
3. Search for appropriate items or documents.
4. From the returned search results, use the arrow to assign an affected object.
5. Save your modifications.

**To change the revision of an affected object on the change:**

1. In the row of the affected object, you can make a manual change to the revision.
2. Save your modifications to the business object.

**To change the metadata attributes of a business object that is held on a change:**

1. Select the affected object.
2. Open the **Actions** list and select **Edit**. The object’s Details page displays.
3. Modify object attributes.
4. Save your modifications to the business object.

**To change the structure of a business object that is held on a change:**

1. Select the affected object.
2. Open the **Actions** list and select **Edit**. The object’s Details page displays.
3. Switch to the item or document structure by clicking the **Structure** icon.
4. **Add** a new item or document structure component. Or, **Modify** or **Withdraw** an existing structure component.
5. Save your modifications to the business object.
Impact Analysis in Change Orders

You can launch an impact analysis from the Impact Analysis side tab on a change order or change request.

Start the impact analysis from an impacted product. Use either of the following:

- From the Impacted Product panel look into the details for a specific impacted product. Filter the multilevel item structure of the product, to see only that part of the item structure that is impacted by the change. Thus, it is easier to focus on the relevant part of a larger item or document structure.
- Go to the Affected Object panel, select a specific affected object, and start an impact analysis from the toolbar icon or Actions menu.

View the list of impacted products, and analyze why the product is impacted. Understand how many affected objects impact the product. Adapt the change definition to achieve the intended list of impacted products. The impact analysis opens the affected assembly and displays where the modified object exists in the impacted structure. The change order originator and reviewers may use this impact information for decisions about the proposed changes.

Secure Access to Changes

To secure a change order (or change request) from unauthorized access, go to its Security tab and add the users or roles who should have access to it.

Users in the Product Development and Product Information Management work area can view and approve change orders, whereas users in the supplier organization can only view change orders.

When you create a new change order, note the following:

- Until you restrict access, change orders can be accessed by all users.
- If a new user or group is added to restrict access, the change order creator and assignee are added automatically.
- To remove the creator and assignee, use the Delete All option.

To enable users to view or approve change orders, an administrator must also provide the necessary privileges.

When you search for a change order using any criteria, the search results show only the change orders that you’re allowed to view.

Related Topics

- Troubleshoot Access to Change Orders

Create and Track Tasks

Create a checklist of tasks related to the change order (or change request) and assign work to individuals. You can make it mandatory for a user to complete certain tasks before the change order (or change request) can progress to a specified status.
Task Examples:

- Review and update cost attributes of affected objects.
- Define regulatory attributes.
- Publish information to Marketing and Sales.

The Tasks table includes the following fields that let you specify task details:

- **Sequence**: Determines the order in which the tasks are performed. By default, this increments by 10.
- **Required**: Indicates that the task is mandatory for the change order to progress. If a task is mandatory, then a Complete-Before Status must be specified.
- **Assigned To**: Specifies the person to whom the task is assigned.
- **Start-by and Complete-Before Status**: The status at which the tasks should be initiated and the status before which the task should be completed.
- **Need-by-Date**: Indicates the date on which the tasks should be completed.

Create Change Order Tasks

To create a change order task, add lines to the Tasks table when you define or edit a change order. To mark a task complete, or to cancel a task, change the status in the Task Status column. You can modify an existing change order task if its task status is **Open**.

**Related Topics**

- What Change Orders Modify
- Change Order Statuses

Cancel Change Objects

Here are some things you need to know before you cancel change orders and change lines (or affected objects):

- Manually cancel the change order:
  
  Use the **Cancel Change Order** action. Then the application cancels all change lines except the ones that are complete; the change order status is set to Canceled.

- Manually cancel the change line:
  
  Use the **Cancel** action.

- Auto cancellation of the change line:
  
  If the application encounters an error when implementing or activating the change line, the change line gets canceled automatically. If this happens you notice:
  
  - An entry in the History tab indicating which change line is automatically canceled.
  - The change line status is shown as Canceled.

  To proceed with the change line, you can move it to another change order.
Access Change Order from OSN Conversation

In an OSN conversation that is associated with a Product Development change order, there is a link called View Details. Click the link to go to the relevant change order in a new browser tab, OSN opens the new tab even if the change order is already open on your tablet or device.

