

TABLE OF CONTENTS

AUGUST MAINTENANCE PACK FOR 19C	3
Revision History	3
Overview	3
Feature Summary	4
Product Development & Product Hub Common Features	5
Fast Track the Creation of Your New Item Requests	5
UPDATE 19C	6
Revision History	6
Overview	7
Optional Uptake of New Features (Opt In)	7
Feature Summary	9
Product Development	12
Add Attachments to Manufacturers in Your Approved Manufacturers List	12
Improve User Productivity with New Clipboard Functionality	12
Manage Tasks for Engineering Change Requests	13
Match Order of Components in OTBI Structure Reports and User Interface	15
Use Rules to Autogenerate Fields During Item Creation	16
View Comma-Separated Reference Designators in Structures and Components Subject Area	19
Check Component Quantity Against Number of Reference Designators	20
Secure Item Relationship Creation with Object Privileges	21
Exclude Extended Flexfield Attributes to Speed Up Item Search	21
Track and Manage Change Order Tasks with OTBI	22
View the Approved Manufacturers List by Parent Revision in Structures and Components Subject Area	23
Improve Report Usability with Last Scheduled Process Dates	24
View Components for a Pending Revision of an Item Structure	25
Product Development & Product Hub Common Features	26
Capture Change History for Cover Page Attribute Changes and Action Details	26
Copy Data When Creating a Change Order from a Change Order or Change Request	28
Import Item Revisions and Historical Change Orders Using File-Based Data Import (FBDI)	30
Move Canceled, Rejected, or Failed Change Lines to a New Change Order	30
Detect Revision Conflicts for Proper Sequencing of Change Orders	32
Select First Level or All Levels for Your Bills of Material Comparison	32
Use Item Import Template to Import Revision-Specific Approved Manufacturers List	34
Product Hub	36
Configure the Publication Payload Size	36
Leverage Improved Error Messaging to Trace Publication Errors	37
Mark New Item Requests Complete	38
Disseminate Item Data Changes to External Systems Through the New Item Request Business Events	38
Integrate and Extend Product Hub Using REST Services	39
Manage Items Using a REST Service	39
Manage Product Uploads Using a REST Service	40
Manage New Item Request Attachments Using REST Services	41
Manage Status Changes for New Item Requests Using REST Services	42
Quality Management	44
Navigate Directly to Quality Issues and Actions from Approval Notifications	44
Categorize Attachments on Quality Issues or Quality Actions	45
Improve Usability and Security of the Relationship Rule Editor	47

AUGUST MAINTENANCE PACK FOR 19C

REVISION HISTORY

This document will continue to evolve as existing sections change and new information is added. All updates appear in the following table:

Date	Feature	Notes
30 AUG 2019		Created initial document.

OVERVIEW

This guide outlines the information you need to know about new or improved functionality in this update, and describes any tasks you might need to perform for the update. Each section includes a brief description of the feature, the steps you need to take to enable or begin using the feature, any tips or considerations that you should keep in mind, and the resources available to help you.

SECURITY AND NEW FEATURES

The Role section of each feature identifies the security privilege and job role required to use the feature. If feature setup is required, then the Application Implementation Consultant job role is required to perform the setup, unless otherwise indicated. (If a feature doesn't include a Role section, then no security changes are required to use the feature.)

If you have created job roles, then you can use this information to add new privileges to those roles as needed.

GIVE US FEEDBACK

We welcome your comments and suggestions to improve the content. Please send us your feedback at oracle_fusion_applications_help_ww_grp@oracle.com

FEATURE SUMMARY

Column Definitions:

Report = New or modified, Oracle-delivered, ready to run reports.

UI or Process-Based: Small Scale = These UI or process-based features are typically comprised of minor field, validation, or program changes. Therefore, the potential impact to users is minimal.

UI or Process-Based: Larger Scale* = These UI or process-based features have more complex designs. Therefore, the potential impact to users is higher.

Customer Action Required = You MUST take action before these features can be used by END USERS. These features are delivered disabled and you choose if and when to enable them. For example, a) new or expanded BI subject areas need to first be incorporated into reports, b) Integration is required to utilize new web services, or c) features must be assigned to user roles before they can be accessed.

Feature	Ready for Use by End Users (Feature Delivered Enabled)			Customer Must Take Action before Use by End Users (Feature Delivered Disabled)
	Report	UI or Process-Based: Small Scale	UI or Process-Based: Larger Scale*	Customer Action Required
Product Development & Product Hub Common Features				
Fast Track the Creation of Your New Item Requests		✓		

PRODUCT DEVELOPMENT & PRODUCT HUB COMMON FEATURES

FAST TRACK THE CREATION OF YOUR NEW ITEM REQUESTS

The classic new item request process requires you to enter the new item request name, number, and additional details across multiple windows. With this update, you can have new item request number, name, and description values filled in automatically as described here.

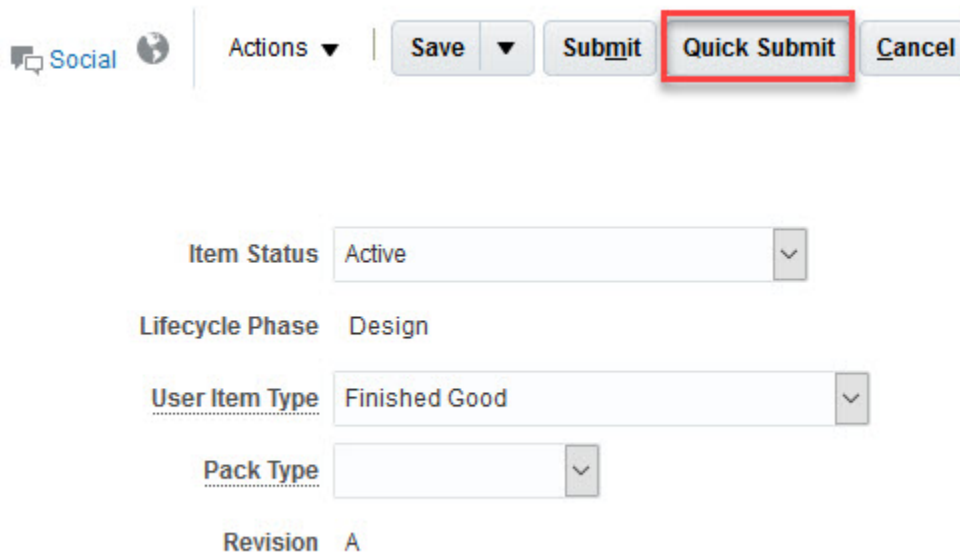
If the number generation method is rule-generated or sequence-generated:

- Number is automatically generated
- Name = Item number
- Description = Item description

If the number generation method is user-defined:

- Number and name = Item number
- Description = Item description

In addition to the Submit button on the item page, you now see a Quick Submit button. Use this action to bypass multiple pages, minimize the number of clicks, and thus fast track the new item request process.



The screenshot shows the top section of a web form. On the left, there are icons for 'Social' and a globe. To the right is an 'Actions' dropdown menu. Further right are four buttons: 'Save' (with a small downward arrow), 'Submit' (underlined), 'Quick Submit' (highlighted with a red rectangle), and 'Cancel' (underlined). Below these buttons are four form fields, each with a label and a value: 'Item Status' with 'Active', 'Lifecycle Phase' with 'Design', 'User Item Type' with 'Finished Good', and 'Pack Type' (empty). At the bottom, there is a 'Revision' field with the value 'A'.

New Item Request Quick Submit

Edit New Item Request: RSNIRIT1(V1)

Type	New Item Request
Number	RSNIRIT1
* Name	RSNIRIT1
Status	Open
Approval Status	Not submitted for approval

New Item Request Created in Open Status on Quick Submit

STEPS TO ENABLE

You don't need to do anything to enable this feature.

TIPS AND CONSIDERATIONS

You can still use the classic process and click Submit, if you prefer that. The Quick Submit button is enabled only for single item creation, not multiple item creation.

Also, users with the Application Implementation Consultant role can hide the Quick Submit button using Page Composer, if desired.

ROLE INFORMATION

Job Role Name and Code:

- Product Manager (ORA_EGP_PRODUCT_MANAGER_JOB)
- Product Data Steward (ORA_EGI_PRODUCT_DATA_STEWARD_JOB)

UPDATE 19C

REVISION HISTORY

This document will continue to evolve as existing sections change and new information is added. All updates appear in the following table:

Date	Feature	Notes
02 AUG 2019	Manage Items Using a REST Service	Updated document. Edited feature description.
24 JUN 2019	Use Item Import Template to Import Revision-Specific Approved Manufacturers List	Updated document. Edited feature description.
21 JUN 2019		Created initial document.

OVERVIEW

This guide outlines the information you need to know about new or improved functionality in this update, and describes any tasks you might need to perform for the update. Each section includes a brief description of the feature, the steps you need to take to enable or begin using the feature, any tips or considerations that you should keep in mind, and the resources available to help you.

SECURITY AND NEW FEATURES

The Role section of each feature identifies the security privilege and job role required to use the feature. If feature setup is required, then the Application Implementation Consultant job role is required to perform the setup, unless otherwise indicated. (If a feature doesn't include a Role section, then no security changes are required to use the feature.)

If you have created job roles, then you can use this information to add new privileges to those roles as needed.

GIVE US FEEDBACK

We welcome your comments and suggestions to improve the content. Please send us your feedback at oracle_fusion_applications_help_vw_grp@oracle.com

OPTIONAL UPTAKE OF NEW FEATURES (OPT IN)

Oracle Cloud Applications delivers new updates every quarter. This means every three months you'll receive new functionality to help you efficiently and effectively manage your business. Some features are delivered Enabled meaning they are immediately available to end users. Other features are delivered Disabled meaning you have to take action to make available. Features delivered Disabled can be activated for end users in a couple of ways:

Access the Opt In page from the New Features Work Area

1. Click the **Navigator**, and then click **New Features** (under the My Enterprise heading)
2. On the New Features page, select the offering that includes new features you'd like to review
3. Click **Go to Opt In** for any feature you want to opt in
4. On the Edit Features page, select the **Enable** option for the feature, and then click **Done**

or... Access the Opt In page from the Setup and Maintenance Work Area

1. Click the **Navigator**, and then click **Setup and Maintenance**
2. On the Setup page, select your offering, and then click **Change Feature Opt In**
3. On the Opt In page, click the **Edit Features** icon for any area that includes features you want to opt in
4. On the Edit Features page, select the **Enable** option for any feature you want to opt in to. If the Enable column includes an Edit icon instead of a check box, then click the icon, select your feature options, and click **Save and Close**.
5. Click **Done**.

Opt In Expiration

Occasionally, features delivered Disabled via Opt In may auto enable in a future update. This is known as an Opt In Expiration. If your cloud service has any Opt In Expirations you will see a related tab in this document. Click on that tab to see when the feature was originally delivered Disabled, and when the Opt In will expire, potentially auto enabling the feature. You can also [click here](#) to see features with Opt In Expirations across all Oracle Cloud Applications.

FEATURE SUMMARY

Column Definitions:

Report = New or modified, Oracle-delivered, ready to run reports.

UI or Process-Based: Small Scale = These UI or process-based features are typically comprised of minor field, validation, or program changes. Therefore, the potential impact to users is minimal.

UI or Process-Based: Larger Scale* = These UI or process-based features have more complex designs. Therefore, the potential impact to users is higher.

Customer Action Required = You MUST take action before these features can be used by END USERS. These features are delivered disabled and you choose if and when to enable them. For example, a) new or expanded BI subject areas need to first be incorporated into reports, b) Integration is required to utilize new web services, or c) features must be assigned to user roles before they can be accessed.

