



Active Workspace 6.0

Workflow Handlers

Active Workspace 6.0

AW048 - 6.0

Unpublished work. © 2021 Siemens

This material contains trade secrets or otherwise confidential information owned by Siemens Industry Software, Inc., its subsidiaries or its affiliates (collectively, "Siemens"), or its licensors. Access to and use of this information is strictly limited as set forth in Customer's applicable agreement with Siemens. This material may not be copied, distributed, or otherwise disclosed outside of Customer's facilities without the express written permission of Siemens, and may not be used in any way not expressly authorized by Siemens.

This document is for information and instruction purposes only. Siemens reserves the right to make changes in specifications and other information contained in this publication without prior notice, and the reader should, in all cases, consult Siemens to determine whether any changes have been made. Representations about products, features or functionality in this document constitute technical information, not a warranty or guarantee, and shall not give rise to any liability of Siemens whatsoever. Siemens disclaims all warranties including, without limitation, the implied warranties of merchantability and fitness for a particular purpose. In particular, Siemens does not warrant that the operation of the products will be uninterrupted or error free.

The terms and conditions governing the sale and licensing of Siemens products are set forth in written agreements between Siemens and its customers. Siemens' End User License Agreement and Universal Contract Agreement may be viewed at: <https://www.sw.siemens.com/en-US/sw-terms/>

TRADEMARKS: The trademarks, logos, and service marks ("Marks") used herein are the property of Siemens or other parties. No one is permitted to use these Marks without the prior written consent of Siemens or the owner of the Marks, as applicable. The use herein of third party Marks is not an attempt to indicate Siemens as a source of a product, but is intended to indicate a product from, or associated with, a particular third party. A list of Siemens' trademarks may be viewed at: www.plm.automation.siemens.com/global/en/legal/trademarks.html. The registered trademark Linux® is used pursuant to a sublicense from LMI, the exclusive licensee of Linus Torvalds, owner of the mark on a world-wide basis.

About Siemens Digital Industries Software

Siemens Digital Industries Software is a leading global provider of product life cycle management (PLM) software and services with 7 million licensed seats and 71,000 customers worldwide. Headquartered in Plano, Texas, Siemens Digital Industries Software works collaboratively with companies to deliver open solutions that help them turn more ideas into successful products. For more information on Siemens Digital Industries Software products and services, visit www.siemens.com/plm.

Support Center: support.sw.siemens.com

Send Feedback on Documentation: support.sw.siemens.com/doc_feedback_form

Contents

Workflow handlers

What are workflow handlers?	1-1
Executing workflow handlers	1-2
Updating your task templates to use the new handler and argument names	1-4
Renaming your custom handlers and arguments	1-4
Handler argument values	1-11
Syntax for handler arguments and values	1-11
Keywords as argument values	1-12
Lists of values as argument values	1-20
Differentiating between classes and types	1-23
Specifying relations	1-24
Debugging handler data	1-25
Action handlers	1-26
Action Handlers	1-26
Rule handlers	1-435
Rule Handlers	1-435



1. Workflow handlers

What are workflow handlers?

Handlers are the lowest-level building blocks in workflow. They are small ITK programs used to extend and customize tasks. There are two kinds of handlers:

- Action handlers extend and customize task actions. They perform such actions as displaying information, retrieving the results of previous tasks (inherit), notifying users, setting object protections and launching applications.
- Rule handlers integrate workflow business rules into EPM workflow processes at the task level. They attach conditions to an action. Rule handlers confirm that a defined rule has been satisfied. If the rule is met, the handler returns the **EPM_go** command, allowing the task to continue. If the rule is not met, it returns the **EPM_nogo** command, preventing the task from continuing. If there are multiple targets for a single rule handler, all targets must satisfy the rule for **EPM_go** to be returned (**AND** condition).
Many conditions defined by a rule handler are binary (that is, they are either true or false). However, some conditions are neither true nor false. EPM allows two or more rule handlers to be combined using logical **AND/OR** conditions. When several rule handlers are combined using a logical **Or** condition, rule handler quorums specify the number of rule handlers that must return **EPM_go** for the action to complete.

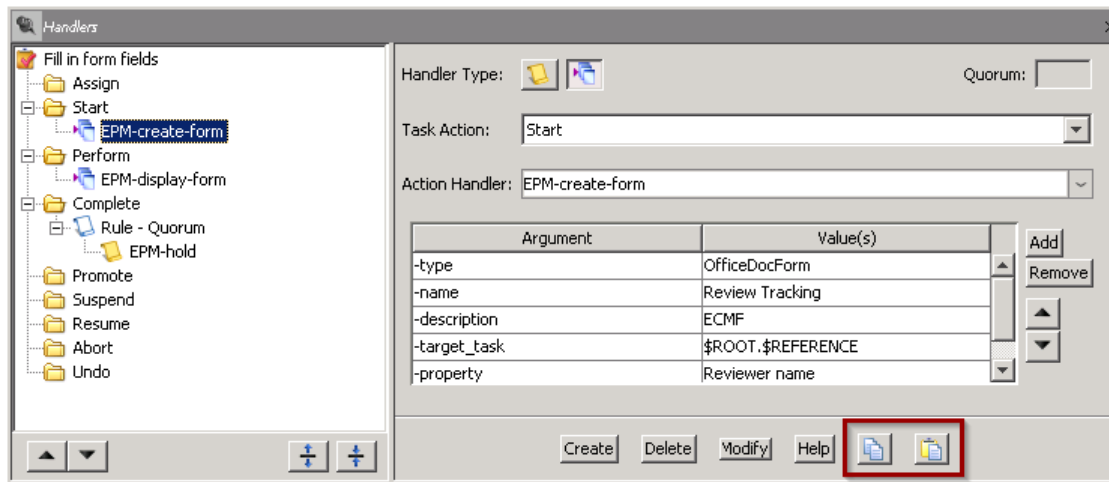
Action and rule handlers in the **Handlers** panel can be copied:

- From one action to another action in a task.
- From one task to another task in the same template.
- From a task in one template to a task in another template.

For the selection in the action tree, click **Performs a Copy action** or **Performs a Paste action** as desired.

Note:

For **Performs a Paste action**, the process template must be in **Edit**  mode.



- To paste on another task in the same template, select the target task in the task hierarchy tree.
- To paste on a task in another template, select the target template from the **Process Template** list.

Executing workflow handlers

Handlers that require access execute according to either the default (**regular**) access or **system** access. The preference **WRKFLW_access_level_for_handlers_execution** indicates the access level to be used. This preference value takes effect on all handlers collectively (not individually).

- **Regular** access: In a typical user session, there are several factors that control access. Some of those factors include access rules, ACLs, and handler logic. Allowing these factors to determine access without overriding them is referred to as **regular** access. Regular access allows handlers to execute with their default access. This is the default preference setting.
- **System** access: When a handler executes with system access, the handler's default access will be overridden and the handler will be granted system access. This means that in a session where the preference is set to **system**, a handler would be granted access; whereas in a session where the preference is set to **regular**, the same handler would be denied access.

The following examples demonstrate the difference in handler behavior according to the preference setting. The **EPM-attach-related-objects** handler is used in these examples.

Consider the scenario where object access is denied and **EPM-attach-related-objects** is attempting to attach that object to a workflow.

- If the value for **WRKFLW_access_level_for_handlers_execution** is set to **regular**, then the handler will not be allowed to attach the object and an error will occur.
- If the value for **WRKFLW_access_level_for_handlers_execution** is set to **system**, then the default access will be overridden and access to the object will be granted, and the handler will be allowed to attach the object without error.

Working with Access Manager

The **EPM-set-rule-based-protection** handler indicates that an ACL will be passed to Access Manager. Access Manager will then apply access as defined by the ACL. Although **EPM-set-rule-based-protection** will indicate an ACL, it does not apply the ACL. Access Manager picks up the ACL and applies and enforces it. The ACL set by **EPM-set-rule-based-protection** is not exposed to Access Manager until a task's state has been set to Started. A task's state does not transition to Started until all the handlers on the Start action execute successfully. This means that other handlers that are located on the same Start action as **EPM-set-rule-based-protection** will not execute under the access indicated by **EPM-set-rule-based-protection**. In order for other handlers to adhere to the access indicated by **EPM-set-rule-based-protection**, they can either be placed on the Complete action of the current task or the Start action of a successor task. It is important to understand this concept because some handlers rely on access, and therefore a proper configuration is required to ensure the intended access is being applied when these handler execute.

For example, a desired configuration may be to have all of the following happen on a single task:

1. **EPM-set-rule-based-protection** indicates an ACL.
2. Access Manager picks up the ACL and applies the access.
3. **EPM-attach-related-objects** executes based on the access of the ACL that was indicated by **EPM-set-rule-based-protection**.

Since the ACL will not be applied until the task starts, to achieve the desired behavior, the **EPM-attach-related-objects** should be placed on the Complete action.

In this example, the configuration should look like this:

- Task Start handler: EPM-set-rule-based-protection
- Task Complete handler: EPM-attach-related-objects

With this configuration the processing will execute as follows:

1. Current task state is Pending.
2. Task is triggered to start.
3. Handlers on the Start action will execute, which in this example is the **EPM-set-rule-based-protection** handler, and **EPM-set-rule-based-protection** will indicate an ACL.
4. After the handlers on the Start action execute successfully, the task state is set to Started. The indicated ACL will now be applied (and this access will remain until a different access is set).
5. Handlers on the Complete action will execute, which in this example is the **EPM-attach-related-objects** handler.

6. The **EPM-attach-related-objects** executes under the intended ACL, which is the ACL indicated by **EPM-set-rule-based-protection** in step 3.