You could already access Oracle Social Network from a particular change order, and start a conversation with one or more colleagues about the ECO’s content. This link permits you to easily return to the change order for viewing or modifying details.

Related Topics
- Access Product Development with Oracle Social Network

Edit a Released Item or Document with a Change Order

A change order is required to edit a released item or document, including its AML or attachments. The item or document must be added to the Affected Objects list. You can then edit the details of the business object. If you want to modify a structure that this released item or document is in, the parent item or document must be in the change order as well.

Use a Change Order to Redline an Item Structure

Video

Watch: This video tutorial shows you how to use a change order to redline an item structure. The content of this video is also covered in text topics.

Procedure

Redlining is the process of marking modifications to an item or structure that must be approved to be implemented. This topic describes how to use a change order to redline an item structure. Use the Product Development work area to create a change order.

To use a change order to redline an item structure:

1. Use Navigator to go to the Product Development work area.
2. From the Tasks panel drawer, click Create Change Orders.
   - From the Change Type list, select a type of change order.
   - In the Name field, enter a name for the change order.
   - In the Description field, enter a brief description.
Click Save and Close.

3. Click the **Affected Objects** side tab.

   - On the change order, click **Select and Add** to search for and add the affected object so that you mark it for modification.
   - Go to the **Structure** tab. From the results, select an item row.
   - Go to the X icon and select Withdraw to withdraw the item from the structure.
   - Click OK.

4. Now you must add a new item to the Structure.

   - Click the **Create** icon.
   - Select a class from the **Class** list.
   - In the dialog, enter a name in the **Name** field.
   - Enter a description in the **Description** field.
   - Click **Save and Close**.

You can view the saved modifications in the summary of changes.

---

Use a Change Order to Add a Manufacturer Part to an Item

**Video**

**Watch:** This video tutorial shows you how to use a change order to add a manufacturer part to an item. The content of this video is also covered in text topics.

**Procedure**

This procedure creates a change order, adds an item, and associates the item with a manufacturer part.

1. Use Navigator to go to the Product Management work area. From the list of offerings, click Product Development.
2. Create a change order, using the following steps:
   - From the **Tasks** panel tab, click **Create Change Order**.
   - In the **Create Change Order** dialog, select a change order type. Click **Save and Close**.
   - Enter the following details for the change order: number, name, and description.
   - Select the priority.
   - Click **Save and Close**.
3. Add the item as an affected object to the change order, using the following steps:
   - Click the **Affected Objects** side tab and click **Select and Add**.
   - Enter the item name and click **Add**.
4. After the item is added as an affected object, select the item and click **Edit Affected Object**.
5. Edit the item to add the manufacturer part, using the following steps:
   - On the **Edit Item** page, click **AML**.
   - Click **Select and Add** to add the manufacturer part as a recommendation.
   - Select the manufacturer name, part number, status, and context. Click **OK**.

   The manufacturer part is highlighted in green and includes a plus icon to indicate that it's a new assignment.

   ✍️ **Note:** The change order must be approved for the manufacturer part to be implemented.
   - Click **Save and Close**.

### FAQs About Change Management

#### How do I add an item or document as an affected object?

In you want to change the lifecycle phase of an item or document, you must assign the object to a change order. Open the item or document and select **Assign to Change Order** from the **Actions** menu.

#### How can I create a new change order based on an existing change order?

You can use the **Save As** action to create a new change order. In the dialog box,
- Select the change type for the new change order.
- Choose to copy over the affected objects, attachments, and relationships to the new change order. The objects you can copy depend on your work area.

#### How do I add items or documents to an existing change order?

With a change order open, click the **Select and Add** button to add existing items or documents, or click the **Create** button to add new business objects.

#### What's the difference between Withdraw and Remove?

Use **Withdraw**, to delete a component that was added before the item was assigned to the change order.

Use **Remove**, to delete a component that was added after the item was assigned to the change order.
Why am I unable to modify the change order?

The change order is in an Interim Approval status and the **Allow Updates** option on the Interim Approval status has been disabled. Or, you only have privileges to view the change order.

How do I approve a change order?

Approve the change order through the configured workflow that is associated with the change. Notification appears on the worklist of all approvers or reviewers. Once they take action, the change moves to the next set of approvers, and so on until it is completed. Once completed, the Revision of the item or document being changed is automatically incremented.