Feature	Ready for Use by End Users (Feature Delivered Enabled)			Customer Must Take Action before Use by End Users (Feature Delivered Disabled)
	Report	UI or Process-Based: Small Scale	UI or Process-Based: Larger Scale*	Customer Action Required
Product Development				
Add Attachments to Manufacturers in Your Approved Manufacturers List		✓		
Improve User Productivity with New Clipboard Functionality		✓		
Manage Tasks for Engineering Change Requests		✓		
Match Order of Components in OTBI Structure Reports and User Interface				✓
Use Rules to Autogenerate Fields During Item Creation				✓
View Comma-Separated Reference Designators in Structures and Components Subject Area				✓
Check Component Quantity Against Number of Reference Designators		✓		
Secure Item Relationship Creation with Object Privileges		✓		

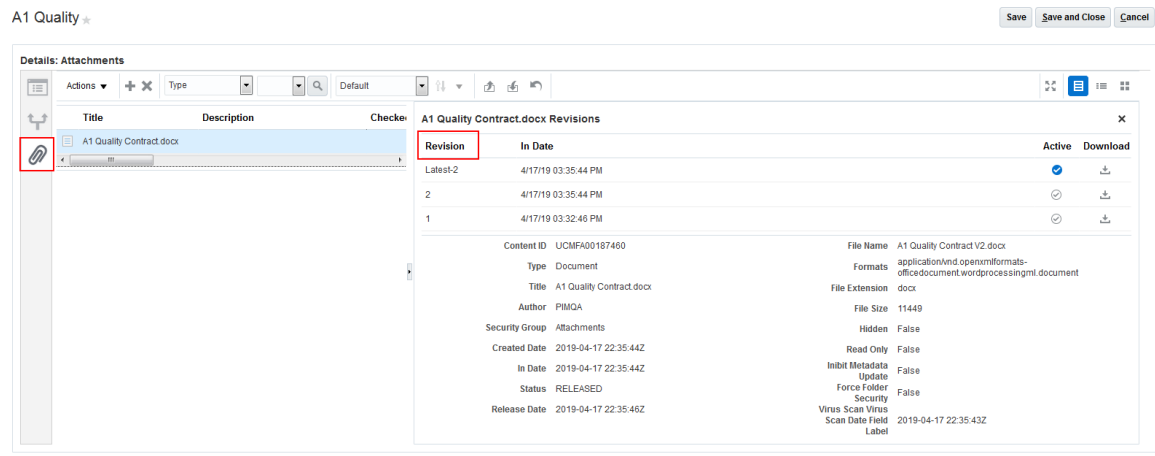
Feature	Ready for Use by End Users (Feature Delivered Enabled)			Customer Must Take Action before Use by End Users (Feature Delivered Disabled)
	Report	UI or Process-Based: Small Scale	UI or Process-Based: Larger Scale*	Customer Action Required
Exclude Extended Flexfield Attributes to Speed Up Item Search		✓		
Track and Manage Change Order Tasks with OTBI				✓
View the Approved Manufacturers List by Parent Revision in Structures and Components Subject Area				✓
Improve Report Usability with Last Scheduled Process Dates		✓		
View Components for a Pending Revision of an Item Structure				✓
Product Development & Product Hub Common Features				
Capture Change History for Cover Page Attribute Changes and Action Details				✓
Copy Data When Creating a Change Order from a Change Order or Change Request		✓		
Import Item Revisions and Historical Change Orders Using File-Based Data Import (FBDI)		✓		
Move Canceled, Rejected, or Failed Change Lines to a New Change Order		✓		
Detect Revision Conflicts for Proper Sequencing of Change Orders		✓		
Select First Level or All Levels for Your Bills of Material Comparison		✓		
Use Item Import Template to Import Revision-Specific Approved Manufacturers List				✓
Product Hub				
Configure the Publication Payload Size		✓		
Leverage Improved Error Messaging to Trace Publication Errors		✓		
Mark New Item Requests Complete		✓		

Feature	Ready for Use by End Users (Feature Delivered Enabled)			Customer Must Take Action before Use by End Users (Feature Delivered Disabled)
	Report	UI or Process-Based: Small Scale	UI or Process-Based: Larger Scale*	Customer Action Required
Disseminate Item Data Changes to External Systems Through the New Item Request Business Events		✓		
Integrate and Extend Product Hub Using REST Services				
Manage Items Using a REST Service				✓
Manage Product Uploads Using a REST Service				✓
Manage New Item Request Attachments Using REST Services				✓
Manage Status Changes for New Item Requests Using REST Services				✓
Quality Management				
Navigate Directly to Quality Issues and Actions from Approval Notifications		✓		
Categorize Attachments on Quality Issues or Quality Actions				✓
Improve Usability and Security of the Relationship Rule Editor		✓		
Enhance Analytics with Additional Attributes in Quality Issues and Actions Real Time Subject Areas				✓

PRODUCT DEVELOPMENT

ADD ATTACHMENTS TO MANUFACTURERS IN YOUR APPROVED MANUFACTURERS LIST

Use the Attachments tab in the Manufacturer Details page to add attachments related to the manufacturer. You can attach any file type, see the description and revisions of the file, and perform controlled check in and check out of that file.



Manufacturer Attachments Tab

STEPS TO ENABLE

You don't need to do anything to enable this feature.

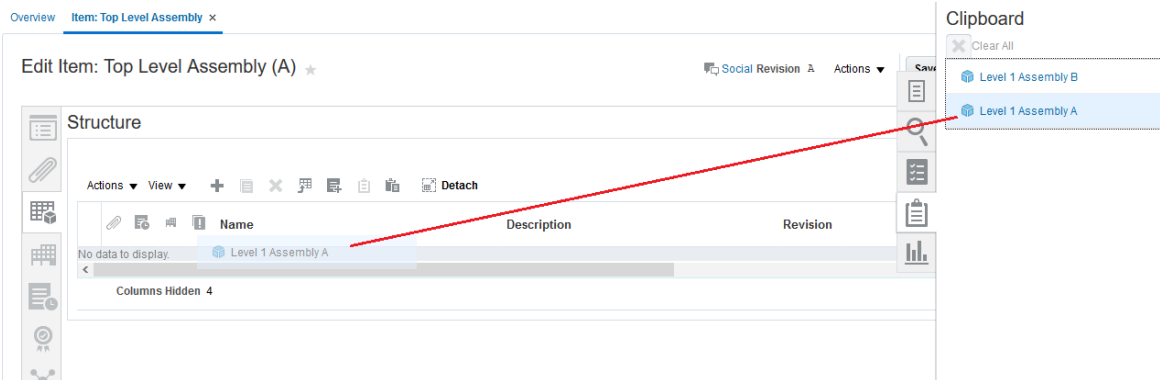
ROLE INFORMATION

- Job Role Name and Code:
 - Product Manager (ORA_EGP_PRODUCT_MANAGER_JOB)
 - Product Design Engineer (ORA_ACD_PRODUCT_DESIGN_ENGINEER_JOB)
 - Product Design Manager (ORA_ACD_PRODUCT_DESIGN_MANAGER_JOB)

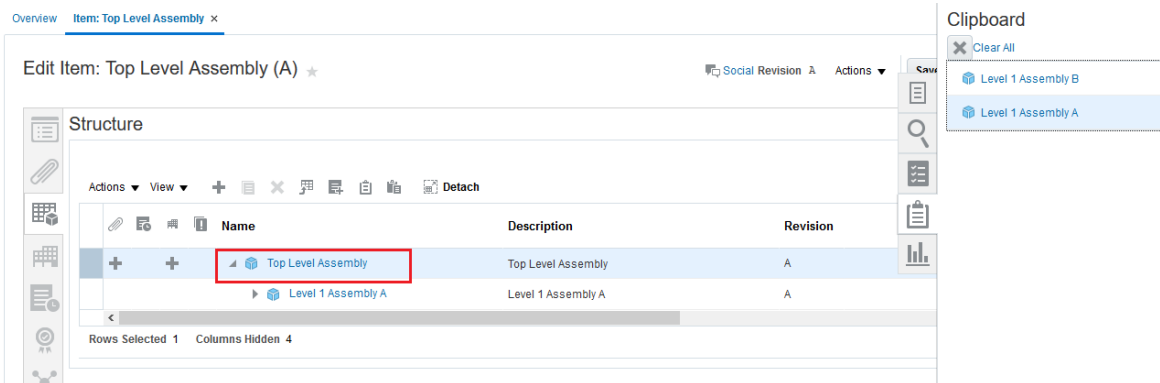
IMPROVE USER PRODUCTIVITY WITH NEW CLIPBOARD FUNCTIONALITY

Use the clipboard to create an item structure from scratch. You can drag and drop the first level of the structure directly from the clipboard and then continue adding child components to the subassembly either from the clipboard or from the search results.

With this update, you will also notice different icons for items and documents on the clipboard for enhanced clarity.



Drag and Drop from Clipboard to Item Structure Table



Structure Header is Automatically Created

STEPS TO ENABLE

You don't need to do anything to enable this feature.

ROLE INFORMATION

- Job Role Name and Code:
 - Product Manager (ORA_EGP_PRODUCT_MANAGER_JOB)
 - Product Design Engineer (ORA_ACD_PRODUCT_DESIGN_ENGINEER_JOB)
 - Product Design Manager (ORA_ACD_PRODUCT_DESIGN_MANAGER_JOB)

MANAGE TASKS FOR ENGINEERING CHANGE REQUESTS

Create, assign, read, and update tasks for engineering change requests directly in the user interface or through a REST service. Within the user interface, the same columns that are available for engineering change orders are now available for change requests. You can add, update, or delete tasks while the change request is in Draft or Open status. A notification is sent to the assignee when the change request is saved.

Oracle EGP interface showing the 'Edit Change Request: CR 0133 (CR-JK-0133)' screen. The 'Tasks' tab is active, displaying a table with two tasks. The first task is 'Design Proposal' (Sequence 10) with status 'Open' and 'Approval' required. The second task is 'Cost estimate' (Sequence 20) with status 'Open' and 'Approval' required. The interface includes a top navigation bar with the Oracle logo and a sidebar with various icons.

* Sequence	* Name	Description	Required	Assigned To	Start-by Status	Complete Before Status	Need-by Date
10	Design Proposal	Proposal of the intended change	✓	PIMQA	Open	Approval	12/31/19 07
20	Cost estimate	Calculate the cost of this change	✓	PRODUCT_	Open	Approval	m/d/yy hh:mm

Rows Selected 1

Tasks Tab on Change Request

STEPS TO ENABLE

You don't need to do anything to enable this feature.

TIPS AND CONSIDERATIONS

Here's how change request tasks work. You'll notice that validations for tasks are similar for change requests and change orders.

- **Sequence** is mandatory and must be unique for each change request. By default, it is in increments of 10.
- **Name** is mandatory and must be unique.
- **Description** is optional.
- The **Required** option can only be set to Yes if the **Complete Before Status** is Open, Interim Approval, or Approval.
- **Assigned To** is not required, but if it is entered, the selected user must exist in the system. The user can be created in HCM or directly in the Security Console. The assignee can be an internal or external employee.
- **Start-by Status** is optional.
- **Complete Before Status** defaults to Completed.
- **Need-by date** is optional
- **Task Status** defaults to Open. It can be updated up until the **Complete Before Status** so that the task can be marked completed. If **Required** is set to Yes, then the current change request status must be between **Start By Status** and **Complete Before Status**.

ROLE INFORMATION

- Job Role Name and Code:
 - Product Manager (ORA_EGP_PRODUCT_MANAGER_JOB)
 - Product Design Engineer (ORA_ACD_PRODUCT_DESIGN_ENGINEER_JOB)
 - Product Design Manager (ORA_ACD_PRODUCT_DESIGN_MANAGER_JOB)

MATCH ORDER OF COMPONENTS IN OTBI STRUCTURE REPORTS AND USER INTERFACE

Eliminate the need to verify the content of structure reports you create in Oracle Transactional Business Intelligence (OTBI) against the user interface. The structure reports you create in Oracle Transactional Business Intelligence (OTBI) using the Structures and Components subject area now display data in the same order as in the user interface, allowing users to be much more efficient when working with the data.