Updating your task templates to use the new handler and argument names

Starting with Teamcenter version 10.1, many of the workflow handlers, their arguments, and accepted argument values were changed to make them more consistent. The effect of the renaming depends on your situation:

- If you did not have an installation of Teamcenter prior to version 10.1, the renaming has no effect for you.
- If your installation was upgraded from a Teamcenter version prior to 10.1 to the current version, the **migrate_wf_handlers** utility was run during the upgrade and the handlers and arguments provided by Teamcenter were automatically renamed.
- If you are importing templates from a Teamcenter version prior to 10.1 to the current version, you must run the **migrate_wf_handlers** utility after importing the templates to rename the handlers and arguments.
When you import templates from a Teamcenter version prior to 10.1, do not select the **Apply template changes to all active workflow processes** check box in the rich client or use the -**apply_template** argument in the **plmxml_import** utility. If you do, Teamcenter does not successfully import the template.
- If you have custom handlers, you can use the **migrate_wf_handlers** utility and a custom mapping file to rename your custom handlers and arguments.

Renaming your custom handlers and arguments

You can use a custom XML mapping file and the **migrate_wf_handlers** utility to rename your custom handlers and arguments to make them consistent with the Teamcenter handlers and arguments. The elements of the mapping file are:

Element	Attributes	Usage
<Mapping>	None.	The <Mapping> element is the root level element in the XML file.
<Remove>	None.	<p>Removes a handler or handler argument depending on where it is placed and its child elements.</p> <p>If <Remove> is the top level element, it may only have a <Handler> element as a child.</p> <p>If <Remove> is the child of a <Handler> element, it may only have one or more <Argument></p>

Element	Attributes	Usage
		<p>elements as children. If an Argument value is specified, the Argument is removed only if the Argument value in the mapping file is a subset of the actual Argument Value in the system. If an Argument value is not specified, the Argument is removed, ignoring whether it has any value or not.</p>
<Replace>	None.	<p>Replaces a handler with more than one handler as specified by subsequent <Add> elements. The <Handler> child element of the <Replace> names the handler to be replaced. The arguments that need to be copied over to the new handlers (for example, see arg3 below) should be explicitly identified. If an argument from the old handler is not explicitly defined to be copied over, it is not added to a new handler, unlike the update/rename handler case.</p> <p>For replacing one handler with another single handler, use the <Update> element.</p>
<Update>	None.	Changes a handler's name and/or arguments.
<Argument>	<ul style="list-style-type: none"> • <code>name</code> (optional) The current name of an argument. • <code>value</code> (optional) The current value of an argument. • <code>newName</code> (optional) The new name to be given to an argument. • <code>newValue</code> (optional) The new value to be given to an argument. • <code>index</code> (optional) Position of the argument in the handler. The <code>index</code> and <code>name</code> attributes are mutually exclusive. 	Specifies the current and possibly new names and values for arguments of a handler.
<Handler>	<ul style="list-style-type: none"> • <code>name</code> 	Specifies the current and possibly new name of a handler.

Element	Attributes	Usage
	<p>The current name of a handler.</p> <ul style="list-style-type: none"> <code>newName</code> (optional) The new name to be given to a handler. <code>transformAssignees=<i>to-be-argname</i></code> (optional) Use this attribute when your existing handler has any number of users, groups, roles, address lists, and/or resource pools as arguments where they are not already specified in the form of a - <i>argname=argvalue</i> pair (such as - participant=Smith). 	
<code><Criteria></code>	<ul style="list-style-type: none"> <code>match</code> (optional) <code>false</code>—the result of the criteria should be negated. <code>true</code>—default value. 	<p>Specifies restrictions on the <code><Handler></code> element in which it is embedded. The action specified by the <code><Handler></code> element is only applied if the criteria evaluate to true.</p> <p><code><Criteria></code> may have two child elements: <code><Template name="template-name" /></code>, and <code><Argument name="arg-name" value="arg-value" /></code> that may be specified alone or together. The <i>template-name</i> is compared to the name of template containing the handler. The <i>arg-name</i> and <i>arg-value</i> are compared to the list of handler arguments. If both <code><Template></code> and <code><Argument></code> are specified, a handler must match both of the respective attributes.</p>
<code><Template></code>	<ul style="list-style-type: none"> <code>name=template-name</code> Compared to the name of the template containing the handler. 	<p>Restricts the <code><Criteria></code> element in which it is embedded to the specified template. If both <code><Template></code> and <code><Argument></code> are specified, a handler must match both of the respective attributes.</p>
<code><Argument></code>	<ul style="list-style-type: none"> <code>name=arg-name</code> Compared to the list of handler argument names. 	<p>Restricts the <code><Criteria></code> element in which it is embedded to the specified argument name and value. If both <code><Template></code> and <code><Argument></code> are</p>

Element	Attributes	Usage
	<ul style="list-style-type: none"> <code>value=arg-value</code> Compared to the list of handler argument values. 	specified, a handler must match both of the respective attributes.
<code><Add></code>	None.	Adds a handler or handler argument. Unlike the <code><Remove></code> element, <code><Add></code> is never a top level element, but is always a child of a <code><Handler></code> element.
<code><Modify></code>	None.	Modifies a handler argument.
<code><Split></code>	<ul style="list-style-type: none"> <code>name</code> An argument name. <code>newName</code> An argument value. <code>Delimiter</code> (optional) For splitting two delimited values existing only in the handler name field. For example, values delimited by two colons (<code>::</code>). 	<p>Splits any handler argument <code>old-name=old-value</code> pair into separate arguments <code>name1=old-name</code> and <code>name2=old-value</code>.</p> <p>A wildcard may be used for the name to match <code>old-name</code>.</p> <p>For example, <code><Split name="*" newName="-source,-decision" /></code> splits Cond1=Checked and Cond2=true into -source=Cond1, -decision=Checked, and -source=Cond2, -decision=true. Because handler arguments with the same name are combined into a single argument, this finally results in -source=Cond1,Cond2 and -decision=Checked,true.</p>

Note:

For any handler matched and processed by the **migrate_wf_handlers** utility, arguments having the same name are combined into a single argument with a resulting value composed of a comma-separated list.

Here is a full example of a mapping file:

```

<Mapping>
  <Remove>
    <!-- Remove all instances of Handler -->
    <Handler name="old-handler-name">
      </Handler>
    </Remove>

  <Update>
    <Handler name="old-handler-name" newName="new-handler-name">
      <Remove>
        <!-- if value is specified, remove the argument only if arg4
        has value val4 -->

```

```

    <Argument name="arg4" value="val4"/>

    <!-- if value is not specified, remove argument irrespective
    of its value -->
    <Argument name="arg5" />
  </Remove>
</Handler>

<Replace>
  <Handler name="old-handler-name">
    <Add>
      <Handler name="new-handler1">
        <!-- copy value from arg1 to new-arg1 -->
        <Argument name="arg1" newName="new-arg1" />

        <!-- if arg2 has val2 (substring match) on old handler,
        add new argument new-arg2, copy over the value and
        replace the substring to new-sub-value2 -->
        <Argument name="arg2" value="sub-val2-1" newName="new-arg2"
        newValue="new-sub-val2-1" />

different
        <!-- The same argument can be repeated multiple times for
        substring value -->
        <Argument name="arg2" value="sub-val2-2" newName="new-arg2"
        newValue="new-sub-val2-2" />

handler
        <!-- if arg3 is defined on old handler, add it to new
        and copy its value from old handler -->
        <Argument name="arg3" />

        <!-- add new argument with new value -->
        <Argument newName="new-arg6" newValue="new-val6"/>

      </Handler>

      <Handler name="new-handler2">
        <Argument newName="new-arg5" newValue="new-val5"/>

        <!-- copy value from arg1 to new-arg1 -->
        <Argument name="arg1" newName="new-arg1"/>
      </Handler>
    </Add>
  </Replace>

  <Update>
    <!-- Rename the old handler, as well as removing, adding and
    modifying

```

```

its arguments. -->
<!-- If any handler argument names are not mentioned in remove/
modify
sections, they are copied over to new handler. -->
<Handler name="old-handler-name" newName="new-handler-name">
  <Remove>
    <!-- if value is specified, remove the argument only if arg4
has
    val4 -->
    <Argument name="arg4" value="val4"/>

    <!-- if value is not specified, remove argument irrespective
of its
    value -->
    <Argument name="arg5"/>
  </Remove>

  <Add>
    <Argument name="new-arg6" value="new-val6"/>

    <!-- if value is not specified or is empty, set the argument
value
    to empty -->
    <Argument name="new-arg7" value=""/>
  </Add>

  <Modify>
    <Argument name="arg1" value="val1" newName="new-arg1"
    newValue="new-val1"/>

    <!-- if newValue is not specified, copy the old argument
value to
    new argument -->
    <Argument name="arg2" value="val2" newName="new-arg2" />
  </Modify>
</Handler>
</Update>

<Remove>
  <!-- Remove Handler if the criteria matches (arg1 exists with
value
  val1 and arg2 exists) -->
  <Handler name="old-handler-name">
    <Criteria>
      <Argument name="arg1" value="val1"/>
      <Argument name="arg2"/>
    </Criteria>
  </Handler>
</Remove>