Why am I unable to edit the change order?

If the change order is created in Product Hub, you cannot edit the change order in Product Development. Conversely, change order created in Product Development cannot be edited in Product Hub.

How can I find out who acted on a change order and the changes they made?

Open the History tab of a change order or change request to see the sequence of actions recorded for that object. You can see who has performed each action along with the time stamp and the details about each action.

Why did the change order approval prompt for a comment and password?

Your administrator configured the comment and password fields as mandatory for the purpose of audit. Enter your login password.

What's the difference between an engineering change order and change request?

Both the change types permit you to route items and documents through a workflow. The engineering change order lets you markup the required changes and the changes become effective on approval. But the change request doesn't provide any markup.
Why did the Scheduled change order get automatically promoted on canceling the last change line?

Your administrator has enabled the **Autocomplete on Cancel** option for the change order type.

Let’s say that the first three change lines are complete and the last change line is stuck in the Scheduled state. So you cancel the scheduled change line. Then the change order is automatically promoted to the Completed state.

*Related Topics*

- Change Order Types
9 Affected Objects and Redlines

Affected Objects and Change Operations

Affected Objects and Change Operations are found on the Affected Objects tab, in List View. The number of Redlines held in that change order are reported.

You can select the Table view and List view by clicking the toggle icon on the Affected Objects page.

The Summary of Changes panel of information is next to the list of Affected Objects, in the List View. Use the Summary of Changes to understand the details of the change order and the affected objects it holds. The summary displays detailed information, such as change operations and redline details, for each object that is affected by the change.

Link to Affected Objects

On a change order, click the Affected Objects link for a list of all business objects that are affected by this change order.

Link to Change Operations

Use Change Operations to view a list of every modification that has been done in the progress of this change order.

So, if you modify both an attribute of an affected object and its structure, two change operations are displayed in this view.

Change operations are accounted for on items, structures, attachments, and reference designators.

On items and on attachments to items and documents, the change operations accounted for are:

- Modifications.

On structures, the change operations accounted for are:

- Modifications;
- Withdrawals.

On reference designators on an item component, the change operations accounted for are:

- Additions;
- Withdrawals;
- Modifications.

Redlines in Change Orders

Redlines are the individual changes on items and on reference designators that display mark-up, that is, indications of recommended, modifications, additions, or deletions (withdrawals).

Any modification to a single item attribute is counted as one redline. The same is true whether you are adding or withdrawing an element to a structure.
Any modification to an existing structure attribute counts as a single redline. So, modifying the content of the reference designator attribute is one redline, and changing a second attribute counts as a second redline.

Redline information for item extensible-flexfield (EFF) attributes are shown in the Additional Information tab, next to the Summary tab. The Additional Information tab appears only when EFF redline information exists.

**Affected Object Details**

Affected objects are the items and documents that are changed by the fulfillment of the change order, that is, its approval and release. The Affected Objects page lists the affected objects that are changed, as well as the change operations that are involved. You can cancel affected objects before the change order is complete.

**Table View and List View**

The standard or default view of affected objects are in a list. Click the Table View icon to switch to a modifiable display, allowing you to edit certain attributes directly, for example, Item Revision. You can also edit any change line attributes.

Table View and List View are a toggle

**Additional Functions in Table View**

In Table View, the following actions assist working with items, documents, or change orders:

- Fill Up or Ctrl-U
- Fill Down or Ctrl-D
- Fill Selected

You can quickly replicate a just-modified attribute or attributes as you are adding new items or documents (this is also available when building a structure). For example, you have just modified the value of an attribute, and there are a dozen more items with the same attribute that need the same change. If you select a consecutive range of rows, the keystroke actions Fill Up or Ctrl-U, and Fill Down or Ctrl-D, will populate the attribute in all of them. Or, if you use Ctrl-click to select non-consecutive rows, the Fill Selected action performs the multiple changes.

You can use Query by Example to filter a large list of affected objects.

**Scheduling and Activation Reports**

After the change order scheduling and activation processes begin, the process IDs appear. The IDs include hyperlinks to reports in the first 72 hours of report generation. Later on, only the IDs appear.