	Name	Description	Revision
●	AS4880000	AS4880000	C
●	SB4880000	Mechanical Package	C
●	CM4800100	Accelerometer	A
●	CM4800101	Ambient Light Sensor	A
●	CM4800102	Gyroscope	A
●	CM4800103	Proximity Sensor	A
●	CM4800104	Magnetometer	A
●	CM4800105	Electronic Compass	A
●	CM4800106	Headphone minijack	A
●	CM4800107	MicroSD Port	A
●	CM4800108	Speakers	A
●	CM4800109	Rear HD camera	A
●	CM4800110	Front HD camera	A
●	CM4800111	Mini-HDMI Port	A
●	CM4800114	Power Switch	A

Structure Display in the User Interface

Component Level	Component Sequence	Component Item Name	Component Revision
0		AS4880000	A
. 1	30	SB4880000	A
.. 2	30	CM4800100	A
	60	CM4800101	A
	90	CM4800102	A
	120	CM4800103	A
	150	CM4800104	A
	180	CM4800105	A
	210	CM4800106	A
	240	CM4800107	A
	270	CM4800108	A
	300	CM4800109	A
	330	CM4800110	A
	360	CM4800111	A
	390	CM4800114	A
	420	CM4800115	A
	450	CM4800116	A
	480	SB4880001	A

Structure Display in OTBI

STEPS TO ENABLE

Leverage new subject area(s) by adding to existing reports or using in new reports. For details about creating and editing reports, see the *Creating and Administering Analytics and Reports* book (available from the [Oracle Help Center](#) > *your apps service area of interest* > Books > Administration).

TIPS AND CONSIDERATIONS

Ensure that the **Level** column is set to sort in **Ascending** order.

ROLE INFORMATION

- Job Role Name and Code:
 - Transactional Analysis Duty (FBI_TRANSACTION_ANALYSIS_GENERIC_DUTY)
 - Product Transaction Analysis Duty (FBI_PRODUCT_TRANSACTION_ANALYSIS_DUTY)
 - BI Consumer Role (BIConsumer)

USE RULES TO AUTOGENERATE FIELDS DURING ITEM CREATION

Set up rules to autogenerate item name, description, and extended flex fields, to improve efficiency and reduce errors while creating new items from the user interface.

If you set up a rule to fill in the Item Name and Description fields automatically in the Create Item dialog based on attribute values, the associated extended flexfield attributes also appear in the dialog.

The screenshot shows the 'Create Item' dialog box with the following fields and values:

- * Class:** Tablets
- * Name:** Rule generated
- * Description:** Rule generated
- * Primary Unit of Measure:** Each
- * Description 30 Characters:** I
- * Description 45 Characters:** (empty)

At the bottom of the dialog are two buttons: **Save and Close** and **Cancel**. A search dropdown is visible next to the 'Class' field with the text 'Search: Item Class'.

Create Item Dialog with Rule Generated Attributes

STEPS TO ENABLE

First, set up a rule and then configure the attributes to autogenerate. Here's how you define a rule in the Setup and Maintenance work area.

1. Navigate to the Manage Item Rule Sets task.
2. Create an assignment rule for the association type **Item class** and use the item class name for **Association Name**.
3. Define the result type either as **Item Number** or **Item Description**, depending on the purpose of the rule.

The sample rule shown here concatenates two extended flexfield attributes and uses the resulting text as the value for the item description.

The screenshot displays the Oracle Setup and Maintenance interface for editing a rule set. The top navigation bar shows the Oracle logo and the title 'Edit Rule Set: Tablet_Description_Rule'. Below this, the 'General Information' tab is active, showing fields for 'Display Name' (Tablet_Description_Rule), 'Description' (Rule to generate item description for tablet item class), 'Internal Name' (Tablet_Description_Rule), 'Type' (Assignments), and 'Composite' (No). The 'Association Type' is set to 'Item class' and the 'Association Name' is 'Tablets'. A 'Draft' checkbox is also present.

The 'Rules' tab is selected, showing a table of rules. The table has columns: Sequence, Name, Description, Business Entities, Return Type, Target Business Entity, Target Attribute Group, Target Attribute, Last Updated By, and Last Updated Date. A single rule is listed with Sequence 20, Name Description_Rule, Description Item, Return Type Item description, and Last Updated By PIMQA on 5/8/19 2:40 AM.

Below the table, the 'Description_Rule: Details' section is shown. It includes a 'Primary IF Expression' field set to 'true'. Below this is a 'THEN' section with a 'Secondary IF Expression' field set to 'true' and a 'Return Value' field containing the expression: `[[Item].[Descriptions].[Description 30 Characters]] + ' ' + [[Item].[Descriptions].[Description 45 Characters]]`. There is also a 'Hide user message' checkbox and a 'User Message' field.

Sample Rule for Item Description Attribute

Now, associate the rule to the item class you want to configure:

1. Navigate to the Manage Item Classes task.
2. Search for and open the item class you want to configure.
3. On the Item Management tab, select the **Rule Generated** option for **Number Generation** and **Description Generation** and select the associated rule set.

Edit Item Class: Tablets

* Item Class Tablets

Internal Name Tablets

* Description Tablets

☒ Enabled

Basic **Item Management** Security Transactional Attributes Pages and Attribute Groups Lifecycle Phases Te

Number Generation

Item Number Generation Method Rule Generated

Details

* Associated Rule Set Tablet_Name_Rule

Description Generation

Item Description Generation Method Rule Generated

Details

* Associated Rule Set Tablet_Description_Rule

New Item Request

Set Up Item Class to Use Rule Generated Number and Description

ROLE INFORMATION

- Job Role Name and Code:
 - Product Manager (ORA_EGP_PRODUCT_MANAGER_JOB)
 - Product Design Engineer (ORA_ACD_PRODUCT_DESIGN_ENGINEER_JOB)
 - Product Design Manager (ORA_ACD_PRODUCT_DESIGN_MANAGER_JOB)

VIEW COMMA-SEPARATED REFERENCE DESIGNATORS IN STRUCTURES AND COMPONENTS SUBJECT AREA

You need clear visibility to item details when looking through bills of material. Key details include reference designators. There can be many reference designators for an item and reviewing multiple lines of an item structure can be very cumbersome and inefficient.

With this update, you can see comma-separated reference designators in your Oracle Transactional Business Intelligence (OTBI) item structure and component reports. A new column in the report shows you all of the reference designators for a particular component in the item structure. You'll find it easier to review all reference designators for each component instead of one reference designator per row of the structure.

Reference Designator

Criteria Results Prompts Advanced

Subject Areas

- Product Management - Structures and Components Real Time
 - BOM Explosion
 - Component Assembly Attributes
 - AML Item Details
 - Component Details
 - Inventory Organization
 - Item
 - Item Revision Details
 - Reference Designator**
 - Reference Designator Comment
 - Related Item Details
 - Structure Details
 - Structure Type
 - Substitute Components
 - Trading Partner

Compound Layout

Title: Reference Designator

Table: Parent Item Name: PCB Assembly

Component Item Name	Component Level	Reference Designator
PCB Assembly	0	
Resistor_DQ_SM_2	. 1	RD1,RD2,RD3,RD4,RD5
V10093	. 1	C1,C2,C3

Add to Briefing Book

OTBI Report with Reference Designators in Comma-Separated Format

STEPS TO ENABLE

Leverage new subject area(s) by adding to existing reports or using in new reports. For details about creating and editing reports, see the *Creating and Administering Analytics and Reports* book (available from the [Oracle Help Center](#) > *your apps service area of interest* > Books > Administration).

TIPS AND CONSIDERATIONS

If the existing Reference Designator column has been used in an analysis, the same is converted to a comma-separated format automatically. Review any current analyses that contain the Reference Designator column after upgrade to 19C.

ROLE INFORMATION

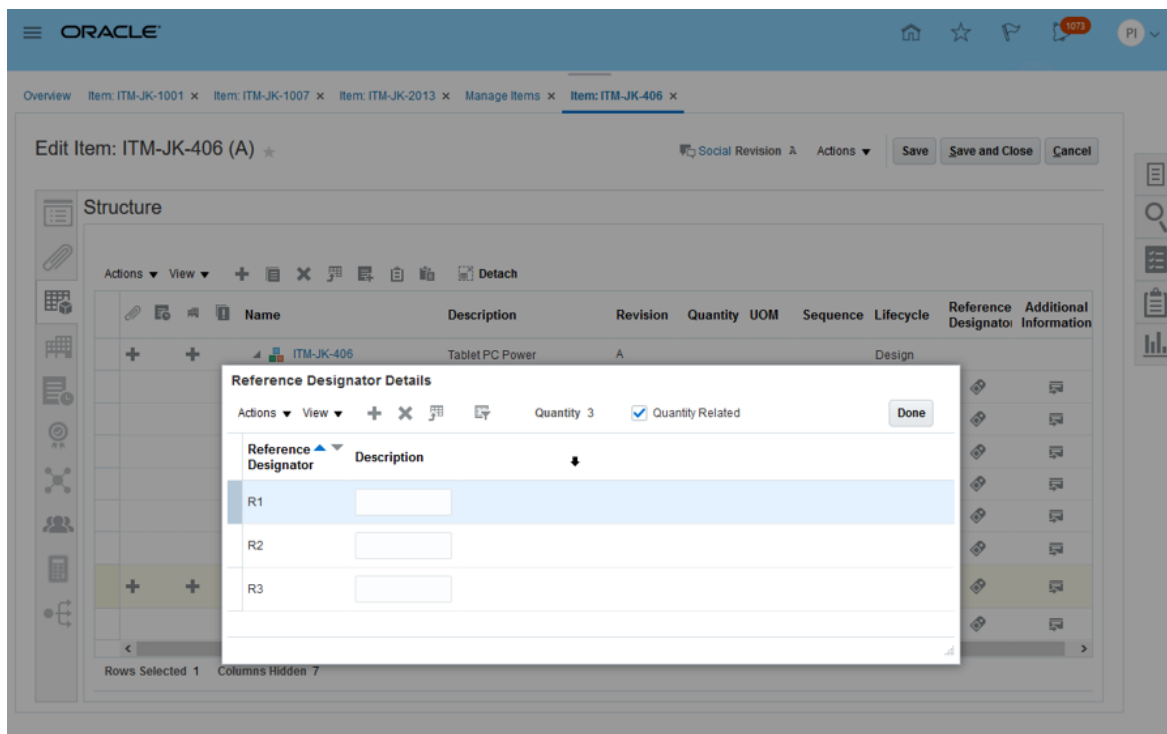
- Job Role Name and Code:
 - Transactional Analysis Duty (BI_TRANSACTION_ANALYSIS_GENERIC_DUTY)
 - Product Transaction Analysis Duty (FBI_PRODUCT_TRANSACTION_ANALYSIS_DUTY)
 - BI Consumer Role (BIConsumer)

CHECK COMPONENT QUANTITY AGAINST NUMBER OF REFERENCE DESIGNATORS

You often need to create structures with items that contain multiple reference designators. In such cases, it's easy to miss a reference designator call-out from your engineering team.

Provide an automatic check to ensure that the number of reference designators matches the item component quantity. This check becomes active when you create the first reference designator for an item component. If the reference designator list is empty, there is no check for consistency.

If there is an inconsistency, you can manually modify the quantity or the number of reference designators. Or you can allow the application to adjust the quantity automatically when you close the Reference Designator dialog. You can thus reduce the chance for errors in your item structure and eliminate the need to rework the bills of material.



Reference Designator Dialog Shows Quantity and Quantity Related Option

STEPS TO ENABLE

You don't need to do anything to enable this feature.

TIPS AND CONSIDERATIONS

In Product Development, this feature is enabled by default. To disable it, deselect the **Quantity Related** option in the Reference Designator dialog.

ROLE INFORMATION

- Job Role Name and Code:
 - Product Manager (ORA_EGP_PRODUCT_MANAGER_JOB)
 - Product Design Engineer (ORA_ACD_PRODUCT_DESIGN_ENGINEER_JOB)

- Product Design Manager (ORA_ACD_PRODUCT_DESIGN_MANAGER_JOB)

SECURE ITEM RELATIONSHIP CREATION WITH OBJECT PRIVILEGES

Secure items from unauthorized access in multiple ways. You can have security defined at the item class level, or at the item level using the Team tab. Additional data security can be applied as well. For instance, you can restrict access to items based on specific item attribute values.