```

```

<Update>
  <!-- Rename Handler if arg3 does not exist on the handler -->
  <Handler name="old-handler-name" newName="new-handler-name">
    <!-- If match set to 'false', the result of the criteria should
be
    negated. (!) -->
    <Criteria match="false">
      <Argument name="arg3"/>
    </Criteria>
  </Handler>
</Update>

<Update>
  <!-- Add one or more handler arguments -->
  <Handler name="old-handler-name">
    <Add>
      <Argument name="new-arg1" value="new-val1"/>
      <Argument name="new-arg2" value="new-val2"/>
    </Add>
  </Handler>
</Update>

<Update>
  <Handler name="old-handler-name">
    <Modify>
      <Argument name="arg1" value="val1" newName="new-arg1"
newValue="new-val1"/>

    <!-- if newValue is not specified, copy over the old argument
value to
    new argument -->
    <Argument name="arg2" value="val2" newName="new-arg2"/>

    <!-- if newValue is empty, clear the value for new argument. If
val3 is
    a substring of original value, special care should be taken in
    removing ', ' -->
    <Argument name="arg3" value="val3" newName="new-arg3"
newValue=""/>

    <!-- if new argument name is not specified, do not rename the
argument,
    but modify the argument value -->
    <Argument name="arg8" value="val8" newValue="new-val8" />

    <!-- Rename Handler Argument, keeping/copying-over the value -->
    <Argument name="arg9" newName="new-arg9" />

```

```

new-arg1 <!-- Irrespective of the name of the argument, rename it to
new      and copy the argument name as value of the new argument. If the
the      argument name is already defined/added on the handler, append
the      value to existing value of that argument with delimiter set in
         preference. -->
         <Argument name="*" newName="new-arg11" newValue="$ARGNAME"/>

the      <!-- Replace the argument value by another value which includes
         original value. If value is a comma separated list,
list      the new value will be a comma separated
         with the static string (user:) added
         to each value in the list. -->
         <Argument name="user" newName="-assignee"
newValue="user:$ARGVALUE"/>

         <!-- index attribute will mention the arguments sequence in the
         handler. name and index are mutually exclusive. -->
         <Argument index="1" newName="year" newValue="$ARGNAME"/>
         <Argument index="2" newName="week" newValue="$ARGNAME"/>
         </Modify>
       </Handler>
     </Update>

   <Update>
     <!-- Rename Handler example. Rename "old-handler-name" handler to
       "new-handler-name" for all instances of "old-handler-name"
handler -->
       <Handler name="old-handler-name" newName="new-handler-name">
     </Update>

</Mapping>

```

Handler argument values

Syntax for handler arguments and values

Define handler arguments and values using the **Handlers** dialog box.

When you select a handler name, the existing arguments and values for the selected handler populate the argument table. You can enter additional arguments by typing argument and value data into the table cells. To assign multiple values to a single argument, separate the values with commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference. For example:

Argument	Values
-relation	IMAN_specification
-type	UGMASTER, UGPART
-att_type	target

Note:

- Handler values are case sensitive and must be accurate to the letter.
- If an argument calls for the name of an object, attribute, or property defined in the Business Modeler IDE, it must use the actual name, not its display name.
- In **Assignee** and **Recipient** fields in Active Workspace, if an argument value has a comma in its name, you must use the **EPM_ARG_target_user_group_list_separator** preference to specify another separator for multiple values.

For example, if you have a **Recipient 1, Recipient 2, and Recipient 3** group and use it as an argument value, you must change the preference to use a different separator character, such as a semi-colon (;).

Keywords as argument values

What are handler keywords?

Keywords are special arguments that extract values from the system, inserting the data into the handler's argument values in place of the keyword. Keyword syntax is the dollar sign (\$) followed by the keyword name. For example, **\$USER** extracts the logon ID of the current user and inserts that value into the handler argument.

Some keywords are **common keywords**. You can use common keywords with many Teamcenter handlers. You can use some common keywords with custom handlers by using the **EPM_substitute_keyword** and **EPM_substitute_task_keyword** ITK functions. Use of these functions is illustrated within some of the sample workflow handlers delivered in the **sample** directory.

Other keywords are **handler-specific keywords**. You can handler-specific keywords only with specific handlers. The documentation for each handler lists any handler-specific keywords that you can use with that handler.

Common keywords

The following table lists common keywords that you can use with many Teamcenter handlers and with custom handlers by using the **EPM_substitute_keyword** ITK function.

Keyword	Description
\$USER	Extracts the user ID of the current user.
\$GROUP	Extracts the group ID of the current user.
\$ROLE	Extracts the role of the current user.

The following table lists common keywords that you can use with many Teamcenter handlers and with custom handlers by using the **EPM_substitute_task_keyword** ITK function.

Keyword	Description
\$PROCESS_OWNER	Extracts the user ID of the owner of the current workflow process.
\$PROCESS_GROUP	Extracts the group ID of the owner of the current workflow process.
\$TARGET_OWNER [(Class) Type]]	<p>Extracts the user ID of the owner of the current workflow process's target.</p> <p>You can define an optional type or bracketed class in square brackets to specify the type or class of target object from which to extract the owner ID. If you do not define a class or type, the system uses the class of ItemRevision by default.</p> <p>If the system finds more than one object, it returns the owner ID from the first object.</p> <p>For example, \$TARGET_OWNER[(Dataset)] extracts the owning user ID from the first dataset target found, and \$TARGET_OWNER[UGMASTER] extracts the owning user ID from the first UGMASTER target found.</p>
\$TARGET_GROUP [(Class) Type]]	<p>Extracts the group ID of the owner of the current workflow process's target. Only the first owner is returned.</p> <p>As with \$TARGET_OWNER, you can provide a type or bracketed class in square brackets to specify the type or class of target object from which to extract the owning group ID.</p>
\$TARGET_OWNERS [(Class) Type1[,Type2,...]]]	<p>Extracts the user IDs of the owners of the current workflow process's targets. Only the first owner is returned.</p> <p>This keyword works the same as \$TARGET_OWNER, except that it returns a unique comma-separated list of the different owning user IDs from all specified target types.</p>
\$TARGET_GROUPS [(Class) Type1[,Type2,...]]]	Extracts the group IDs of the owners of the current workflow process's targets.

Keyword	Description
	This keyword works the same as \$TARGET_OWNERS , except it returns group IDs.
\$ROLE_IN_GROUP	Extracts the user's current logged-on group ID and role in the format of a resource string, for example, <i>group::role</i> .

Handler-specific keywords

The following table lists keywords that you can only use with specific handlers.

The documentation for each **action handler** and **rule handler** lists any handler-specific keywords that you can use with that handler. You can search the handler documentation for a particular handler-specific keyword to find all handlers that accept that keyword and to read a description of its functionality.

Keyword	Handlers
\$ANALYST	EPM-adhoc-signoffs EPM-auto-assign EPM-auto-assign-rest EPM-assign-team-selector EPM-fill-in-reviewers EPM-notify-report EPM-notify
\$CHANGE_IMPLEMENTATION_BOARD	EPM-adhoc-signoffs EPM-fill-in-reviewers EPM-notify-report EPM-notify
\$CHANGE_REVIEW_BOARD	EPM-adhoc-signoffs EPM-fill-in-reviewers EPM-notify-report EPM-notify
\$CHANGE_SPECIALIST1	EPM-adhoc-signoffs EPM-auto-assign EPM-auto-assign-rest EPM-assign-team-selector

Keyword	Handlers
\$CHANGE_SPECIALIST2	EPM-fill-in-reviewers
	EPM-notify-report
	EPM-notify
	EPM-adhoc-signoffs
	EPM-auto-assign
	EPM-auto-assign-rest
	EPM-assign-team-selector
	EPM-fill-in-reviewers
	EPM-notify-report
\$CHANGE_SPECIALIST3	EPM-notify
	EPM-adhoc-signoffs
	EPM-auto-assign
	EPM-auto-assign-rest
	EPM-assign-team-selector
	EPM-fill-in-reviewers
	EPM-notify-report
	EPM-notify
	EPM-set-property
\$CURRENT_DATE	
\$OWNER	EPM-check-action-performer-role
	EPM-late-notification
\$PROCESS	EPM-notify
	EPM-notify-signoffs
\$PROJECT_ADMINISTRATOR	EPM-adhoc-signoffs
	EPM-auto-assign
	EPM-auto-assign-rest
	EPM-assign-team-selector
	EPM-fill-in-reviewers
	EPM-notify-report
	EPM-notify
	EPM-adhoc-signoffs
\$PROJECT_AUTHOR	

Keyword	Handlers
	EPM-fill-in-reviewers
	EPM-notify-report
	EPM-notify
\$PROJECT_MEMBER	EPM-adhoc-signoffs
	EPM-fill-in-reviewers
	EPM-notify-report
	EPM-notify
\$PROJECT_TEAM_ADMINISTRATOR	EPM-adhoc-signoffs
	EPM-auto-assign
	EPM-auto-assign-rest
	EPM-assign-team-selector
	EPM-fill-in-reviewers
	EPM-notify-report
	EPM-notify
\$PROPOSED_RESPONSIBLE_PARTY	EPM-adhoc-signoffs
	EPM-auto-assign
	EPM-auto-assign-rest
	EPM-assign-team-selector
	EPM-fill-in-reviewers
	EPM-notify-report
	EPM-notify
\$PROPOSED_REVIEWERS	EPM-adhoc-signoffs
	EPM-fill-in-reviewers
	EPM-notify-report
	EPM-notify
\$REFERENCE	EPM-attach-related-objects
	EPM-create-form
	EPM-create-relation
	EPM-display-form
	EPM-remove-objects

Keyword	Handlers
\$RELEASE_STATUS	EPM-set-property
	EPM-notify
	EPM-notify-signoffs
	EPM-create-form
	EPM-create-relation
\$RESPONSIBLE_PARTY	EPM-display-form
	EPM-notify-report
	EPM-check-action-performer-role
	EPM-late-notification
\$REQUESTOR	EPM-notify
	EPM-adhoc-signoffs
	EPM-auto-assign
	EPM-auto-assign-rest
	EPM-assign-team-selector
	EPM-fill-in-reviewers
	EPM-notify-report
	EPM-notify
\$REVIEWERS	EPM-fill-in-reviewers
	EPM-notify-report
	EPM-late-notification
	EPM-notify
\$SIGNOFF	EPM-create-form
	EPM-create-relation
	EPM-display-form
\$TARGET	EPM-attach-related-objects
	EPM-check-target-attachments
	EPM-create-form
	EPM-create-relation
	EPM-display-form
	EPM-remove-objects

Keyword	Handlers
\$UNDECIDED	EPM-set-property
	EPM-notify
	EPM-notify-signoffs
	EPM-notify-report
	EPM-late-notification
	EPM-notify

Use keywords to implement dynamic participants in handlers

You can use the following keywords to invoke dynamic participants:

\$ANALYST	\$PROJECT_ADMINISTRATOR
\$CHANGE_SPECIALIST1	\$PROJECT_TEAM_ADMINISTRATOR
\$CHANGE_SPECIALIST2	\$PROJECT_AUTHOR
\$CHANGE_SPECIALIST3	\$PROJECT_MEMBER
\$CHANGE_REVIEW_BOARD	\$REQUESTOR
\$CHANGE_IMPLEMENTATION_BOARD	

If you want to use your custom dynamic participants, follow these steps:

1. In Business Modeler IDE, create a child of the **Participant** business object.
2. For each child you create, associate a keyword in Business Modeler IDE.
3. In Workflow Designer, use the keyword you associated with a **Participant** business object child in a handler.