**Affected Object Selector**

In the Edit Affected Objects dialog, the Affected Object Selector lets you switch to another affected object without leaving the dialog. Use the list to select another affected object, or the forward and backward arrows. When you change to a new affected object, the pending changes for the current affected object are automatically saved.
Revision Number for Affected Objects

In an engineering change order, a revision number is automatically assigned to an item or document when it is added as an affected object. Users can modify the initial revision until the affected object is saved through the change order. After that, the revision can only be modified using Resolve Revision Conflicts.

The Revision list on the item’s General Information page shows the revision and the corresponding change order number.

Note that the revision number remains unchanged in a change order without revision control.

Resolve Revision Conflicts

An affected object can be assigned to multiple change orders. In the beginning of the change order workflow, you select an initial revision based on which you modify the object. As you proceed with the change order, you assign the new revision and a final revision becomes effective. If the object is already assigned to another change order and you promote that change order, it results in a conflicting revision.

For example, let’s say that an item is assigned to change orders C001 and C002. The initial revision in both the change orders remains A. Consider that:

- C001 is executed first and the effective revision becomes B.
- C002 is executed with the item in initial revision A. But the latest effective revision (resulting from C001) is B.

When you promote C002, the application detects a conflict between revisions A and B and prompts you resolve conflicts. When you resolve conflicts, the application modifies the initial revision in C002 as B. It also refreshes the redlines accordingly.

Related Topics

- Edit a Change Order

Specify Effective Date for Affected Objects

An affected object can become effective on completion of the change order workflow, or on a future date.

If an object is assigned to multiple change orders, each revision can have different effective dates. For example,

- Revision B resulting from change order B001, can be effective January 1.
- Revision C resulting from change order C001, can be effective January 6.

When assigning an affected object to a change order, you select the particular revision that you want to modify, and also enter the new revision for the modified object.

The revision you want to modify includes either of the following:

- Revision that’s currently effective.
- Revision that’s scheduled to be effective in future and resulting from a change order in the Scheduled status.

Note: You can’t select a revision that’s pending approval.

The effective date for the modified version must include a date that’s in-between the existing effective dates.
For example, revision B can be effective January 1 and revision C can be effective January 6. So the modified version can include an effective date January 4.
10 Workflows

Workflows in Product Development

Workflows provide a mechanism to submit change orders and change requests for review and approval.

Workflows manage change orders for business objects, such as items, documents, and their structures. Change orders in Product Development can be available to objects in other PLM applications. These include the Quality Action of Enterprise Quality Management (EQM) and the Requirement Specification of Innovation Management (IM).

The type of the change order determines the kind of workflow. Define entry criteria for the workflow to enter a particular status. Define exit criteria for advancing to the next status. The Workflow Summary documents the events of the workflow. Define and view the list of reviewers.

Each status can be selected to view its details, such as history and approvers. The application synchronizes and displays the Workflow Summary and Approver Panel for the selected status.

Once edits are made to attributes and structure, the change order can be submitted to a formal workflow to be approved. Once the change order is approved, the item’s revision is changed according to the scheme defined by the administrator using the system’s automatic naming.

Define a Workflow

When the administrator defines a Change Order Type, the process includes the definition of the workflow that will be available when you create a change order of that type.

Define the Sequence of Statuses

You can define individual status to be used in the workflow, but each status must be derived from standard Status Types:

- Open
- Interim Approval
- Approval
- Scheduled
- Completed

Every workflow has at least the following statuses by default:

- Open
- Approval
- Scheduled
- Completed

You can define multiple status of the types Open and Interim Approval. However, the statuses of type Approval, Scheduled, or Completed can each occur only once in a workflow.
A workflow for a change order always begins in Draft status after it has been created.

**Transition of Status**

To execute a status transition, use the change status option in the change order workflow.

If there is a problem in changing a workflow's status, running an Audit Report of the change order may indicate issues with status Entry and Exit criteria.

**Hold and Cancel Statuses**

A workflow can be put on Hold with the Hold status option. Later this workflow could be resumed by moving it to another status.

A workflow can be canceled with the Cancel status option. However, once the Cancel status is set, this workflow cannot be resumed.

**Approve or Reject a Workflow**

To approve or reject a change, click the Approve or Reject button on the Workflow page. You can also request more information, reassign, escalate, or suspend the change.

Note that these buttons are displayed only if the opened change order is waiting for approval. If a change order is eligible for approval, a task notification appears in the Worklist panel.