With this update, you can also restrict item relationship creation from the Relationship tab of an item, a change order, or a change request. If the current user does not have access to the item due to functional security or data security, then the system hides the related item record in the relationships table.

STEPS TO ENABLE

You don't need to do anything to enable this feature.

ROLE INFORMATION

- Job Role Name and Code:
 - Product Manager (ORA_EGP_PRODUCT_MANAGER_JOB)
 - Product Design Engineer (ORA_ACD_PRODUCT_DESIGN_ENGINEER_JOB)
 - Product Design Manager (ORA_ACD_PRODUCT_DESIGN_MANAGER_JOB)

EXCLUDE EXTENDED FLEXFIELD ATTRIBUTES TO SPEED UP ITEM SEARCH

Speed up your item search significantly by excluding extended flexfields from the search results. With this update, the Manage Items search result list doesn't include extended flexfield attributes by default. The attributes are only included if you add at least one extended flexfield attribute to the search criteria. Include extended flexfield attributes in the search criteria only if you really need to.

Table

Change Order Status: **Open** Task Status: **Open**

Change Order Name	Task Name	Task Description	Task Assigned to User	Required Task Flag	Start By Status	Complete Before Status
PLM31456_ECR001	Task3	DES3		N	Approval	Completed
	Task4					Completed
RBECO201994	Planned Action Summary	Planned Action	Peter.Green		Approval	Completed
	Root Cause Analysis	Assess root cause	Joe Stevens	Y	Open	Approval
	Summarize	Summary	GENERAL_ACCTG_MGR_OPERATIONS		Approval	Completed

OTBI Analysis Shows Open Tasks on Open Change Orders

STEPS TO ENABLE

Leverage new subject area(s) by adding to existing reports or using in new reports. For details about creating and editing reports, see the *Creating and Administering Analytics and Reports* book (available from the [Oracle Help Center](#) > *your apps service area of interest* > Books > Administration).

ROLE INFORMATION

- Job Role Name and Code:
 - Transactional Analysis Duty (FBI_TRANSACTION_ANALYSIS_GENERIC_DUTY)
 - Product Transaction Analysis Duty (FBI_PRODUCT_TRANSACTION_ANALYSIS_DUTY)
 - BI Consumer Role (BIConsumer)

VIEW THE APPROVED MANUFACTURERS LIST BY PARENT REVISION IN STRUCTURES AND COMPONENTS SUBJECT AREA

View Approved Manufacturers List (AML) details by the parent item revision in Structures and Components subject area. To see AML information, select the parent item number and a revision. You can now review the AML details for that parent item and all of its children based upon the selected revision.

Parent Item Name: **M1_Item2** Parent Revision: **C**

Component Item Name	Component Level	Component Trading Partner Item Number	Component MPN Part Preference Status
M1_Item2	0		
		ES35 5.1	Alternate
M1_Item2A	. 1	MPN_002	Preferred
M1_Item2C	. 1	MPN_002	Alternate

OTBI Analysis Shows AML for Revision C of the Parent Item

Table



Parent Item Name M1_Item2 ▼

Parent Revision D ▼

Component Item Name	Component Level	Component Trading Partner Item Number	Component MPN Part Preference Status
M1_Item2	0	ALM0000-00101	Preferred
		ES35 5.1	Preferred
		MPN_002	Preferred
M1_Item2A	. 1	MPN_002	Preferred
M1_Item2C	. 1	MPN_002	Alternate

OTBI Analysis Shows AML for Revision D of the Parent Item

STEPS TO ENABLE

Leverage new subject area(s) by adding to existing reports or using in new reports. For details about creating and editing reports, see the *Creating and Administering Analytics and Reports* book (available from the [Oracle Help Center](#) > *your apps service area of interest* > Books > Administration).

ROLE INFORMATION

- Job Role and Duty:
 - Transactional Analysis Duty (FBI_TRANSACTION_ANALYSIS_GENERIC_DUTY)
 - Product Transaction Analysis Duty (FBI_PRODUCT_TRANSACTION_ANALYSIS_DUTY)
 - BI Consumer Role (BIConsumer)

IMPROVE REPORT USABILITY WITH LAST SCHEDULED PROCESS DATES

When you create analyses of items and structures using the Structures and Components subject area, it's essential that you work with current or fresh data. This subject area is populated on demand using a scheduled process or the Publish for Analysis action within the item page or the item search page.

Now you can see the last refresh date, that is, the date a scheduled process for a specific item was last run, and determine whether you need another scheduled process run to refresh the item data. So you can always be sure you're using the latest item information in your reports and analytics.

The screenshot shows the OTBI interface. On the left, the 'Subject Areas' pane is expanded to 'Product Management - Structures and Components Real Time', and 'Last Refresh Date' is highlighted with a red box. On the right, the 'Compound Layout' table is displayed, with the 'Last Refresh Date' field highlighted in red. The table shows the last refresh date as 04/09/2019 03:52:57 AM. Below this, a table shows component levels and sequences for item AS4880000.

Component Level	Component Sequence	Component Item Name	Component Revision
0		AS4880000	A
. 1	30	SB4880000	A

OTBI Analysis Shows Last Refresh Date and Time

STEPS TO ENABLE

You don't need to do anything to enable this feature.

ROLE INFORMATION

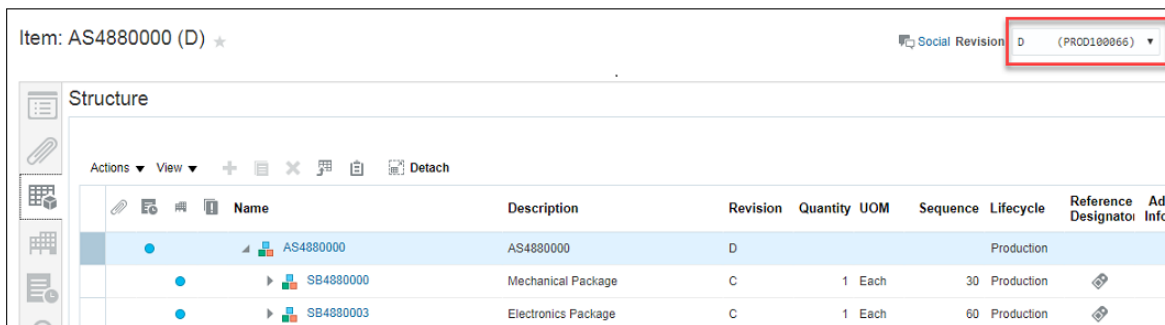
- Job Role Name and Code:
 - Transactional Analysis Duty (FBI_TRANSACTION_ANALYSIS_GENERIC_DUTY)
 - Product Transaction Analysis Duty (FBI_PRODUCT_TRANSACTION_ANALYSIS_DUTY)
 - BI Consumer Role (BIConsumer)

VIEW COMPONENTS FOR A PENDING REVISION OF AN ITEM STRUCTURE

Use the Structures and Components subject area in Oracle Transactional Business Intelligence (OTBI) to view a report of the components for a pending item revision. Select a pending revision to see the parent item and all its child components for that revision.

You can take advantage of the improved visibility to plan the upcoming revision of your item better.

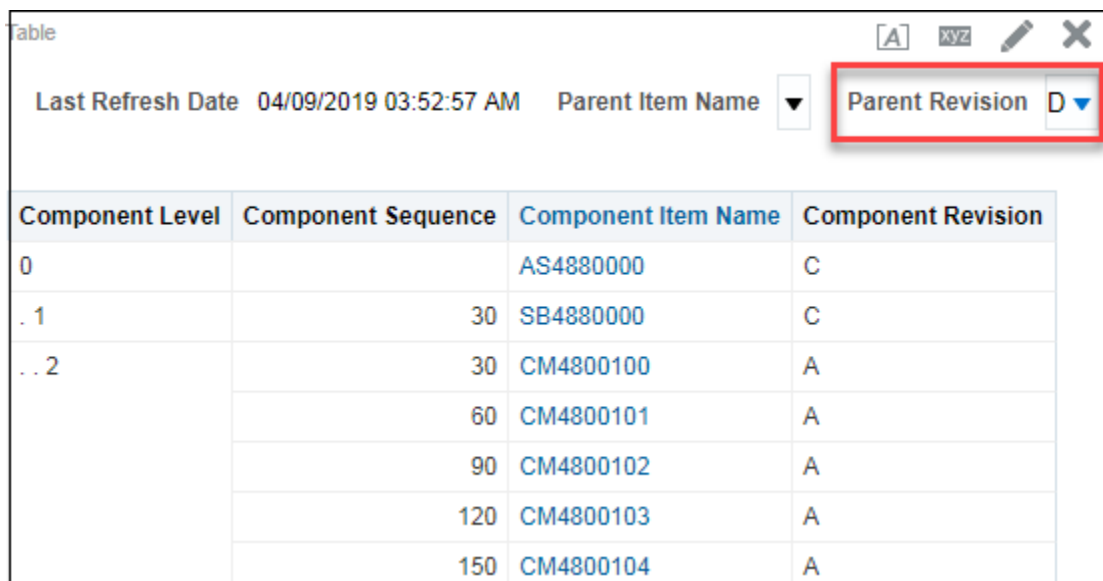
In the following example, Revision D is the pending revision of an item in Product Development.



Name	Description	Revision	Quantity	UOM	Sequence	Lifecycle	Reference Designator	Add Information
AS4880000	AS4880000	D				Production		
SB4880000	Mechanical Package	C	1	Each	30	Production		
SB4880003	Electronics Package	C	1	Each	60	Production		

Pending Revision in Product Development

Here you can see the same revision and its components in the analysis created using the Structures and Components subject area.



Component Level	Component Sequence	Component Item Name	Component Revision
0		AS4880000	C
1	30	SB4880000	C
2	30	CM4800100	A
	60	CM4800101	A
	90	CM4800102	A
	120	CM4800103	A
	150	CM4800104	A

Pending Revision in OTBI

STEPS TO ENABLE

Leverage new subject area(s) by adding to existing reports or using in new reports. For details about creating and editing reports, see the *Creating and Administering Analytics and Reports* book (available from the [Oracle Help Center](#) > *your apps service area of interest* > Books > Administration).

ROLE INFORMATION

- Job Role Name and Code:
 - Transactional Analysis Duty FBI_TRANSACTION_ANALYSIS_GENERIC_DUTY
 - Product Transaction Analysis Duty FBI_PRODUCT_TRANSACTION_ANALYSIS_DUTY
 - BI Consumer Role BIConsumer

PRODUCT DEVELOPMENT & PRODUCT HUB COMMON FEATURES

CAPTURE CHANGE HISTORY FOR COVER PAGE ATTRIBUTE CHANGES AND ACTION DETAILS

To meet compliance standards, most industries require that you maintain your change history. With this update, you can capture the details of change cover page attributes, affected objects, tasks, relationships and attachments. You can see who made the changes and when, and compare the new values against the old values. You can also export this information to Microsoft Excel for further analysis.

Use the **View Item Audit Trail** action from the **Actions** menu in Product Development to view change history. Or go to **Navigator > Tools > Audit Reports**.

The screenshot shows the Oracle Audit Reports interface. At the top, there are tabs for 'Overview', 'Manage Change Orders', and several 'Engineering Change Order' instances. The 'View Item Audit Trail' tab is active. Below the tabs, the 'Audit Reports' section has a search bar and filters. The filters include: Date (After 4/16/19), Business Object Type (Change Object), User (Product Information M), Description (CO-JK-1999), Product (Product Hub), and Event Type (Equals). There is also a checkbox for 'Include child objects'. Below the filters, the 'Search Results' section shows a table of audit data. The table has columns for Date, User, Event Type, Business Object Type, Description, Attribute, Old Value, and New Value. The data shows various updates and inserts for the 'Change Object' with attributes like 'Requested By', 'Description', 'Reason', 'Status', 'Assigned To', 'Requested By', 'Name', and 'Priority'.