The handler associates the keyword with the dynamic participant defined in Business Modeler IDE and users with the specified role.

Configuring assigning participants automatically

You can configure your workflow to automatically assign participants with a set of Business Modeler IDE constants that have conditions as values. You can also use assign participants by adding workflow handlers that use properties that have participants as values.

Workflow constants

A set of constants is provided in the form:

`<prefix><participant-name>AssignableCondition`

The variable `<prefix>` is the Business Modeler IDE template prefix and `<participant-name>` is an existing participant name.

Note:

If the participant name also has a template prefix, the prefix appears twice.

For example, if the prefix is **Fnd0** and the participant name is **PROPOSED RESPONSIBLE PARTY**, the constant is **Fnd0ProposedResponsiblePartyAssignableCondition**.

The constants are for item revisions and change item revisions.

Workflow conditions

The values of the constants are conditions in the form:

`is<participant-name>Assignable`

For example, if the participant name is **PROPOSED RESPONSIBLE PARTY**, the condition is **isProposedResponsiblePartyAssignable**.

This is used while assigning dynamic participants. Teamcenter gets the value of the `<prefix><participant-name>AssignableCondition` constant to get the condition name to evaluate before assigning the participant.

Search for condition names

You can search for the constant name given an object type and participant type using pattern matching.

For example, to find a constant associated with an item revision and the **Fnd0MyNewParticipant** participant, search for a constant that ends with **Fnd0MyNewParticipantAssignableCondition**. The actual constant name is **Fnd0Fnd0MyNewParticipantAssignableCondition**.

If there are multiple matches, choose the one which has the same prefix as the prefix of the participant name.

Creating constants and conditions

If you have your own participant types, you must create your own constants and conditions for them.

For example, if your template prefix is **CUS1** and the new participant name is **MyParticipant**:

1. Create a participant named **CUS1MyParticipant**.
2. Create a constant named **CUS1CUS1MyParticipantAssignableCondition** with a value of **isMyParticipantAssignable**.

The participant creation code looks up the constant and corresponding condition and evaluates it.

Assigning participants with workflow handlers

You can use the following workflow handlers when automatically assigning participants:

- **EPM-assign-responsible-party-dynamic-participant**
- **EPM-assign-signoff-dynamic-participant**

The following handlers can be used to get assignees from a property value:

- **EPM-adhoc-signoffs**
- **EPM-assign-team-selector**
- **EPM-auto-assign**
- **EPM-auto-assign-rest**
- **EPM-fill-in-reviewers**

You can use the **user:PROP::property_name**, **resourcepool:PROP::property_name**, or **allmembers:PROP::property_name** values for the **-assignee** argument to get the name of the assignee from a property of the target, reference, or schedule task.

You can find the object type with the **-include_related_type**, **-exclude_related_type**, **-include_type**, **-exclude_type**, **-from_relation**, and **-from_attach** arguments.

For more information, see the full handler description.

Lists of values as argument values

Using lists of values (LOVs) in handler arguments

Some handlers have the ability to work on many objects, or may require many pieces of information to fully define what it is required of them. In these cases, it is cumbersome to supply all of the information as arguments or to add the handler several times to the same task, defining multiple arguments each time.

In cases when a handler is placed several times in a workflow process on different tasks (or in different workflow processes), adding many arguments to each instance of the handler is time consuming. If arguments later need to be modified, they may need to be changed in every instance of the handler, which is also time consuming.

Using LOVs as handler arguments is an efficient alternative. Standard LOVs supply a list of possible values to form attributes. LOVs used in handler arguments are created in the same way, using the Business Modeler IDE; however they do not need to be attached to any attributes. Each line in the LOV supplies configuration information relevant to the specific handler it is used for and in the format required by the handler.

LOV syntax

Any handler using an LOV accepts the **-lov=lov-name** argument, which specifies the LOV to be used.

The format of the data in a handler LOV is dependent on the information required by the handler, therefore, it is not the same across all handlers that accept LOV arguments. Where similar types of information are required, however, a consistent format is used. For example, when multiple fields of information are required in an LOV line, the fields are separated by tildes (~). The individual handler documentation describes the LOV line format required for that handler.

Note:

The name of an LOV used with a handler can be anything, but the Business Modeler IDE may enforce a particular naming convention, for example, an **M4_** prefix. You can add the handler name as a suffix to help identify LOVs used by handlers.

Defining multilevel object paths

With some handlers, you can specify a multilevel path for locating objects using relation type/object type pairs, or relation type/class pairs. Typically, you use this method when working with **LOVs**.

The general syntax is:

```
relation.{type[,type]}[(class)][!type]} . relation .{type[,type]}[(class)][!type]}
```

You specify multiple types in a comma-separated list. For any relation or type field in the path, you can use either an asterisk (*) or **ALL** as a wildcard to mean any relation, type, or class.

You can specify target and reference relations within a workflow process using the **\$TARGET** and **\$REFERENCE** keywords.

For example, use multilevel object paths to find forms of a specific type attached to revisions within revisions. Consider this scenario:

A change item revision is currently in a change process. The change object contains item revisions with the **Solution Items** relation. Each of these solution revisions contain an **Affected Item Form**

type in a reference relation that needs to be attached to the change process. You can identify these forms using this syntax:

```
$TARGET.(ItemRevision).CMHasSolutionItem.(ItemRevision)
.Reference.Affected Item Form
```

The previous example uses three relation pairs, as follows:

Pair	Description
\$TARGET.(ItemRevision)	Finds objects of the class ItemRevision attached as workflow process targets.
CMHasSolutionItem.(ItemRevision)	For each of the revisions found by the first pair, the system searches the CMHasSolutionItem relation to find objects of the class ItemRevision .
Reference.Affected Item Form	For each of the revisions found by the second pair, the system searches the Reference relations to find objects of the type Affected Item Form .

The individual handler documentation indicates which handlers accept this syntax.

LOV syntax example

This LOV example can be used with the **EPM-attach-related-objects** handler. Each line is a separate value in the LOV.

Argument	Values
-lov	M4_EPM_attach_objects

The **M4_EPM_attach_objects** LOV contains this data:

Value	Description
\$TARGET.(ItemRevision).Specification.*	Attach all objects in target revision Specification relation
\$TARGET.(ItemRevision).Specification.(Dataset).Form.(Form)!UGPartAttr	Attach all forms attached to datasets in target revision Specification relation

Value	Description
<code>\$TARGET.(ItemRevision).PSBOMViewRevision.*</code>	Attach all BOM View Revisions in target revision
<code>\$TARGET.(ItemRevision).Manifestation.(Form)</code>	Attach all forms in target revision Manifestation relation

Differentiating between classes and types

The purpose of many handlers is to locate and/or act on specified *types* or *classes*. Specifying a type directs the system to identify an object type. But specifying a class directs the system to identify *any* of the many types within that class. Therefore, it can be difficult to distinguish between types and classes.

For example, in the case of item revisions, some handlers perceive **ItemRevision** as a class of item revisions, making it difficult to designate the **ItemRevision** type.

Some handlers have the ability to distinguish between a class and type definitively. These handlers accept syntax that uses round brackets () to specify a class. For example, **(ItemRevision)** specifies the class and **ItemRevision** specifies the type. When this bracket notation is accepted, an exclamation point (!) can be used to exclude specific types, using this format:

```
(Class) [ !Type1 [ !Type2 [ !... ] ] ]
```

For example, given the four item types defined:

- **Item**
- **Document**
- **Design**
- **Software**

then:

(Item)	Matches any object of the Item class.
(Item) ! Software	Matches any object of the Item class except for the type Software .
(Item) ! Document ! Item	Matches any object of class Item except for the Document and Item types.
Design	Matches only the Design type.

The individual handler documentation indicates which handlers accept this syntax.

Specifying relations

Some relations for certain objects cannot be specified with standard generic relationship management (GRM) relation types. For example, you cannot specify to select all the revisions in an item. The following table lists available types of relations, including GRM relations and special relations.