When you open the task details from the Worklist panel, you will see more details about the change order.

You can assign approvers in each Approval- or Interim Approval-type status. Click the link of the appropriate status name in the workflow graphic panel. Open the Reviewers list for this status to edit the approvers. If the workflow is set to autopromote from Open status to Approval status, you must finalize the list of (optional) approvers before the workflow commences. If not, you can set the approvers in the dialog box when you route the change order to Approval status.

**Terminate and Restart a Workflow**

If an approval workflow in a change order is stuck, you can terminate and restart the workflow. The approval can be stuck in the following scenarios:

- Approver has resigned from the company.
- Approver is mistakenly added and does not want to approve the change.
- Approver is on leave and a vacation rule has not been set up.
- Something unanticipated prevents the workflow from being approved as planned.

To terminate the approval workflow, use the Terminate Workflow action from the Actions list. This action is only available for the change order assignee. When you terminate the workflow:

- It stops and remains in the Interim Approval or Approval status.
- Previous approval notifications for which the approvers have not responded are removed. Notifications are removed from: BPM Worklist, worklist information tile in the Product Development work area, and bell notification.
You can modify the list of approvers and restart the workflow. Use the **Restart Workflow** action from the **Actions** list. When you use this action:

- The workflow restarts from the status it was terminated.
- New approval notifications are sent.

You can terminate and restart the workflow in an engineering change order, change order without revision control, and engineering change request.

## FAQs About Workflows

### What's the difference between One and All in an Approval type status?

For an Approval type status, on the Header Approval row, you can select One or All for the **Response Required From** property. "One" means that only one of the assigned approvers must approve the change order for it to advance, while "All" means that all assigned approvers must approve the change order for it to advance.

### How can I learn of problems with the statuses in my change order's workflow?

Run an audit and obtain the audit report. In the change order, click **Actions > Audit**, and select a name on the menu. Then click the **Audit Results** side tab.

### Why is the change order workflow status in the wrong place in the order sequence?

It might be due to an incorrect sequence number specified in the Manage Change Order Types task (available in the Product Management offering).

### Why did the change order go back to the Open status when rejected from the Approval status?

The **Automatic Demotion Status** property on the Approval status was set to Open by the administrator.
Chapter 11

11 Relationships

Relationships in Items and Documents

In an item or document, click the **Relationships** side tab, the Relationships page displays. Relationships can be set with the item you are working in. When you set a relationship from one business object to another (or manufacturer part or change order), the association is established in both objects; that is, both objects display the name of the other, related object as a live link. Click the link to open the related object in its own dynamic tab.

There is no differentiation or hierarchy to relationships.

Use the Add icon + or **Actions > Add**: the **Add Relationships** dialog appears. You will only see objects for which you have privileges. You can click the **Refine** button to bring the familiar fields for Advanced or Basic searches. The Search list provides available types of objects that can be searched; the default is Items.

Some details about each item returned on the search appear on mouse hover-over, including the item's Name, Revision, and Lifecycle Phase. Only the latest revision of any item is returned on the search.

If you select an associated object, the Delete icon X and **Actions > Delete** are enabled.

Relationships with Business Objects in Other Applications

The administrator may have set up object types from other compatible applications on your system. These external object types may be listed on the Relationships Search list. For instance, if there are Oracle Cloud Innovation Management applications configured on your system, object types such as Concepts, Requirements, and Ideas are available for your search.

**Note:**

Product Development items are specifically available for relationships with Innovation Management business objects. If a relationship is established between a requirements specification or requirement and an item, and the requirement is modified in any way, the relationship link to the requirement in the item is then tagged with an indicator with the label **Has changed**. (The indicator or icon displays this tool tip.)

A relationship may also be established to an object in another, external application. However, you may find your privileges to modify such an object are more constrained than objects from Product Development. See your administrator.

**CAD for Cloud Integration**

The CAD for Cloud integration enables functional users in the CAD development process to coordinate and relate designs in Agile PLM to items in Product Development. You can relate a design in Agile PLM to an item in Product Development with the Publish Workbench tool on the Affected Files tab of a design file change order. You can also remove the relationship. Once a design object is successfully related to a Product Development item, the relationship between the two objects is included on the Relationships tab of the design in Agile PLM. It also appears on the item's Relationships table in Product Development.