Date	User	Event Type	Business Object Type	Description	Attribute	Old Value	New Value
4/17/19 06:48:33	Product Information Management Q...	Object Data Update	Change Object	Number:CO-JK-1999	Requested By	PIMQA	PRODUCT_MANAGER
4/17/19 06:48:33	Product Information Management Q...	Object Data Update	Change Object	Number:CO-JK-1999	Description	Improve stability of table...	Improve stability of tablet display 12inch
4/17/19 06:39:22	Product Information Management Q...	Object Data Update	Change Object	Number:CO-JK-1999	Description		Improve stability of tablet display
4/17/19 06:39:22	Product Information Management Q...	Object Data Update	Change Object	Number:CO-JK-1999	Reason		Quality
4/17/19 06:38:55	Product Information Management Q...	Object Data Insert	Change Object	Number:CO-JK-1999	Status		Draft
4/17/19 06:38:55	Product Information Management Q...	Object Data Insert	Change Object	Number:CO-JK-1999	Assigned To		PIMQA
4/17/19 06:38:55	Product Information Management Q...	Object Data Insert	Change Object	Number:CO-JK-1999	Requested By		PIMQA
4/17/19 06:38:55	Product Information Management Q...	Object Data Insert	Change Object	Number:CO-JK-1999	Name		CO 1999
4/17/19 06:38:55	Product Information Management Q...	Object Data Insert	Change Object	Number:CO-JK-1999	Priority		Undefined

History Data

STEPS TO ENABLE

You must first configure the information that you want to track.

In the Setup and Maintenance work area:

- Search for and open the task **Manage Audit Policies**.
- Click **Configure Business Object Attributes**.
- Choose your product, **Product Hub**.
- Scroll down the list of business objects to locate **Change Objects**.
- Configure the attributes you want to track.

Configure Business Object Attributes

Product Product Hub

Objects

Select the product to be audited.

Actions ▼ View ▼

Audit	Name	Description
☒	▾ Audit Top Node	
☒	▸ Items	
☒	▸ Item Class	
☐	▸ Rule Sets	
☐	▸ Trading Partner Items	
☒	▸ Catalogs	
☒	▾ Changes	
☒	▾ Change Object	
☒	Change Object Attachments	
☒	Affected Objects	
☒	Change Object Tasks	
☒	Source Change Object	
☒	Destination Change Object	

Affected Objects : Audited Attributes

Select the business object to be audited before you can

Actions ▼ +

Attribute
New Item Revision
Item
Revision
Effective Date
Sequence

Configure Audit Policy for Change Order History Tracking

TIPS AND CONSIDERATIONS

In the View Item Audit Trail dialog, you can search for your change object by change number. Filter by product **Product Hub** and business object **Change Objects**. Enter the change number in the **Description** field for quick results.

NOTE: You can't use the Description field to find descriptive flexfields.

KEY RESOURCES

Watch [Change Order History and BOM Comparison Readiness Training](#)

ROLE INFORMATION

- Job Role Name and Code:
 - Product Manager (ORA_EGP_PRODUCT_MANAGER_JOB)
 - Product Design Engineer (ORA_ACD_PRODUCT_DESIGN_ENGINEER_JOB)
 - Product Design Manager (ORA_ACD_PRODUCT_DESIGN_MANAGER_JOB)

COPY DATA WHEN CREATING A CHANGE ORDER FROM A CHANGE ORDER OR CHANGE REQUEST

Create new change orders from existing change orders and change requests to prevent data errors and improve efficiency. To copy data over to the new object, simply select the information you want to copy, and you won't have to worry about missing out important details pertinent for your change, or entering the wrong data.

When you copy a change order to create another change type, such as an engineering change order, non-revision controlled change order, or commercialization change order, you can now include the descriptive flexfields of a change order.

Here's what you can copy over from a change order:

- descriptive flexfields
- attachments
- affected objects
- relationships*

* For engineering and non-revision controlled change orders only.

And here's what you can copy over from a change request:

- affected objects
- descriptive flexfields of affected objects
- attachments
- relationships

Save As

* Change Type

Engineering Change Order

▼

* Number

* Name

CO 1001

Description

* Priority

High

▼

Include: Change Order

☐ Descriptive flexfields

☐ Attachments

☐ Relationships

Affected Objects

☐ Affected objects

☐ Descriptive flexfields

Save and Edit

Cancel

Using Save As to Copy Another Change Order

STEPS TO ENABLE

You don't need to do anything to enable this feature.

TIPS AND CONSIDERATIONS

You can only copy relationships of change orders created in Product Development.

ROLE INFORMATION

- Job Role Name and Code:
 - Product Manager (ORA_EGP_PRODUCT_MANAGER_JOB)
 - Product Design Engineer (ORA_ACD_PRODUCT_DESIGN_ENGINEER_JOB)
 - Product Design Manager (ORA_ACD_PRODUCT_DESIGN_MANAGER_JOB)

IMPORT ITEM REVISIONS AND HISTORICAL CHANGE ORDERS USING FILE-BASED DATA IMPORT (FBDI)

Your business may require historical change order information from your previous on-premise solution to be maintained in Oracle Product Lifecycle Management Cloud. You want this information linked to specific revisions of your items.

Use the Import Change Orders file-based data import (FBDI) template to import historic change order data and link those change orders to an existing item revision chain. You can do the data migration in a single phase, meaning both item revision data and corresponding change orders are imported together. Or, you can first import the item revision data only, and later import the historic change order data. You can now import this historic change data even if new change orders have been created in the user interface since the item was first imported.

If you have this information in your Oracle Product Lifecycle Management Cloud, you can get a complete history of your items in just a few clicks and eliminate the need to maintain old on-premise or other archive solutions.

STEPS TO ENABLE

You don't need to do anything to enable this feature.

KEY RESOURCES

You can find the Import Change Orders FBDI template in the Product Management chapter of the *File-Based Data Import for Oracle Supply Chain Management Cloud* guide, available on the [Oracle Help Center](#)

ROLE INFORMATION

- To use this feature, you need:
 - EGO_MANAGE_ITEM_CHANGE_ORDER_PRIV - used to secure the jobs and services related to importing change orders.
- Job Role Name and Code:
 - Product Manager (ORA_EGP_PRODUCT_MANAGER_JOB)
 - Product Design Engineer (ORA_ACD_PRODUCT_DESIGN_ENGINEER_JOB)
 - Product Design Manager (ORA_ACD_PRODUCT_DESIGN_MANAGER_JOB)
 - Product Data Steward (ORA_EGI_PRODUCT_DATA_STEWARD_JOB)
 - Application Implementation Consultant (ORA_ASM_APPLICATION_IMPLEMENTATION_CONSULTANT_JOB) - used to access the Schedule Processes task, to run the Import Change Orders job.

MOVE CANCELED, REJECTED, OR FAILED CHANGE LINES TO A NEW CHANGE ORDER

Move change lines from an existing change order to a new change order when the change lines are in Draft, Open, Canceled, or Rejected status, or have failed for any reason. The redline information is retained, so you don't need to redline again. You also see a record of the move in the History tabs of the source and target change orders.

Actions View Move Change Lines				
Line Number	Class	Name	Description	Status
10	Root Item Class	RSPDIT100	RSPDIT100	Canceled

Move Change Lines

Name	Description	Status	Re
RSPDIT100	RSPDIT100	Canceled	A

Create Change Orders

Create

* Change Type

ECO1

* Number

RSECO200

* Name

RSECO200

Description

RSECO200

* Priority

Low

Save and Edit

Cancel

History				
View	Format			
Number	Action	Comment	Author	Date
1	Moved Line Item RSPDIT100	Line 10 with Item RSPDIT100 was moved from Change RSECO100(More...)	PIMQA	5/7/19 02:39 PM

You don't need to do anything to enable this feature.

- Job Role Name and Code:
 - Product Manager (ORA_EGP_PRODUCT_MANAGER_JOB)
 - Product Design Engineer (ORA_ACD_PRODUCT_DESIGN_ENGINEER_JOB)
 - Product Design Manager (ORA_ACD_PRODUCT_DESIGN_MANAGER_JOB)

To move a canceled change line of a change order that is in Approval, Scheduled or Completed status, you must have the EGO_RESCHEDULE_ITEM_CHANGE_ORDER_PRIV privilege.

DETECT REVISION CONFLICTS FOR PROPER SEQUENCING OF CHANGE ORDERS

See improved consolidation of redline information when you use the Resolve Revision Conflicts feature that was introduced in an earlier update.

If you have parallel changes going on for the same affected object, you can detect whether the source revision on top of which the modification is defined is still the valid one. When you promote the change order, the application checks revisions and shows an error message if the revision is not the latest. You can then use the Resolve Revision Conflicts action to update to the appropriate source revision. Proper recalculation of the delta of redlines based on the new source revision is crucial here.

With this update, you can also consolidate redline information for the following objects:

- Item attributes (including descriptive flexfields)
- Item-level extended flexfields
- Item revision-level attachments
- Item structure components
- Approved Manufacturers List (AML)
- Organization associations (for Product Hub)

STEPS TO ENABLE

You don't need to do anything to enable this feature.

TIPS AND CONSIDERATIONS

NOTE: Consolidation of item revision-level extended flexfields is not supported.

ROLE INFORMATION

- Job Role Name and Code:
 - Product Manager (ORA_EGP_PRODUCT_MANAGER_JOB)
 - Product Design Engineer (ORA_ACD_PRODUCT_DESIGN_ENGINEER_JOB)
 - Product Design Manager (ORA_ACD_PRODUCT_DESIGN_MANAGER_JOB)

SELECT FIRST LEVEL OR ALL LEVELS FOR YOUR BILLS OF MATERIAL COMPARISON

You often need to compare bills of material for items and structures that you are evaluating for a change or other business requirement. Most times, you want to compare only the first level of that structure to make decisions for your next steps.

Use view filters in the Product Information Management work area to compare bills of material either by the first level of the structures or by all levels. If you compare by first level only, you get a faster response time and it's an easier comparison to traverse.

You can also filter your bills of material comparison by the first level of structures in the Product Development work area, so you don't need to switch to the Product Information Management work area.

To compare structures in Product Development, go to the **Structure** tab of an item and select **Actions > Compare Structures**. Likewise, in Product Information Management, go to the **Structures** tab of an item and select **Actions > Compare**.

The screenshot shows the Oracle Compare Structures interface. At the top, there's a navigation bar with the Oracle logo and user profile. Below it, a breadcrumb trail shows the path to the 'Compare Structures' tab. The main area is titled 'Comparison Results' and contains two columns for 'Structure One' and 'Structure Two'. Structure One is 'ITM-JK-406' and Structure Two is 'ITM-JK-237'. Both have an 'Effectivity Date' of '4/17/19 07:59:01 AM'. Below this, there's a table with columns for 'Structure One', 'Structure Two', 'Quantity', and 'Description'. The table lists components like 'Tablet PC Power', 'Power Plug 60W', 'IPS Display 15 I...', 'Keyboard QUE...', 'Battery Pack 58...', and 'Motherboard P...'. A 'Columns Hidden: 1' indicator is at the bottom left.

Comparison Results		Quantity		Description	
Structure One	Structure Two	Structure One	Structure Two	Structure One	Structure Two
ITM-JK-406	ITM-JK-237			Tablet PC Power	Tablet PC
ITM-JK-342	ITM-JK-342	1	1	Power Plug 60W	Power Plug 60W
ITM-JK-402	ITM-JK-402	1	1	IPS Display 15 I...	IPS Display 15 I...
ITM-JK-460	ITM-JK-460	1	1	Keyboard QUE...	Keyboard QUE...
ITM-JK-330	ITM-JK-330	1	1	Battery Pack 58...	Battery Pack 58...
ITM-JK-508	-	1	-	Motherboard P...	-
-	ITM-JK-304	-	1	-	Motherboard

BOM Comparison Results

In the Product Development work area, you can choose to compare the structure based on the selected item revisions or by specifying an effective date. If you choose **Revision** in the **Compare By** field, then the effective date becomes read-only and shows a default value.