Class	Relation	Description
Item	Any GRM relation	Identifies any GRM-related objects attached to items. For example: (Item).IMAN_reference
	Revisions	Identifies all revisions from items. For example, to find all the datasets in the IMAN_specification relation of all revisions in any items found: (Item).Revisions.*.IMAN_specification.(Dataset)
	PSBOMView or BV	Identifies all BOM views from items. For example, to select all BOM views: (Item). PSBOMView Select only the view BOM views: (Item).BV.BOMView Revision
Revision	Any GRM relation	Identifies any GRM-related objects attached to revisions. For example, to identify all reference objects from revisions: (ItemRevision).IMAN_reference Identifies all specification objects in document revisions that are attached as requirements to design revisions: Design Revision.IMAN_requirement.Document Revision.IMAN_specification.*

Note:

The type of revision is not relevant as there is only one type of revision in any item; therefore, an asterisk (*) is used to specify any type.

Class	Relation	Description
Dataset	PSBOMViewRevision or BVR	Identifies all BOM view revisions from revisions.
	Any GRM relation	Identifies any GRM-related objects attached to datasets. For example: (Dataset).IMAN_Rendering
	Any reference	Identifies any objects attached as references to datasets, such as UGPART-ATTR forms attached to UGMASTER and UGPART datasets. For example: (Dataset).UGPART-ATTR
Folder	*	Identifies objects in folders. For example, to identify all revisions in a folder: (Folder).*(ItemRevision)
Job	\$TARGET or Targets	Identifies targets attached to a job. For example: (Job).\$TARGET
	\$REFERENCE or References	Identifies targets attached to a job. For example: (Job).\$REFERENCE

Debugging handler data

The following handlers offer debugging functionality, enabled through the **TC_HANDLERS_DEBUG** environment variable:

- **EPM-check-target-object**
- **EPM-validate-target-objects**
- **EPM-check-target-attachments**
- **EPM-attach-related-objects**
- **EPM-remove-objects**

The debugging data displays in the system log file. Use the debugging information to solve small usability issues, such as incorrect argument usage. You can also submit the data in incident reports to customer service.

You can enable debugging functionality for all the above handlers and their subfunctions by setting the **TC_HANDLERS_DEBUG** environment variable to **ALL**.

Alternatively, you can enable debugging functionality for specific handlers by entering one or more of the above handler names as the value.

Action handlers

Action Handlers

Action handlers extend and customize task actions. They perform such actions as displaying information, retrieving the results of previous tasks (inherit), notifying users, setting object protections and launching applications.

AI-export-AH

DESCRIPTION

This handler has two modes of operation, depending on whether the required **type** argument is used with or without additional arguments.

- When **type** is the only argument:
 - When there already is an **AIOBJECT** in the reference attachments, this handler does nothing.
 - When there is initially no **AIOBJECT** in the reference attachments, this handler creates a new **AIOBJECT** of the specified type and a new **CCOBJECT** of type **CCOBJECT** and name **ERPOBJECT**. The handler creates a **StructureContext** for each **ItemRevision** found in the target attachments. The **Latest Working** revision rule is used in the **StructureContext** that is attached to the **CCOBJECT**.
- When **type** is specified with at least one of the available optional arguments:
 - Exports the objects found in target attachments to one or more **AIOBJECTS**, based on the settings of the optional arguments.
 - Searches the reference attachments for an **AIOBJECT** of the type specified by the **type** argument.
 - When an **AIOBJECT** is found, it is used. Otherwise this handler creates an **AIOBJECT** of the specified type.
The objects attached to the targets attachments can be filtered by the list of types specified by **targetTypes** argument.
The types listed must be one of the following supported types:
 - ◇ **ItemRevision**
 - ◇ **Item**
 - ◇ **PSBOMView**
 - ◇ **PSBOMViewRevision**
 - ◇ **CCOBJECT**
 - ◇ **AppearanceGroup**

If a **targetTypes** value is not provided, then all types are included.
- If the **multipleAI** value is equal to **1**, the handler creates an **AIOBJECT** for each object in the target attachments.
- If the **multipleAI** value is equal to **0** and **createRequests** is equal to **1**, the handler creates a single **AIOBJECT** with a new **RequestObject** for each object in the target attachments.
- If **createCC** is equal to **1**, the handler creates a **CCOBJECT** of the type specified by the **ccType** argument for non CC/SC objects in the target attachments, and exports the **CCOBJECT**.

SYNTAX

```
AI-export-AH -type=ai-object-type [-multipleAI= 0 | 1] [-createCC= 0 | 1 ]
[-ccType= cc-object-type] [-createRequests= 0 | 1 ]
[-targetTypes= delimited list of object types by which to filter target attachments]
```

ARGUMENTS

-type

The type of **AIOBJECT** to search for in the reference attachments or, if none are found, the type of **AIOBJECT** to be created. The created **AIOBJECT** is attached to the root task.

-multipleAI

If equal to **0**, creates a single **AIOBJECT**. This is the default value.

If equal to **1**, creates an **AIOBJECT** for each object found in the target attachments.

-createCC

If set equal to **1**, creates a **CCOBJECT** with the type specified in the **-ccType** argument. The default value is **0**.

-ccType

The type of **CCOBJECT** to be created.

-createRequests

If **-multipleAI** is equal to **0** and **-createRequests** is equal to **1**, this handler creates a single **AIOBJECT** with a new **REQUESTOBJECT** for each object in target attachments. The default value is **0**.

-targetTypes

Uses a delimited list of object types for filtering target attachments. The types listed must be of the following supported types: **ItemRevision**, **Item** | **PSBOMView** | **PSBOMViewRevision** | **CCOBJECT** | **AppearanceGroup**.

The delimiter can be a colon (:) or a comma (,).

If no types are provided, all types are considered without filtering.

PLACEMENT

This handler can be placed on any task.

RESTRICTIONS

None.

EXAMPLES

Select an **ItemRevision** and submit to a workflow with this handler. This handler creates and exports the **AIOBJECT**, and then attaches it to the root task.

Argument	Values
-type	NX_AI
-createCC	1
-ccType	CCObject

AI-process-import

DESCRIPTION

Imports the PLM XML associated with the target **RequestObject** objects.

RequestObject objects are contained within **ApplicationInterface** (AI) objects.

SYNTAX

AI-process-import

ARGUMENTS

None.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

The attachments must be placed under the root task.

EXAMPLES

To import the PLM XML associated with a new **RequestObject** object created by any client application under an existing AI object, use a workflow template containing this handler. Initiate the workflow against the AI and select one or more **RequestObject** objects as target attachments, including the new **RequestObject**. Optionally, also select an **ICRevision** object as a reference attachment. The structure is updated with the contents of the PLM XML contained within the **RequestObject** object.

AI-process-export

DESCRIPTION

Creates a new **RequestObject** object under the target **ApplicationInterface** (AI) object without changing the base references of the AI object.

An AI object is a persistent workspace object that is the repository for the import and export transactions between Teamcenter and an external application for a predefined and configured structure. It contains:

- An ordered list of request objects.
- The transfer mode (import or export).
- The root or top-level object of the structures to exchange. This can be any object that is valid to export from Teamcenter using PLM XML, for example, a structure context, item, or BOM view revision.
- Tracking information to allow updates of changed data (*deltas*).

Use this handler in workflows containing at least one AI object as a target, and containing reference attachments such as **StructureContext** or **CollaborationContext** objects, or objects accepted by PLM XML export (such as BOM views, BOM view revisions, items, and item revisions).

Note:

Without a **StructureContext** or **CollaborationContext** object, the PLM XML cannot export a structure, because there is no configuration; only the **workspaceObject** is exported. Typically, a **StructureContext** or **CollaborationContext** object is used as a reference attachment.

SYNTAX

AI-process-export

ARGUMENTS

None.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

The attachments must be placed under the root task.

EXAMPLES

To share an existing **CollaborationContext** object with another application using PLM XML format, use a workflow template containing this handler. Initiate the workflow against an AI object, selecting the AI object as the target attachment and the **CollaborationContext** object as the reference attachment. The workflow creates a new **RequestObject** object. The AI can now be shared with another application.

AR-mark-archive

DESCRIPTION

Note:

This handler is deprecated and will be obsolete in a future release. Do not add this handler to new workflow processes.

Generates archive requests for datasets of item revisions with the specified status. This handler should be used only when the targets of a workflow process are item revisions. This handler is very useful in archiving the experimental, prototype data and keeping only the real data.

SYNTAX

```
AR-mark-archive [-exclude_related=relation::type
[, relation::type..] ],-status_to_keep=status::number-of-item-revs-to-keep
[, status::number-of-item-revs-to-keep..]
```

ARGUMENTS

-exclude_related

Excludes the specified relation or type or type in relation from having an archive request being generated. This argument is optional. If this argument is used, either a relation or type should be specified. If only a relation is specified, :: need not be appended (for example: -**exclude_related=IMAN_specification**). If only a type is used, prepend the type with :: (for example: -**exclude_related=::UGPART**).

-status_to_keep

Release status **names::number** of item revisions to keep.

This means not to mark for archive the datasets of a specified number of item revisions with the specified release status.

Siemens Digital Industries Software recommends that the number of revisions to keep should be 1 or more. This way, at least one item revisions per release status is not archived. This assures that there are no product structure configuration problems.

PLACEMENT

Requires no specific placement. Typically placed on the **Complete** action of the root task so that the objects are marked for archive at the end of completion of the workflow process.

RESTRICTIONS

Target objects must be item revisions.

EXAMPLES

In this example, consider the scenario:

An item has 20 item revisions out of which item revisions 1-4 have no release status, item revisions 5-9 have release status **Released**, item revisions 10-14 have release status **R**, and item revisions 15-19 have release status **X** set.

The **AR-mark-archive** handler with the following arguments is added to the **Complete** action of the root task.

Argument	Values
-exclude_related	IMAN_manifestation::UGPART
-status_to_keep	R::3, X::2

The previously created item revision workflow process template is initiated on the 20th item revision. After the workflow process is completed, the following results are expected.