See Agile PLM CAD for Cloud Integration Guide for more details.
**Relationships in Change Orders**

Click the Relationships side tab, the Relationships page displays. Relationships in change orders primarily support the objects and functions in Enterprise Quality Management (Oracle Cloud EQM), namely, the Quality Action and the Quality Issue. The change order Relationships function only when Product Development and EQM are both deployed.

When a quality issue is raised against a defective part, a quality analyst evaluating issues could take further action, such as raising a quality action to fix the defective part.

If the defective part has been released during the production process, the quality action would be resolved when the part is fixed and released through a new change order. This change order’s release indicates that the quality action is now validated, which would permit the original quality issue to be closed. Manual tasks facing the user - validating the quality action, closing the quality issue - can be automated by rules.

Relationships can be created manually or automatically.

Example 1: Let’s say a change order is created from a quality object. Then a relationship is automatically created between the change order and quality object.

Example 2: Let’s say change order C001 is affected by another change order C002. To track the progress, you can manually create a relationship between the two change orders and create a relationship rule.

You can click the + icon on a change order’s Relationships page to specify a new rule. The rule would specify the status of the change order that needs to be reached in order for the quality action to move to an appropriate state. Each rule can be changed or deleted.

The default rules are: release of the pertinent change order is the only means to validate the related quality actions; validation of the pertinent quality actions is the only means to close the quality issue.

When moving the quality issues or actions to the target status, if there are intermediate statuses that require approvers, those statuses are not bypassed.
12 Attachments

Manage Attachments in Items and Change Orders

The Attachments side tab on an item displays a list of documents or graphics or other files that have been attached to the item.

Item Attachments

The application tracks changes to attachment file attributes such as Name and Description. It discerns when an attached file that was previously checked in is now checked in with modifications. However, it does not discern or track the specific changes to the file.

Attachments on items are subject to change control: you must create a change order to authorize and approve modifications to attachments. Also, you cannot modify an attachment on a released item without a new change order and approval.

Attachment Redlines

The modifications to Item attachments are called redlines. Redline information for an item is captured in its Attachments page. The Redline Summary panel displays the attachment modifications. Attachment modifications are counted in Change Operations.

Change Order Attachments

An attachment on a change order is a document that further explains something about the change order itself.

Distinguish Purpose of Attachments on Items and Change Orders

When you want to modify an attachment, you must first distinguish the purpose and place where the attachment appears.

Attachments on items are subject to change control: you must create a change order to authorize and approve modifications to attachments. Also, you cannot modify an attachment on a released item without a new change order and approval.

An attachment on a change can be modified directly, as long as the change order is in an editable status; there is no need for an additional change order.

Actions on Attachments

Once the item holds an attachment, the Attachment page actions include:

- Check In
- Check Out
- Cancel Checkout

- Files can be associated with this item using the Add icon + or Actions > Add.
- If you select a listed attachment, the Delete icon X and Actions > Delete are enabled.
- If you find the Attachments Add icon + or Actions > Add is disabled, possible reasons are: the item has another, later revision; or, the item is currently on a change order.
FAQs About Attachments

How do I attach files to an item or document?

After creating a new item or document, you want to attach an important drawing to it. On an item, click the Attachments side tab, then click the Add button. On a document's main page, click the Attachments side tab, then click the Add button. Browse to the file you want to attach, select it, and click OK.

Why can't I attach files to an item or document?

You need to attach some files to an item or document, but the Add icons on the Attachments tab are grayed out. The item or document either has another Revision or is on a Change Order currently.

How can I view redlined attachments for a change order?

On the Edit Change Order page, use the Actions menu to download the report containing redlined attachments. Note that this feature is only available for engineering change orders.
13 Roll Up Costs

Overview of Cost Rollups in Product Development

As part of product design and development, design engineers need estimated costs of a product or its components and assemblies. During new product development, users build products by using new items and by reusing existing items. For existing items, costs may have been captured in a costing solution, such as Oracle Cloud Costing. This company can use costs captured in the costing solution to estimate the costs of the product during product design and development. For new items, and for existing items that have no set cost, design engineers must provide a high-level estimate of costs directly to each item.

Note: Documents are not supported by cost rollups.

Display Costs in Product Development

The following capabilities are supported for cost rollups. Existing or "historical" items in Cloud Costing may provide costs to Product Development, but the cost rollup functions do not depend on being connected to a deployment of Costing.