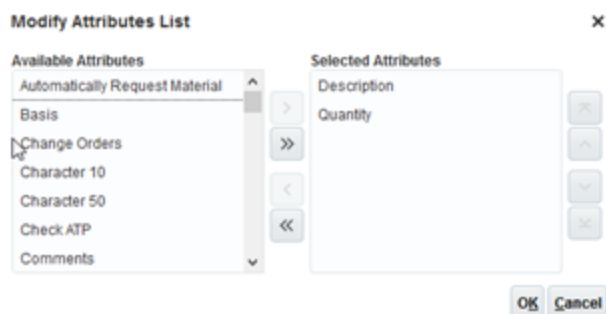
The application calculates the default value of the effective date as follows:

- For a past effective revision - end date of that revision.
- For a current effective revision - current date.
- For a future or pending revision - start date of that revision.

The screenshot shows the 'Modify Structures List' dialog box. It has two sections for 'Structure One' and 'Structure Two'. Each section has an 'Item' field (ITM-JK-406 and ITM-JK-237), a 'Compare By' dropdown (set to 'Revision'), a 'Revision' dropdown (set to 'A'), and an 'Effective Date' field (4/17/19 08:06:17 AM). There are 'Clear' buttons for each section and 'OK' and 'Cancel' buttons at the bottom.

Compare by Revision

Here's how you define which attributes to consider in the structure comparison.



Define List of Attributes for Comparison

Watch a [Demo](#)

STEPS TO ENABLE

You don't need to do anything to enable this feature.

KEY RESOURCES

Watch [Change Order History and BOM Comparison Readiness Training](#)

ROLE INFORMATION

- Job Role Name and Code:
 - Product Manager (ORA_EGP_PRODUCT_MANAGER_JOB)
 - Product Design Engineer (ORA_ACD_PRODUCT_DESIGN_ENGINEER_JOB)
 - Product Design Manager (ORA_ACD_PRODUCT_DESIGN_MANAGER_JOB)

USE ITEM IMPORT TEMPLATE TO IMPORT REVISION-SPECIFIC APPROVED MANUFACTURERS LIST

It's critical that the information you import to Oracle Product Lifecycle Management Cloud is accurate, because it's the basis for all of your subsequent lifecycle management activities. In this update, you can import the approved manufacturers list for each revision of an item, and then use Oracle Transactional Business Intelligence (OTBI) to view the approved manufacturers list by item revision in the Structures and Component subject area.

To import items, download the Item Import template from the *File-Based Data Import for Oracle Supply Chain Management Cloud* guide, and follow the steps included in the template. For an item, you can bring in the revisions using the EGP_ITEMS_REVISIONS_INTERFACE tab of the item import template. To ensure that the approved manufacturers list shows up against a specific revision of the item, make sure that the **Start Date Active** date entered for the approved manufacturers list on the EGP_ITEM_RELATIONSHIPS_INTF tab matches the **Effectivity** date for that revision on the EGP_ITEMS_REVISIONS_INTERFACE tab. The Start Date Active date must be in YYYY/MM/DD HH:MM:SS.mm format.

After importing the item revisions with the approved manufacturers list, you can view the list by parent revision in the Structures and Component subject area of Oracle Transactional Business Intelligence (OTBI). You can easily change the view to see and compare different revisions.

Parent Item Name M1_Item2 ▼		Parent Revision C ▼	
Component Item Name	Component Level	Component Trading Partner Item Number	Component MPN Part Preference Status
M1_Item2	0		
		ES35 5.1	Alternate
M1_Item2A	. 1	MPN_002	Preferred
M1_Item2C	. 1	MPN_002	Alternate

OTBI Report Parent Revision C

Parent Item Name M1_Item2 ▼		Parent Revision D ▼	
Component Item Name	Component Level	Component Trading Partner Item Number	Component MPN Part Preference Status
M1_Item2	0	ALM0000-00101	Preferred
		ES35 5.1	Preferred
		MPN_002	Preferred
M1_Item2A	. 1	MPN_002	Preferred
M1_Item2C	. 1	MPN_002	Alternate

OTBI Report Parent Revision D

STEPS TO ENABLE

Leverage new subject area(s) by adding to existing reports or using in new reports. For details about creating and editing reports, see the *Creating and Administering Analytics and Reports book* (available from the [Oracle Help Center](#) > *your apps service area of interest* > Books > Administration).

TIPS AND CONSIDERATIONS

When you import items where the approved manufacturers list start and end dates are different for different revisions, use different batches to complete the import successfully.

Only the first instance of the approved manufacturers list is considered in one import batch, so the list is shown only in revision A of the item. To create the relationship between the item and the approved manufacturers list in revision B, import it in a separate batch.

This update supports approved manufacturers lists that have no end date, but only a start date.

KEY RESOURCES

For details about the Item Import template, refer to the *File-Based Data Import for Oracle Supply Chain Management Cloud* guide, available on the [Oracle Help Center](#)

ROLE INFORMATION

- Job Role Name and Code:
 - ORA_EGI_PRODUCT_DATA_STEWARD_JOB
 - FND_MANAGE_SCHEDULED_PROCESSES_PRIV

PRODUCT HUB

CONFIGURE THE PUBLICATION PAYLOAD SIZE

With this enhancement, you can control the size of the publication payload to match the systems and processes requirements. The default publication payload size is 500 MB for all publication payloads. The value is in MB. You can use the EGI_PUBLICATION_ITEMS_PER_PAYLOAD profile option to set a new value less than 500 MB to reduce the size of all publication payloads.

To change the payload size, use the Manage Advanced Item Profile Options (EGI_PUBLICATION_ITEMS_PER_PAYLOAD) task in the Setup and Maintenance work area:

- Offering: Product Management
- Functional Area: Items

This feature was also made available in a monthly update of 19C.

The screenshot shows the Oracle Manage Advanced Item Profile Options page. It displays a table of profile options with columns: Profile Option Code, Profile Display Name, Mc Application, Start Date, End Date, and Description. The row for EGI_PUBLICATION_ITEMS_PER_PAYLOAD is highlighted, showing a value of 7/2. Below this, the 'Profile Values' section is visible, showing a table with columns: Profile Level, Product Name, User Name, and Profile Value. The 'Profile Value' column has a value of 100.

Profile Option Code	Profile Display Name	Mc Application	Start Date	End Date	Description
EGI_PUBLICATION_ITEMS_PER_PAYLOAD	Number of Items per Payload for P...	Item Product Hub	7/2		Determines the number of items to be used per payload in the publication concurrent program.

Profile Level	Product Name	User Name	Profile Value
Site			100

Publication Payload Sizing Profile

STEPS TO ENABLE

You don't need to do anything to enable this feature.

TIPS AND CONSIDERATIONS

Review the requirements for the systems or processes that will use the published data to determine requirements for the payload size.

No actions are required because the default setting is for the maximum file size.

KEY RESOURCES

- Oracle Fusion Product Hub Publication Process White Paper (Doc ID 1933240.1)

ROLE INFORMATION

- Privileges Name and Code:

- Publish Item (EGI_PUBLISH_ITEM_PRIV)
 - Publish Catalog (EGI_PUBLISH_CATALOG_PRIV)
 - Publish Item Class (EGI_PUBLISH_ITEMCLASS_PRIV)
 - Publish Trading Partner Item (EGI_VIEW_TRADING_PARTNER_ITEM_PRIV)
- Job Role Name and Code:
 - Product Data Steward (ORA_EGI_PRODUCT_DATA_STEWARD_JOB)
 - Product Manager (ORA_PRODUCT_MANAGER_JOB)

LEVERAGE IMPROVED ERROR MESSAGING TO TRACE PUBLICATION ERRORS

The publication job log have improved error messages. You can use these messages to easily trace the publication errors and fix them. The publication job log now contains additional information regarding the error including the item number, rule name, and any error message that you have configured for the rule definition.

NOTE: This feature was also available in a monthly update of 19B.

Here is a sample of the publication job log:

```
--64227.log -----
Publication batch: Publication batch : ATG : 870
The file PIM_Publication_ATG_64227.zip was uploaded to the folder
/Contribution Folders/ with the content identification number
dDocName:UCMFA00068115.
The object Item with the key TJG28938758(V1) won't be published due to the
rule TJG28938758 Reject in Pub with the message: The Item "TJG28938758" has
been rejected due to Rule-Set 'TJG28938758'!.
-----
```

STEPS TO ENABLE

You don't need to do anything to enable this feature.

TIPS AND CONSIDERATIONS

Create rules to display clearly defined error messages.

KEY RESOURCES

- Oracle Fusion Product Hub Publication Process White Paper (Doc ID 1933240.1)

ROLE INFORMATION

- Privilege Name and Code:
 - Publish Item (EGI_PUBLISH_ITEM_PRIV)
 - Publish Catalog (EGI_PUBLISH_CATALOG_PRIV)
 - Publish Item Class (EGI_PUBLISH_ITEMCLASS_PRIV)
 - Publish Trading Partner Item (EGI_VIEW_TRADING_PARTNER_ITEM_PRIV)
- Job Role Name and Code:
 - Product Data Steward (ORA_EGI_PRODUCT_DATA_STEWARD_JOB)

- Product Manager (ORA_PRODUCT_MANAGER_JOB)

MARK NEW ITEM REQUESTS COMPLETE

Mark your new item requests complete directly from the New Item Request Definition page with a new Mark Complete button. You can now follow a more streamlined process and avoid unnecessary navigation. You have the flexibility to update the line item task status in the New Item Request notification page *or* after you've made updates to the item in the New Item Request definition page. You'll notice that the Done button in the Definition notification has also been renamed to Mark Complete.

The screenshot shows the 'New Item Request Definition' page. At the top right, there is a toolbar with buttons: 'Edit Task Status' (with a dropdown menu showing 'In progress'), 'Mark Complete' (highlighted with a red box), 'Save', 'Save and Close', and 'Cancel'. Below the toolbar, the page is divided into two columns. The left column contains fields: 'Item' (RSNIRIT4), 'Description' (RSNIRIT4), 'Item Class' (1RingoNIR), 'Approval Status' (New Item Request in Progress (RSNIR3)), and 'Completeness Score'. The right column contains fields: 'Item Status' (Active), 'Lifecycle Phase' (Design), 'User Item Type' (Finished Good), 'Pack Type', and 'Revision' (A).

Mark Complete Button on the New Item Request Definition Page

The screenshot shows the 'New Item Request M2_Apr22_ITEM01A Requires Definition' page. At the top right, there is a toolbar with an 'Actions' dropdown menu and a 'Mark Complete' button (highlighted with a red box). Below the toolbar, the page is divided into two columns. The left column contains fields: 'Assignee' (pimqa), 'Assigned Date' (4/22/19 02:09 AM), and 'Task Number' (201004). The right column contains fields: 'Organization' (Vision Operations), 'New Item Request' (M2_Apr22_ITEM01A), 'New Item Request Description' (FAIL1), and 'Approval Status' (Not submitted for approval).

Mark Complete Button on the Definition Notification

STEPS TO ENABLE

You don't need to do anything to enable this feature.

ROLE INFORMATION

- Job Role Name and Code:
 - Product Manager (ORA_EGP_PRODUCT_MANAGER_JOB)
 - Product Data Steward (ORA_EGI_PRODUCT_DATA_STEWARD_JOB)

DISSEMINATE ITEM DATA CHANGES TO EXTERNAL SYSTEMS THROUGH THE NEW ITEM REQUEST BUSINESS EVENTS

Use business events to notify external systems of new item request status changes. You can subscribe to these business events with Oracle Integration Cloud. Your integration specialists can then connect to any available web service or other available resources in Oracle Integration Cloud and perform event-driven actions driven by new item request status changes.

Business events are generated for the following new item request status changes: Open, Definition, Approval, Scheduled, and Completed.