All datasets except those:

- With manifestation relation
- Of type **UGPART**

of the item revisions, 10-11 and 15-17, are marked for archive.

ASBUILT-attach-physical-components

DESCRIPTION

Traverses the as-built structure and attaches as-built physical parts as targets to the workflow.

SYNTAX

```
ASBUILT-attach-physical-components [-depth=level | all]
  [-owned_by_initiator] [-owned_by_initiator_group]
  [initiator_has_write_prev]
  {[-exclude_released] [-traverse_released_component]}
  [-exclude_types=types]
  [-add_excluded_as_ref][-include_missing]
```

ARGUMENTS

-depth

Defines the depth to which the traversal should take place.

- For example, specify **1** to traverse one level deep or **all** to traverse all levels.
- If not specified, the handler traverses all levels.

-owned_by_initiator

Adds the components owned by the initiator as targets to the workflow process.

-owned_by_initiator_group

Adds all components owned by the initiator's group as targets to the workflow process.

-initiator_has_write_prev

Adds all component item revisions where the initiator has write access as targets to the workflow process.

-exclude_released

Excludes released components from being added as targets.

If the released component is a subassembly, the handler does not traverse the components of the released component unless **-traverse_released_component** is also specified.

-traverse_released_component

Note:

This argument can only be used in conjunction with the **-exclude_released** argument.

Traverses the structure of the released component and adds the components as targets to the workflow process.

- If the **-depth** argument is set to **1**, **-traverse_released_component** only traverses one level deep.
- If the **-depth** argument is set to **all**, **-traverse_released_component** traverses all levels of the subassembly.

-exclude_types

Defines the types to be excluded from being added as targets.

-add_excluded_as_ref

Adds components that are not included as targets to the workflow process as references.

-include_missing

Includes missing components as targets.

If this is not specified, an error is displayed for structures that contain missing components.

PLACEMENT

Requires no specific placement, but preferably after review/approval completion, if any.

RESTRICTIONS

None.

ASBUILT-release-asbuilt-structure

DESCRIPTION

Releases or freezes the as-built physical structures. Given a top or root physical part revision, this handler navigates the as-built structure relationships and releases each of the physical part revision objects in the structure by attaching a release status object. Target objects are officially released after this handler runs.

SYNTAX

ASBUILT-release-asbuilt-structure -release status [-depth=*level* | all] [-owned_by_initiator] [-owned_by_initiator_group] [-initiator_has_write_prev] {[-exclude_released] [-traverse_released_component]} [-exclude_types=*types*] [-add_excluded_as_ref] [-include_missing]

ARGUMENTS

-release status

Applies the specified release status to each of the physical parts.

-depth

Defines the depth to which the traversal should take place.

For example, specify **1** to traverse one level deep or **all** to traverse all levels.

If not specified, the handler traverses all levels.

-owned_by_initiator

Adds the components owned by the initiator as targets to the workflow process.

-owned_by_initiator_group

Adds all components owned by the initiator's group as targets to the workflow process.

-initiator_has_write_prev

Adds all component item revisions where the initiator has write access as targets to the workflow process.

-exclude_released

Excludes released components from being added as targets.

If the released component is a subassembly, the handler does not traverse the components of the released component unless **-traverse_released_component** is also specified.

-traverse_released_component

Traverses the structure of the released component and adds the components as targets to the workflow process.

This argument can only be used in conjunction with the **-exclude_released** argument.

If the **-depth** argument is set to **1**, **-traverse_released_component** only traverses one level deep. If the **-depth** argument is set to **all**, **-traverse_released_component** traverses all levels of the subassembly.

-exclude_types

Defines the types to be excluded from being added as targets.

-add_excluded_as_ref

Adds components that are not included as targets to the workflow process as references.

-include_missing

Includes missing components as targets.

If this is not specified, an error is displayed for structures that contain missing components.

PLACEMENT

Requires no specific placement, but preferably after review/approval completion, if any.

RESTRICTIONS

None.

ASMAINTAINED-attach-physical-components

DESCRIPTION

Traverses the as-maintained structure and attaches as-built physical parts as targets to the workflow.

SYNTAX

```
ASMAINTAINED-attach-physical-components [-depth=level | all]
  [-owned_by_initiator] [-owned_by_initiator_group]
  [initiator_has_write_prev]
  {[-exclude_released] [-traverse_released_component]}
  [-exclude_types=types]
  [-add_excluded_as_ref][-include_missing]
```

ARGUMENTS

-depth

Defines the depth to which the traversal should take place.

- For example, specify **1** to traverse one level deep or **all** to traverse all levels.
- If not specified, the handler traverses all levels.

-owned_by_initiator

Adds the components owned by the initiator as targets to the workflow process.

-owned_by_initiator_group

Adds all components owned by the initiator's group as targets to the workflow process.

-initiator_has_write_prev

Adds all component item revisions where the initiator has write access as targets to the workflow process.

-exclude_released

Excludes released components from being added as targets.

If the released component is a subassembly, the handler does not traverse the components of the released component unless **-traverse_released_component** is also specified.

-traverse_released_component

Note:

This argument can only be used in conjunction with the **-exclude_released** argument.

Traverses the structure of the released component and adds the components as targets to the workflow process.

- If the **-depth** argument is set to **1**, **-traverse_released_component** only traverses one level deep.
- If the **-depth** argument is set to **all**, **-traverse_released_component** traverses all levels of the subassembly.

-exclude_types

Defines the types to be excluded from being added as targets.

-add_excluded_as_ref

Adds components that are not included as targets to the workflow process as references.

-include_missing

Includes missing components as targets.

If this is not specified, an error is displayed for structures that contain missing components.

PLACEMENT

Requires no specific placement, but preferably after review/approval completion, if any.

RESTRICTIONS

None.

ASMAINTAINED-release-asmaintained-structure

DESCRIPTION

Releases or freezes the as-maintained physical structures. Given a top or root physical part revision, this handler navigates the as-maintained structure relationships and releases each of the physical part revision objects in the structure by attaching a release status object. Target objects are officially released after this handler runs.

SYNTAX

ASMAINTAINED-release-asmaintained-structure -release status [-depth=*level* | **all] [-owned_by_initiator] [-owned_by_initiator_group] [-initiator_has_write_prev] {[-exclude_released] [-traverse_released_component]} [-exclude_types=*types*] [-add_excluded_as_ref] [-include_missing]**

ARGUMENTS

-release status

Applies the specified release status to each of the physical parts.

-depth

Defines the depth to which the traversal should take place.

For example, specify **1** to traverse one level deep or **all** to traverse all levels.

If not specified, the handler traverses all levels.

-owned_by_initiator

Adds the components owned by the initiator as targets to the workflow process.

-owned_by_initiator_group

Adds all components owned by the initiator's group as targets to the workflow process.

-initiator_has_write_prev

Adds all component item revisions where the initiator has write access as targets to the workflow process.

-exclude_released

Excludes released components from being added as targets.

If the released component is a subassembly, the handler does not traverse the components of the released component unless **-traverse_released_component** is also specified.

-traverse_released_component

Traverses the structure of the released component and adds the components as targets to the workflow process.

This argument can only be used in conjunction with the **-exclude_released** argument.

If the **-depth** argument is set to **1**, **-traverse_released_component** only traverses one level deep. If the **-depth** argument is set to **all**, **-traverse_released_component** traverses all levels of the subassembly.

-exclude_types

Defines the types to be excluded from being added as targets.

-add_excluded_as_ref

Adds components that are not included as targets to the workflow process as references.

-include_missing

Includes missing components as targets.

If this is not specified, an error is displayed for structures that contain missing components.

PLACEMENT

Requires no specific placement, but preferably after review/approval completion, if any.

RESTRICTIONS

None.

BC-perform-export

DESCRIPTION

Performs a Briefcase/PDX export using a workflow process.

SYNTAX

BC-perform-export **-site=site-name** **[-optionset=transfer-option-set]** **[-usegs=True | False]** **[-revisionrule=revision-rule-name]** **[-bomlevel=depth]** **[-vendors=vendor-names]** **[-reason=export-reason-string]** **[-immediate=True | False]** **[-notify=True|False]** **[-emailaddrs=email-ids]**

ARGUMENTS

-site

Specifies the destination site where the Briefcase or PDX package is to be exported.

-optionset

Specifies the transfer option set to be used during export. If none is specified, the system uses either **TIEPDXOptionSetDefault** (for a PDX export) or **TIEUnconfiguredExportDefault** (for a Briefcase export) based on availability of the set.

-usegs

Specifies whether the transaction should go through Global Services or not. Valid values are **True** and **False**. The default value is **False**, which is a non-Global Services-based transaction.

-revisionrule

Specifies the revision rule to be used to perform the BOM configuration.

-bomlevel

Specifies the depth to which the BOM must be traversed for export.

-vendors

Specifies the list of vendor names whose manufacturer parts are to be exported. Only parts from these vendors get exported.

-reason

Specifies the reason for the export (up to 240 characters).

-immediate

Specifies whether the transaction should be performed immediately or not. This argument is applicable only when **-usegs=True**. Valid values are **True** and **False**. The default value is **False**.

-notify

Specifies whether the users listed in the **-emailaddrs** argument are notified when the transaction is completed. This argument is applicable only when **-usegs=True**. Valid values are **True** and **False**. The default value is **False**.

-emailaddrs

Lists the email IDs of users to be notified when the transaction is completed. This argument is applicable only when **-usegs=True** and when the **-notify=True**.

Separate the email IDs with commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

EXAMPLES

This example exports a package to **Supplier-site-1** using a custom option set without using Global Services.