Costs in the Costing solution are based on an inventory organization. To support this, Product Development can determine what inventory organization to use, to retrieve costs. This option can be disabled if the company does not deploy Costing. By default, the inventory cost organization is the same as the default Product Development organization, which is the Master Organization.

The Material Cost, Overhead Cost, and Total Cost fields are on the General Information page of an item. On a structure - a subassembly or top-level assembly - choose Refresh Cost from the list; this retrieves from Costing the latest costs of all child items and performs the rollup.

Display Costs for a Leaf Item

The Material Cost of an existing item may be retrieved from Costing.

- If the item had a cost in Costing, the Material Cost of the item in Product Development is Read Only.
- If an item had no cost in Costing, or it is created in Product Development, its Material Cost may be entered, and it remains an editable field.
- For a leaf item, Overhead Cost and Total Cost are always Read Only fields.
- Let an item be an assembly, which has a user-entered Overhead Cost; should it become a leaf item, its Overhead Cost is no longer displayed.
Display Costs for a Structure

Determining the cost of a structure, or assembly, depends on the completeness of the data on the child items of the top-level item.

- Material Cost of an assembly is rolled up from the child items. Material Cost is a Read-Only field for an assembly in PD.
- Overhead Cost for a subassembly or top-level assembly can be entered manually, and it remains an editable field.
- Let there be a leaf item, which has a user-entered Material Cost; should it become an assembly (top-level or otherwise), its Material Cost is no longer displayed.
- An assembly’s costs may be incomplete because not all of its child items have been assigned costs. To indicate that the assembly cost is incomplete, a warning icon is displayed next to the Total Cost attribute.

Business and Validation Rules

This topic lists various rules that govern cost rollups in Product Development.

Business Rules of Cost Rollups

This table lists new item request notifications.

<table>
<thead>
<tr>
<th>Item Type</th>
<th>Item Status</th>
<th>Item Revision</th>
<th>Material Cost</th>
<th>Overhead Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaf</td>
<td>Not Released (new item in preliminary state)</td>
<td>Initial (Rev A)</td>
<td>Editable (unless cost came from Costing)</td>
<td>Not editable</td>
<td>Not editable</td>
</tr>
<tr>
<td>Leaf</td>
<td>Released</td>
<td>Latest</td>
<td>Editable (unless cost came from Costing)</td>
<td>Not editable</td>
<td>Not editable</td>
</tr>
<tr>
<td>Leaf</td>
<td>Released</td>
<td>Not latest</td>
<td>Not editable</td>
<td>Not editable</td>
<td>Not editable</td>
</tr>
<tr>
<td>Leaf</td>
<td>Pending change order</td>
<td>Any pending rev</td>
<td>Editable (unless cost came from Costing)</td>
<td>Not editable</td>
<td>Not editable</td>
</tr>
<tr>
<td>Assembly</td>
<td>Not Released (new item in preliminary state)</td>
<td>Initial (Rev A)</td>
<td>Not editable</td>
<td>Editable</td>
<td>Not editable</td>
</tr>
<tr>
<td>Assembly</td>
<td>Released</td>
<td>Latest</td>
<td>Not editable</td>
<td>Editable</td>
<td>Not editable</td>
</tr>
<tr>
<td>Assembly</td>
<td>Released</td>
<td>Not latest</td>
<td>Not editable</td>
<td>Not Editable</td>
<td>Not editable</td>
</tr>
<tr>
<td>Assembly</td>
<td>Pending change order</td>
<td>Any pending rev</td>
<td>Not editable</td>
<td>Editable</td>
<td>Not editable</td>
</tr>
</tbody>
</table>
Validation Rules of Costs

Rules that apply to the expression of costs.

- If the user can enter the cost, it must be a positive value (that is, $0 or greater).
- Users may enter any number of digits after the decimal; however, the application only displays four digits after the decimal.

FAQs About Roll Up Costs

Can an item's material cost be edited, even if it is retrieved from costing?

The material cost cannot be overwritten by the user. However, if the original cost record has been deleted in Costing, that item no longer has a cost, the material cost of the leaf item can be edited in Product Development. The original material cost will be removed in the Product Development item.

Can a cost be specific to a revision?