Here are the available events:

Business Event ID	Description
SCM_EGO_NEW_ITEM_REQUEST_CHANGE_STATUS_OPEN	New Item Request Opened
SCM_EGO_NEW_ITEM_REQUEST_CHANGE_STATUS_DEFINITION	New Item Request Status Changed To Definition
SCM_EGO_NEW_ITEM_REQUEST_CHANGE_STATUS_APPROVAL	New Item Request Status Changed To Approval
SCM_EGO_NEW_ITEM_REQUEST_CHANGE_STATUS_SCHEDULED	New Item Request Scheduled
SCM_EGO_NEW_ITEM_REQUEST_CHANGE_STATUS_COMPLETED	New Item Request Completed

Business Events for New Item Request Status Changes

STEPS TO ENABLE

You don't need to do anything to enable this feature.

ROLE INFORMATION

- Job Role Name and Code:
 - Product Manager (ORA_EGP_PRODUCT_MANAGER_JOB)
 - Product Data Steward (ORA_EGI_PRODUCT_DATA_STEWARD_JOB)

INTEGRATE AND EXTEND PRODUCT HUB USING REST SERVICES

MANAGE ITEMS USING A REST SERVICE

You can use the Items Version 2 REST service to find, create, and manage items and item-related data. This REST service replaces the existing Items REST service, which has been deprecated.

With this service, you can:

- Create item
- Create item revision
- Specify values for item, and revision attributes that include standard operational attributes and user-defined attributes
- Create supplier association
- Create and manage attachments
- Assign items to catalog categories
- Search for items

STEPS TO ENABLE

Review the REST service definition in the REST API guides, available from the [Oracle Help Center](#) > *your apps service area of interest* > REST API. If you're new to Oracle's REST services you may want to begin with the Quick Start section.

ROLE INFORMATION

- Privilege Name and Code:
 - Create Item Class Item Data (EGO_CREATE_ITEM_CLASS_ITEM_DATA)
 - Manage Item (EGP_MANAGE_ITEM)
- Job Role Name and Code
 - Product Data Steward (ORA_EGI_PRODUCT_DATA_STEWARD_JOB)
 - Product Manager (ORA_EGP_PRODUCT_MANAGER_JOB)

MANAGE PRODUCT UPLOADS USING A REST SERVICE

You can now use the Product Uploads REST service to upload product data from multiple source systems into the Oracle Product Hub Cloud staging tables. You can also add the product data to an item batch and import it into Product Hub using this service.

With this service, you can:

- Create a product upload
- Upload the product data using data files and import map
- Add the product data to an item batch for importing it into Product Hub
- Retrieve the product upload details for previously uploaded product data

STEPS TO ENABLE

Review the REST service definition in the REST API guides to leverage (available from the [Oracle Help Center](#) > *your apps service area of interest* > REST API) . If you are new to Oracle's REST services you may want to begin with the Quick Start section.

TIPS AND CONSIDERATIONS

- You cannot upload product attachments using this service.
- If the spoke system is set to On Data Load, then, when you upload the product data, this service will also create an item batch and add the product data to that batch for importing it into Product Hub.
- If the spoke system is set to Manual, then uploading the product data using this service will not create an item batch. To add the product data to an item batch for such spoke systems, you can create an item batch using the Item Batch Maintenance service. When the batch gets created, note the batch id, and then specify the batch id in the PROCESS action parameter of the Product Uploads service.

ROLE INFORMATION

- Privilege Name and Code:
 - Manage Product Upload (EGS_MANAGE_PRODUCT_UPLOAD_PRIV)
- Job Role Name and Code:
 - Product Data Steward (ORA_EGI_PRODUCT_DATA_STEWARD_JOB)
 - Supplier Product Administrator (ORA_EGS_SUPPLIER_PRODUCT_ADMINISTRATOR_JOB)

MANAGE NEW ITEM REQUEST ATTACHMENTS USING REST SERVICES

Use the Attachments REST web service to post, get, patch, and delete your new item request attachments. If the new item request is in draft or open status, you can now programmatically post, update, or delete its attachments.

The Attachments REST service is a child service of the New Item Requests root service. With this service, you can:

- Attach URLs, files, text, and repository files or folders to your new item requests.
- Use parameters in the request payload to identify the URLs, files, text, and repository files or folders that will be attached, add a title to the attachment, and also add a description.

```
1 import requests
2 import json
3 import base64
4
5 user = 'oscar.oracle'
6 pwd = 'Welcome1'
7
8 #Get NIR and loop through the response items to find the NewItemRequestId
9 url = 'https://yourhost.com/fscmRestApi/resources/latest/newItemRequests?q=NewItemRequestName=NIR12345'
10 response = requests.get(url,auth=(user,pwd))
11 jresponse = response.json()
12 nir = jresponse['items']
13 for attr in nir:
14     nirId = str(attr['NewItemRequestId'])
15
16 #Use the NewItemRequestId to access the Attachments node so that you can post a URL attachment.
17 url = 'https://yourhost.com/fscmRestApi/resources/latest/productChangeOrders/'+nirId+'/child/Attachments'
18 urlExample = {
19     "DatatypeCode" : "WEB_PAGE",
20     "CategoryName" : "MISC",
21     "Title" : "Link to Oracle",
22     "Url" : "https://www.oracle.com"
23 }
24 urlAttachment = requests.post(url,json=urlExample,auth=(user,pwd))
25 urlAttachment_response = urlAttachment.json()
26 print(urlAttachment_response)
27
28 #Open a text file, read it in as binary, convert it to base64, convert it to a string, and remove extra characters.
29 with open("/Users/Public/Desktop/TextFile.txt", "rb") as textFile: #"r" means read and "b" means binary
30     fileData64 = base64.b64encode(textFile.read()) #Convert data to base64
31     fileDataStr = str(fileData64) #Convert data into a string
32     removeQuotes = fileDataStr.replace("'", "") #Remove end quotes
33     cleanData = removeQuotes.replace("b","",1) #Remove the binary "b"
34 #Define the file attachment properties and post the data from the file as an attachment.
35 fileExample = {
36     "DatatypeCode": "FILE",
37     "CategoryName": "MISC",
38     "FileName": "TextFile.txt",
39     "Title": "Text File",
40     "Description": "This is a text file.",
41     "FileContents": cleanData #Submit the data from the file as the attachment content.
42 }
43 fileAttachment = requests.post(url,json=fileExample,auth=(user,pwd))
44 fileAttachment_response = fileAttachment.json()
45 print(fileAttachment_response)
```

URL and File Attachment Using REST API

STEPS TO ENABLE

Review the REST service definition in the REST API guides to leverage (available from the [Oracle Help Center](#) > *your apps service area of interest* > REST API) . If you are new to Oracle's REST services you may want to begin with the Quick Start section.

TIPS AND CONSIDERATIONS

Attachments can be added to only one attachment category, **Miscellaneous**, with the categoryName **MISC**

Example:

```
"DatatypeCode" : "FILE",  
"FileName": "file1.jpg",  
"Title":"file1_title",  
"CategoryName" : "MISC",  
"FileContents" : "<Base64 encoded file content>"
```

KEY RESOURCES

Refer to the following documentation, available on the [Oracle Help Center](#)

- *REST API for Oracle Supply Chain Management Cloud*

ROLE INFORMATION

- Job Role Name and Code:
 - Product Manager (ORA_EGP_PRODUCT_MANAGER_JOB)
 - Product Data Steward (ORA_EGI_PRODUCT_DATA_STEWARD_JOB)

MANAGE STATUS CHANGES FOR NEW ITEM REQUESTS USING REST SERVICES

Use the New Item Requests REST web service to submit new item requests from Draft to Open status and from Open to Definition status.

To programmatically automate the movement of a new item request from one status to another:

- Use the POST method to call the new item request into your session.
- Apply the changeStatus command in the request payload.
- Supply the next status name as the toStatusName property.

```

1  import requests
2  import json
3
4  user = 'oscar.oracle'
5  pwd = 'Welcome1'
6
7  #Get NIR and execute changeStatus
8  url = 'https://host.com/fscmRestApi/resources/[latest]/newItemRequests'
9  data = {
10     "name": "changeStatus",
11     "parameters": [
12         {"nirNumber": "NIR12345"},
13         {"orgCode": "V1"},
14         {"toStatusName": "Open"}
15     ]
16 }
17 change_status = requests.post(url,json=data,auth=(user,pwd))
18 change_status_response = change_status.json()
19 print(change_status_response)

```

New Item Request Status Change Using REST API

STEPS TO ENABLE

Review the REST service definition in the REST API guides to leverage (available from the [Oracle Help Center](#) > *your apps service area of interest* > REST API) . If you are new to Oracle's REST services you may want to begin with the Quick Start section.

TIPS AND CONSIDERATIONS

Example:

```

"name" : "changeStatus",
"parameters" : [
{ "nirNumber" : "LY_NIR_1037" },
{ "orgCode" : "V1"},
{ "toStatusName" : "Open" }

```

KEY RESOURCES

Refer to the following documentation, available on the [Oracle Help Center](#)

- *REST API for Oracle Supply Chain Management Cloud*

ROLE INFORMATION

- Job Role Name and Code:
 - Product Manager (ORA_EGP_PRODUCT_MANAGER_JOB)

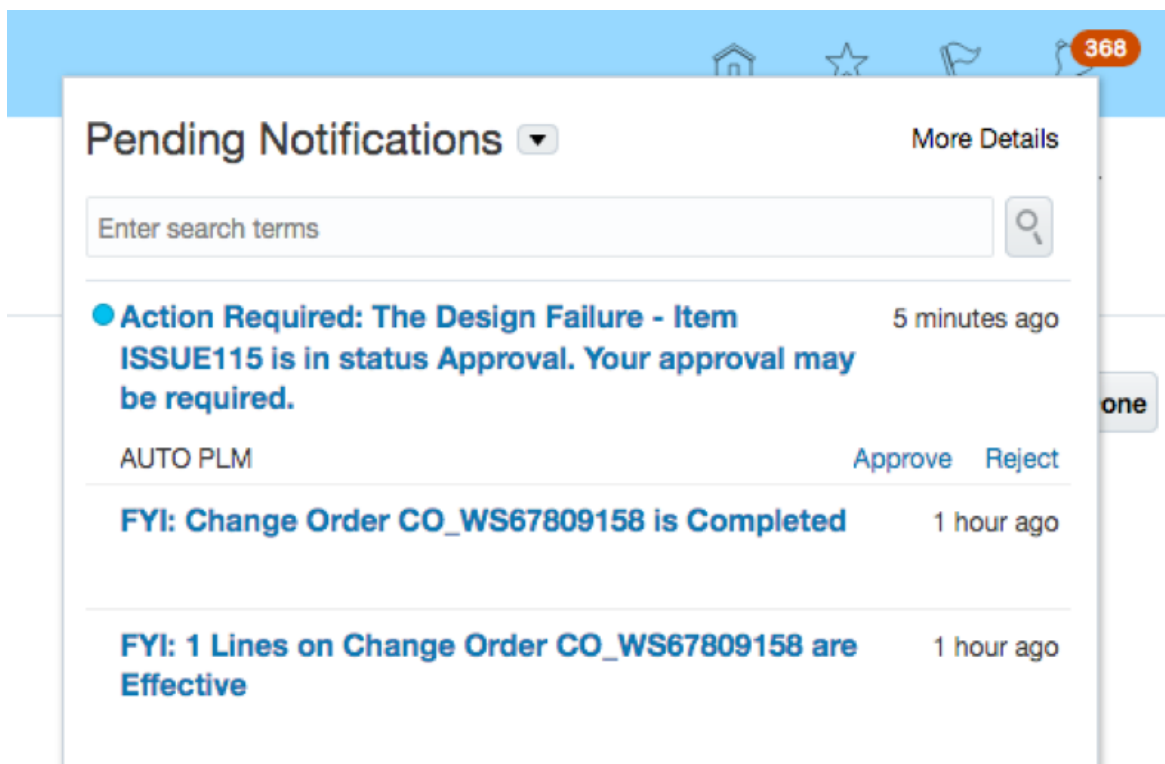
- Product Data Steward (ORA_EGI_PRODUCT_DATA_STEWARD_JOB)

QUALITY MANAGEMENT

NAVIGATE DIRECTLY TO QUALITY ISSUES AND ACTIONS FROM APPROVAL NOTIFICATIONS

You use the quality management workflow as a vehicle to mobilize designated resources and track progress. To facilitate communication, designated approvers receive workflow approval notifications for quality issues or actions that need immediate review and approval.