Argument	Values
-site	Supplier-site-1
-optionset	CustomOptionSet1
-usegs	False

CAE-attach-related-cae-folder-objects

DESCRIPTION

At some sites, not all simulation tools are integrated with Teamcenter. In such cases, simulation analysts can run the simulation tools on their local desktop and periodically upload or download the data to or from Teamcenter. The analysts can create a CAE folder structure within an item revision to manage the different types of files from different simulation tools.

Simulation administrators can configure a workflow process using the **CAE-attach-related-cae-folder-objects** action handler to allow simulation analysts to release the item revision containing the CAE folder structure and its contents.

This action handler attaches the specified related **CAE Folder (CAE0FileCollection)** objects of the target objects as target or reference attachments to the workflow process. It searches all the target objects, finds the **CAE Folder** objects recursively, and then adds them as a target or as reference attachments. If a **CAE Folder** object is already part of the target list, it is ignored.

SYNTAX

CAE-attach-related-cae-folder-objects -attachment=*target | reference*

ARGUMENTS

-attachment *target | reference*

The attachment type with which the objects are attached to the workflow process.

The **-tool** argument is mandatory and requires the simulation tool ID value. The rest of the arguments are optional and can be specified without any values.

PLACEMENT

It is typically placed on the **Start** action of the root task so that the list of target attachments is updated during the workflow process initiation.

RESTRICTIONS

Requires one or more target objects to find the related **CAE Folder** objects. The placement should allow at least one target object before the execution of this handler takes place.

EXAMPLES

This example attaches all the **CAE Folder** objects as target objects to the workflow process when a workflow process is initiated on a CAE item revision.

Argument	Values
-attachment	target

CAE-mark-up-to-date

DESCRIPTION

In a complex product development environment, different analysts perform different tasks of the overall analysis. For example, abstractions are delivered by one group, models built by another group, and load cases defined by another group. In such scenarios, it becomes critical to know when the analysis data, possibly with multiple dependencies, is out-of-date. The analyst can then act on it and ensure that the analysis is built with the correct set of data to deliver accurate results.

When analysts complete their work, they have to mark the revisions they worked on as up-to-date. Instead of the analyst manually doing this, the simulation administrator can configure a workflow process using the **CAE-mark-up-to-date** action handler. This allows the system to automatically mark revisions as up-to-date when they are released through a workflow process.

SYNTAX

CAE-mark-up-to-date

ARGUMENTS

None

PLACEMENT

Typically, before the release action.

RESTRICTIONS

Configure only for CAE items.

CAE-simulation-process-launch-handler

DESCRIPTION

Launches the specified simulation tool.

SYNTAX

CAE-simulation-process-launch-handler -tool=tool_ID -launch=LOCAL_OR_SERVER_OR_REMOTE -nosync -continue -noref -param::

ARGUMENTS

-tool

The ID of the simulation tool to launch.

Note:

The simulation tool ID you specify here must match the simulation tool ID defined in the **Simulation Tool Configuration** dialog box in CAE Manager.

The **-tool** argument is mandatory and requires the simulation tool ID value. The rest of the arguments are optional and can be specified without any values.

Tool names and revisions are no longer supported. The tool is now launched with the latest released revision. If you have an existing action handler with a tool name and revision values, you must modify them and use only the tool ID value.

-launch

This argument is mandatory if you select the **Remote Launch** option in the **Simulation Tool Configuration** dialog box in CAE Manager.

Note:

If this value is not specified, the handler assumes the launch type to be local, this is, the machine on which Teamcenter server is running.

-nosync

If specified, a synchronous process running in the background does not inform the task about its completion. As a result, the control from the current task goes to the next task (if any) as soon as the current task starts.

If not specified, the system displays the following warning:

A simulation batch run is in progress. The task will complete offline after the process completes.

Note:

This argument is valid for local launch only. Remote launch is always run in non-synchronous mode.

-continue

If specified, the current task moves to the next task after completion even if the current task fails.

If not specified, the task stops on failure.

Note:

This argument is valid for local launch only. Remote launch is always run in nonsynchronous mode.

This argument is not valid if you specify the **-nosync** argument.

-noref

If specified, the handler does not add output objects as reference attachments.

If not specified, the handler adds output objects as reference attachments in the **Reference** folder.

Note:

This argument is valid for local launch only. Remote launch is always run in nonsynchronous mode and output objects are never added as reference attachments.

This argument is not valid if you specify the **-nosync** argument.

-param::*paramName*

Used to assign run-time parameter values for any parameters already defined as part of the tool configuration in the **Simulation Tool Configuration** dialog box in CAE Manager.

Launches the tool with the *paramValue* value for the *paramName* parameter as defined in the tool configuration. The specified parameters are processed according to the defined configuration.

Note:

The *paramName* value must be defined as a run-time parameter for the tool configuration in the **Simulation Tool Configuration** dialog box. Any run-time parameters defined in the tool configuration that are not indicated as action handler arguments get the default values defined in the tool configuration. The *paramValue* value can be an empty string, in which case the default value of the corresponding *paramName* is overridden with an empty value.

RESTRICTIONS

None.

CFG0-attach-allocations

DESCRIPTION

Attaches allocation objects that reference variant option values, families, or family groups. Such objects may be located in the target attachment or reference attachment folder. The **-configuration** argument specifies whether to attach the allocation's **Latest Working** or **Latest Released** revision.

For more information, see *Create workflows to release configurator data* in *Administering Product Configurator*.

SYNTAX

CFG0-attach-allocations

```
[-attachment = {target | reference}]
[-configuration = {Latest Working | Latest Released}]
[-attachedConfiguratorContext = {false | true}]
[-debug = {false | true}]
```

ARGUMENTS

-attachment

Attachment type with which the objects are attached to the workflow process. If any subsequent workflow handler depends on the allocation objects to be attached, either as a reference or as a target attachment, use this argument to configure two instances of this handler in the same workflow process. In such cases, the first handler is configured with **-attachment=target-configuration=Latest Working** in order to attach the working revisions (if any). It is followed by the same handler configured with **-attachment=reference -configuration=Latest Released** to attach the related released objects (if any). Possible values are:

- **target**
Allocation revisions are attached as target objects. This is the default value.
- **reference**
Allocation revisions are attached as reference objects.

Note:

If another revision of the same configurator object thread is already attached to this workflow (either as target or reference), the handler silently skips the object. That is, the handler does not attach a second revision of the same thread.

-configuration

Specifies whether to attach the **Latest Working** or **Latest Released** revision. If any subsequent workflow handler depends on the allocation objects to be attached, either as a reference or as a target attachment, use this argument to configure two instances of this handler in the same workflow process. In such cases, the first handler is configured with **-attachment=target-**

configuration=Latest Working in order to attach the working revisions (if any). It is followed by the same handler configured with **-attachment=reference -configuration=Latest Released** to attach the related released objects (if any). Possible values are:

- **Latest Working**
The most recently created revision with no release status is attached. This is the default value.
- **Latest Released**
The most recently released revision is attached.

-attachedConfiguratorContext

Specifies whether relevant **Configurator Context** items for which allocation objects are to be added are attached to this workflow process. This argument can be used as a filter to attach only the allocation objects that are targeting product contexts, which are attached to the workflow process. This is useful when releasing variant features, families, or family groups that are allocated to multiple contexts: Filtering by configurator context prevents from accidentally attaching (and hence releasing) additional allocations to other configurator contexts that are not intended. Possible values are:

- **false**
Configured revisions for allocations to all **Configurator Context** items will be attached. This is the default value.
- **true**
The configured allocation revisions to attach are filtered by the **Configurator Context** items attached to this workflow. If no **Configurator Context** items are found to be attached to the workflow process, no additional allocations are added to the workflow process.

-debug

Whether or not to log status information to the syslog file. Possible values are:

- **false**
No status information is written to the syslog file. This is the default value.
- **true**
Status information is written to the syslog file for debugging purposes.

PLACEMENT

A typical placement is below the **EPM-create-status** action handler that creates and adds the release status to the workflow process. In many cases, it is useful to add the **CFG0-attach-allocations** handler below a **CFG0-attach-familygroups** handler.

RESTRICTIONS

None

EXAMPLES

- This example illustrates the use of the handler that attaches **Latest Working** revisions of variant option value, family, and family group allocations for variant option values, families, and family groups in this workflow process as target attachments so that they are processed along with the variability that is already attached to the workflow. The list of allocations to add is filtered by the **Configurator Context** items attached to this workflow.

Argument	Values
-attachment	target
-configuration	Latest Working
-attachedConfiguratorContext	true

CFG0-attach-constraint-rules

DESCRIPTION

Attaches configurator constraint rules that reference a variant option value or variant option family. Such objects may be located in the target attachment or referenced attachment folder. The **-configuration** argument specifies whether to attach the **Latest Working** or **Latest Released** revision of the constraint rules.

Note:

A configurator constraint rule references the option family if the family has free-form values. Otherwise, it references the option value directly.

For more information, see *Create workflows to release configurator data* in *Administering Product Configurator*.

SYNTAX

CFG0-attach-constraint-rules

[-attachment = {target | reference}]

[-configuration = {Latest Working | Latest Released}]

[-attachedConfiguratorContext = {false | true}]

[-debug = {false | true}]

ARGUMENTS

-attachment

Attachment type with which the objects are attached to the workflow process. If any subsequent workflow handler depends on constraint rules to be attached, for example, **CFG0-attach-rule-variability**, either as a reference or as a target attachment, use this argument to configure two instances of this handler in the same workflow process. In such cases, the first handler is configured with **-attachment=target** **-configuration=Latest Working** in order to attach the working revisions (if any). It is followed by the same handler configured with **-attachment=reference** **-configuration=Latest Released** to attach the related released objects (if any). Possible values are:

- **target**
Constraint rules are attached as target objects. This is the default value.
- **reference**
Constraint rules are attached as reference objects.