Yes, if you set the cost of an item in Revision A at $10, and create a Revision B and set the cost to $12, the item’s rev A displays as $10 and rev B displays as $12.

Does costing capture revision specific costs of items?

No, Costing provides costs based on effectivity dates. When Product Development retrieves costs from Costing for a leaf item, it will use that cost for all revisions of the item, regardless of the item’s effectivity date. If a leaf item has a cost of $15 from Costing, the amount will carry to any future revisions of the same item - as long as it is still a leaf item. If the cost of the item changes in Costing to $20, the next rollup in Product Development displays the cost of that leaf item as $20, which would carry to future revisions of the item.

What happens if an item with a material cost becomes a structure?

If this occurred in the same revision, the original material cost is removed and becomes read-only for the structure or assembly. Note that it could still be stored in the schema so that it can be used in a future release. If this occurred in a newer revision, the material cost remains visible for the previous revision of the item, when it was a leaf item. In the new revision, the material cost is rolled up from the child items.
Can costs be redlined through a change order?

No, the cost is not displayed in Change order Affected Objects Details (that is, attributes that cannot be redlined are not displayed in a change order).

What formula is used to calculate total cost?

Material Cost of an assembly is always the rollup of the total costs of its children, including the quantity. For example, if the total cost of a child item is $10, and there are 5 of these in the structure or assembly, the material cost of that assembly is $50.

• Total Cost of a leaf item = Material + Overhead (although Overhead will always be 0)
• Total Cost of an assembly = Rolled up Total Costs from the children + Overhead

What happens if the Inventory Cost Organization of an item is changed to another organization?

When you change the organization of an item, the next time you roll up that item, the cost from the new organization is used. If the item, with its original organization, had a cost from Costing, but the new organization doesn’t have it, the cost for the item in Product Development is deleted. This lets you to manually provide a new cost.
14 Create Items with New Item Requests

New Item Requests through Product Hub

Generally items are created in Product Development with Create dialog or various "add item" features on PD item, structure, and change order tables.

There is a more formal process of item creation called the New Item Request, or NIR, process. The administrator may have established a PD item class that requires the NIR process to be followed.

In NIR, a new item is validated and approved before it is made available to enrichment processes and structure-building in Product Development. The validation steps of the NIR process take place in the Product Hub environment.

Refer to Oracle SCM Cloud Using Product Master Data Management.

NIR and non-NIR Processes

A New Item Request may be appropriate for a product that will go through full Manufacturing or Commercialization phases. The less formal process may be appropriate for a more preliminary, Design phase of product innovation. In this context, the informal process of item creation is called the “non-NIR” process.

An enterprise may use either the NIR or non-NIR processes exclusively, or it may use both approaches for the development of new items and structures. The process or processes available to Product Development users depends on how the Item Classes have been defined and made available.

Related Topics
- Overview of New Item Requests
- Create New Item Requests
- When can items be added to a new item request
- How can I associate items with a new item request

Create NIR Items and Structures

The formal process of item or structure creation requires the new object to go through the NIR workflow. The item creation may be initiated in Product Development, but it passes over to Product Hub for the analysis and approval process.

When a development item is created in Product Development, and it is going to be oriented through NIR, a Product Hub product manager or item analyst is notified of the item. When the NIR process is triggered, the item is routed to assignees, who are informed what needs to be considered based on the Item Class setup.

The stages of the workflow are:
- Open - submitted
- **Definition** - when the assignees respond
- **Scheduled**
- **Completed**

Only after it has passed through Completed is the item routed for Approval.

For an item that is undergoing the NIR process, the **Approval Status** attribute - on the **General Information** tab - displays the NIR number along with its current approval status. This lets a Product Development user identify those items that are engaged in the NIR process, and that this item can be found in the Product Hub product record.

### Create Non-NIR Items and Structures

A non-NIR item or structure is created and modified without going through an NIR-type workflow. In this case, the item’s Approval status is automatically set to Approved, and it is not routed for approval by reviewers. Still, there is nothing that prevents a non-NIR item or structure from being reviewed for input or modification, that is simply not a formal procedure governed by a workflow.

Later the item can be put through a change order, using a PD standard workflow, adding to the item’s structure or modifying it, and so forth: this item would achieve an Approved status for the first time.

Of course, once the non-NIR item has been assigned to a change order, from then on, any further modification to the item requires authorization with a change order.