With this update, you can directly navigate to the quality issue or quality action from the object hyperlink in approval notifications, improving responsiveness and efficiency of quality problem resolution.



Approval Notification

The Design Failure - Item ISSUE115 is in status A... Approve Reject Actions ▼

▲ Details

Assignee plm_auto

From plm_auto

Assigned Date 3/28/19 9:49 AM

Task Number 213759

▲ Quality Issue Details

Number	ISSUE115	Organization	V1
Type	Design Failure - Item	Created By	AUTO PLM
Name	Failure with AS54888	Creation Date	3/28/19 9:45:43 AM
Severity	4 Low	Last Updated Date	3/28/19 9:47:31 AM
Disposition		Expected Resolution Date	
Description	Tolerance too high	Assigned To	
Source	Quality		

Object Hyperlink in Approval Notification

STEPS TO ENABLE

You don't need to do anything to enable this feature.

KEY RESOURCES

Watch [Attachment Categories and Notifications Back Links Readiness Training](#)

ROLE INFORMATION

- Job Role Name and Code:
 - Quality Analyst (ORA_ENQ_QUALITY_ANALYST_JOB)

CATEGORIZE ATTACHMENTS ON QUALITY ISSUES OR QUALITY ACTIONS

You gather a lot of data during quality management processes as teams work in parallel to define and ultimately resolve quality-related problems. To keep this data organized and provide easy access to individual artifacts as needed, you can categorize attachments. You can also restrict access by attachment category to keep the artifacts secure.

When you add an attachment to an issue or action, you can select the appropriate category to indicate the kind of attachment being added. When you use the **Save As** action to create a new issue or action, attachment category details are carried over to the new issue or action along with the attachments.

Add Attachments [X]

Type: File [v] ☐ Unzip all zip files after upload

Category: [v] Detail Image
Document
Internal to Requisition
Miscellaneous
Receipts
Recommended Template
Reference Data
Resolution

picture_failure... [X] Miscellaneous

Durchsuchen... Keine Dateien ausgewählt. Stop Uploading

Specify Attachment Category

Watch a [Demo](#)

STEPS TO ENABLE

To enable this feature, assign additional attachment categories for quality issues and quality actions.

In the Setup and Maintenance work area:

1. Open the task **Manage Attachment Entities**.
2. Search for the entity **ENQ_ACTION** (Quality Actions) or **ENQ_ISSUE** (Quality Issues).
3. Select the entity to see the attachment categories assigned to that specific entity.
4. Add the additional attachment categories that should be made available for selection when you create attachments.

Manage Attachment Entities

Save

Save and Close

Cancel

Search

Entity Name

enq

User Entity Name

Module

Search

Reset

Search Results

Actions

View

Detach

Entity Name	User Entity Name	Module	Database Resource	Table Name	Enable Security
ENQ_ACTION	ENQ_ACTION	Quality Issue and Action Management	ENQ_ACTION	ActionVO	☐
ENQ_ISSUE	ENQ_ISSUE	Quality Issue and Action Management	ENQ_ISSUE	IssueVO	☐

ENQ_ACTION: Attachment Categories

Actions

View

Detach

Category Name	Display Name	Description
DOCUMENT	Document	Category of attachments saved as part of document communication.
REQ_INTERNAL	Internal to Requisition	Category of attachments created by the requester for internal tracking.
DETAIL_IMAGE	Detail Image	Detail Image For Catalogs,Categories And Items.
RECEIPTS	Receipts	Receipts
RECOMMENDE...	Recommended Template	Standard instructions that are used as guidelines for a certain task such as campaigns, E-Mail marketing, et cetera.

Manage Attachment Entities

KEY RESOURCES

Watch [Attachment Categories and Notifications Back Links Readiness Training](#)

ROLE INFORMATION

You must have an administrator role to manage attachment categories and assign them to the issue or action attachment entities.

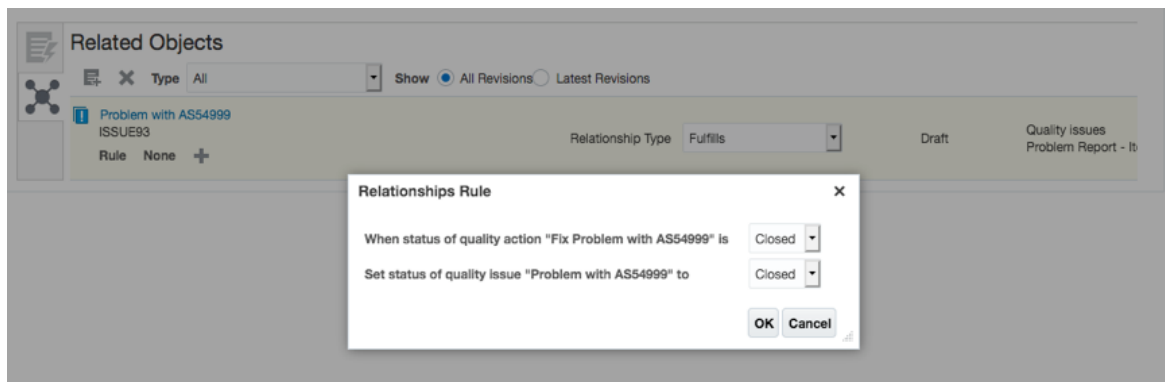
- Job Role Name and Code:
 - Quality Analyst (ORA_ENQ_QUALITY_ANALYST_JOB)

IMPROVE USABILITY AND SECURITY OF THE RELATIONSHIP RULE EDITOR

Addressing quality-related events can be a complicated, often intertwined process with multiple dependencies across the various stages or steps from definition to resolution. Not unlike project planning, coordinating the various data gathering and decision processes can be an overwhelming, time consuming, and labor intensive activity.

Use the improved relationships rule editor to define and automatically manage the relationships across quality issues, quality actions, and change orders. You can define rules to change the status of one object when the status of a related object is changed to a specific value. For example, you can define that the status of a quality action is set to Closed once the related change order is set to Closed.

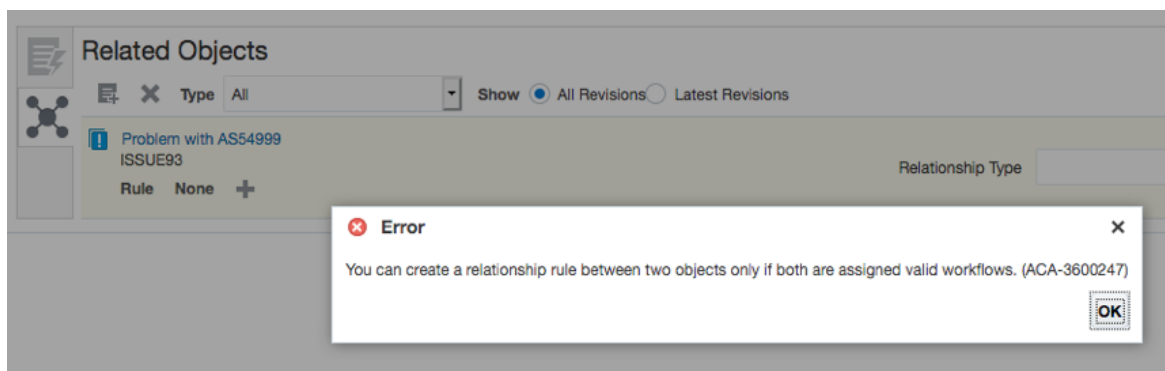
With these improvements, you can clearly see which status is set for each object.



Define Relationships Rule

In addition, the Rule Editor is more secure and prevents unauthorized use with the following improvements:

- You need Manage privilege on the source objects to set rules for those objects. You cannot open the Rule Editor without this.
- You can create a rule only if both related objects have a workflow assigned.



Enhanced Security for Setting Relationship Rules

STEPS TO ENABLE

You don't need to do anything to enable this feature.

KEY RESOURCES

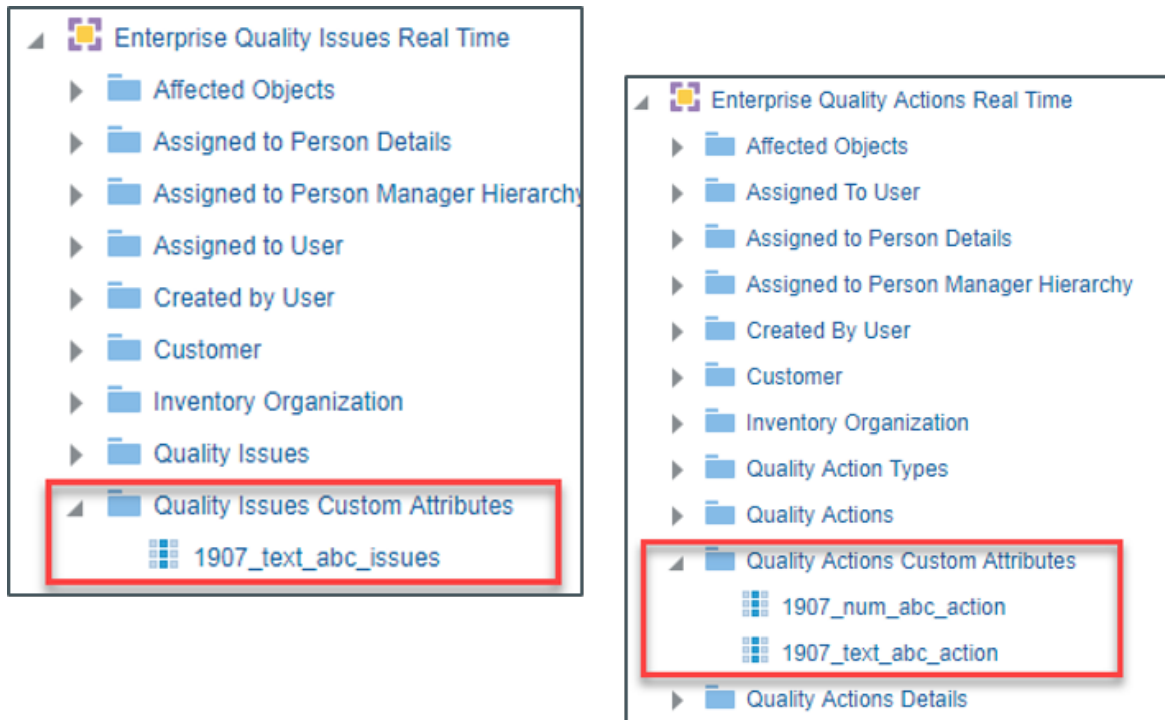
Watch [Attachment Categories and Notifications Back Links Readiness Training](#)

ROLE INFORMATION

- Job Role Name and Code:
 - Quality Analyst (ORA_ENQ_QUALITY_ANALYST_JOB)

ENHANCE ANALYTICS WITH ADDITIONAL ATTRIBUTES IN QUALITY ISSUES AND ACTIONS REAL TIME SUBJECT AREAS

Improve analysis and reporting insights for quality issues and quality actions in Oracle Transactional Business Intelligence (OTBI) with additional attributes for date, text and number.



Quality Issues and Quality Actions Subject Areas with Extended Attributes

STEPS TO ENABLE

Leverage new subject area(s) by adding to existing reports or using in new reports. For details about creating and editing reports, see the *Creating and Administering Analytics and Reports book* (available from the [Oracle Help Center](#) > *your apps service area of interest* > Books > Administration).

KEY RESOURCES

Watch [Attachment Categories and Notifications Back Links Readiness Training](#)

ROLE INFORMATION

- Job Role Name and Code:
 - Quality Issues and Actions Transaction Analysis Duty (FBI_QUALITY_ISSUES_ACTIONS_TRANSACTION_ANALYSIS_DUTY)
 - BI Consumer Role (BIConsumer)



Oracle is committed to developing practices and products that help protect the environment

Copyright © 2019, Oracle and/or its affiliates. All rights reserved.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

Integrated Cloud Applications & Platform Services