Note:

If another revision of the same configurator object thread is already attached to this workflow (either as target or reference), the handler silently skips the object. That is, the handler does not attach a second revision of the same thread.

-configuration

Specifies whether to attach the **Latest Working** or **Latest Released** revisions. If any subsequent workflow handler depends on constraint rules to be attached, for example, **CFG0-attach-rule-variability**, either as a reference or as a target attachment, use this argument to configure two instances of this handler in the same workflow process. In such cases, the first handler is configured with **-attachment=target -configuration=Latest Working** in order to attach the working revisions (if any). It is followed by the same handler configured with **-attachment=reference -configuration=Latest Released** to attach the related released objects (if any). Possible values are:

- **Latest Working**
The most recently created revision that does not have any release status is attached. This is the default value.
- **Latest Released**
The most recently released revision is attached. Use this setting with care as there could be a large number of released constraint rules to attach.

-attachedConfiguratorContext

Specifies whether **Configurator Context** items that are attached to the workflow process should be used to filter constraint rules. This argument can be used as a filter to attach only constraint rules that are targeting product contexts, which are attached to the workflow process. This is useful when releasing variant features or families that are also used in constraint rules for other contexts: Filtering by configurator context prevents from accidentally attaching (and hence releasing) additional constraint rules for the configurator contexts that are not intended. Possible values are:

- **false**
The configured revision of all constraint rules are attached, irrespective of their **Configurator Context** item scope. This is the default.
- **true**
The configured revision of constraint rules are attached that reference a **Configurator Context** item that is attached to this workflow, for example, as a reference attachment. If no **Configurator Context** items are found to be attached to the workflow process, no additional constraint rules are added to the workflow process.

-debug

Whether or not to log status information to the syslog file. Possible values are:

- **false**
No status information is written to the syslog file. This is the default value.

- **true**
Status information is written to the syslog file for debugging purposes.

PLACEMENT

A typical placement is below the **EPM-create-status** action handler that creates and adds the release status to the workflow process. In many cases it is useful to add the **CFG0-attach-constraint-rules** action handler followed by a **CFG0-attach-rule-variability** action handler.

RESTRICTIONS

None

EXAMPLES

- This example illustrates the use of the handler that attaches **Latest Working** revisions of constraint rules as target attachments so that they are processed along with the values and families that are already attached to the workflow. The list of constraint rules to attach is not filtered by **Configurator Context**.

Argument	Values
-attachment	target
-configuration	Latest Working
-attachedConfiguratorContext	false

CFG0-attach-families

DESCRIPTION

Attaches to the workflow process variant option families that are referenced by variant option values in the target attachment or reference attachment folder. The **-configuration** argument specifies whether to attach the **Latest Working** or **Latest Released** revisions of the variant option families.

For more information, see *Create workflows to release configurator data* in *Administering Product Configurator*.

SYNTAX

CFG0-attach-families

[-attachment = {target | reference}]

[-configuration = { Latest Working | Latest Released}]

[-debug = {false | true}]

ARGUMENTS

-attachment

Attachment type with which the objects are attached to the workflow process. Possible values are:

- **target**
Variant option families are attached as target objects. This is the default value.
- **reference**
Variant option families are attached as reference objects.

Note:

If another revision of the same configurator object thread is already attached to this workflow (either as target or reference), the handler silently skips the object. That is, the handler does not attach a second revision of the same thread.

-configuration

Specifies whether to attach the Latest Working or Latest Released revisions. Possible values are:

- **Latest Working**
The most recently created revision that doesn't have any release status is attached. This is the default value.
- **Latest Released**
The most recently released revision is attached.

-debug

Whether or not to log status information to the syslog file. Possible values are:

- **false**
No status information is written to the syslog file. This is the default value.
- **true**
Status information is written to the syslog file for debugging purposes.

PLACEMENT

A typical placement is below the **EPM-create-status** action handler that creates and adds the release status to the workflow process. In many cases, it is useful to add the **CFG0-attach-families** action handler between a **CFG0-attach-rule-variability** handler and a **CFG0-attach-familygroups** handler.

RESTRICTIONS

None

EXAMPLES

- This example illustrates the use of the handler that attaches **Latest Released** revisions of variant option families for the variant option values in this workflow process as reference attachments so that they are processed along with the variant option values that are already attached to the workflow.

Argument	Values
-attachment	reference
-configuration	Latest Released

CFG0-attach-familygroups

DESCRIPTION

Attaches to the workflow process variant option family groups that reference variant option families in the target attachment or reference attachment folder. The **-configuration** argument specifies whether to attach the **Latest Working** or **Latest Released** revisions of the variant option families.

Note:

Family group objects are not subject to revision rule configuration from 12.3 release. You cannot revise family groups.

For more information, see *Create workflows to release configurator data* in *Administering Product Configurator*.

SYNTAX

```
CFG0-attach-familygroups
[-attachment = {target | reference}]
[-configuration = {Latest Working | Latest Released}]
[-debug = {false | true}]
```

ARGUMENTS

-attachment

Attachment type with which the objects are attached to the workflow process. Possible values are:

- **target**
Variant option family groups are attached as target objects. This is the default value.
- **reference**
Variant option family groups are attached as reference objects.

Note:

If another revision of the same configurator object thread is already attached to this workflow (either as target or reference), the handler silently skips the object. That is, the handler does not attach a second revision of the same thread.

-configuration

Specifies whether to attach the **Latest Working** or **Latest Released** revisions. Possible values are:

- **Latest Working**

The most recently created revision that doesn't have any release status is attached. This is the default value.

- **Latest Released**

The most recently released revision is attached.

-debug

Whether or not to log status information to the syslog file. Possible values are:

- **false**

No status information is written to the syslog file. This is the default value.

- **true**

Status information is written to the syslog file for debugging purposes.

PLACEMENT

A typical placement is below the **EPM-create-status** action handler that creates and adds the release status to the workflow process. In many cases, it is useful to add the **CFG0-attach-familygroups** action handler between a **CFG0-attach-families** handler and a **CFG0-attach-allocations** handler.

RESTRICTIONS

None

EXAMPLES

- This example illustrates the use of the handler that attaches **Latest Released** revisions of variant option family groups for the variant option families in this workflow process as reference attachments so that they are processed along with the variant option families that are already attached to the workflow.

Argument	Values
-attachment	reference
-configuration	Latest Released

CFG0-attach-rule-variability

DESCRIPTION

Attaches variant option values and families that are referenced by a constraint rule. Such constraint rules may be located in the target attachment or reference attachment folder. The **-configuration** argument specifies whether to attach the **Latest Working** or **Latest Released** revisions of the values, families, and family groups.

Note:

A configurator constraint rule references the option family if the family has free-form values. Otherwise, it references the option value directly.

For more information, see *Create workflows to release configurator data in Administering Product Configurator*.

SYNTAX

CFG0-attach-rule-variability

[attachment = {target | reference }]

[-configuration = {Latest Working | Latest Released }]

[-attachConfiguratorContext = {false | true }]

[-debug = { false | true }]

ARGUMENTS

-attachment

Attachment type with which the objects are attached to the workflow process. Possible values are:

- **target**
Variant option families and values are attached as target objects. This is the default value.
- **reference**
Variant option families and values are attached as reference objects.

Note:

If another revision of the same configurator object thread is already attached to this workflow (either as target or reference), the handler silently skips the object. That is, the handler does not attach a second revision of the same thread.

-configuration

Specifies whether to attach the **Latest Working** or **Latest Released** revisions. Possible values are:

- **Latest Working**
The most recently created revision that has no release status is attached. This is the default value.
- **Latest Released**
The most recently released revision is attached.

-attachConfiguratorContext

Specifies whether **Configurator Context** items that are referenced by the constraint rules in this workflow process should be attached as **reference** attachments.

Note:

The **Configurator Context** items are always added as **reference** attachments. This behavior is not affected by the **-attachment** parameter value.

Options are:

- **true**
Configurator Context items that are referenced by the constraint rules in this workflow process are attached as **reference** attachments. This is the default value.
- **false**
No additional **Configurator Context** items are attached.

-debug

Whether or not to log status information to the syslog file. Possible values are:

- **false**
No status information is written to the syslog file. This is the default value.
- **true**
Status information is written to the syslog file for debugging purposes.

PLACEMENT

A typical placement is below the **EPM-create-status** action handler that creates and adds the release status to the workflow process. In many cases, it is useful to add the **CFG0-attach-rule-variability** action handler between a **CFG0-attach-constraint-rules** handler and a **CFG0-attach-families** handler.

RESTRICTIONS

None

EXAMPLES

- This example illustrates the use of the handler that attaches **Latest Working** revisions of variant option values and families that are used in the constraint rules in this workflow process as target attachments so that they are processed along with the constraint rules that are already attached to the workflow. The list of **Configurator Context** items to which the constraint rules apply are added as a reference attachments to this workflow.

Argument	Values
-attachment	target
-configuration	Latest Working
-attachConfiguratorContext	true

CFG0-find-constraint-conflict

DESCRIPTION

Creates the report of constraint conflicts for a given variant rule and its subtypes. The generated report is attached to the workflow process as a reference to execute this handler.

The solve profile to find the constraint conflicts are taken from the input variant rule. If no session info (solve profile) is saved on the variant rule, the system displays an error.

Similarly, the other session information such as revision rule and rule date are considered from the session information saved on the input variant rule.

If the argument values mentioned below are provided, those values override the values from session information.

The results of workflow handler are in the form of a **.json** file report with the specific schema as below:

For more information, see *Create workflows to release configurator data in Administering Product Configurator*.

- `TC_DATA\json\configurator\schema\CFG0_configurator_definitions.json`
- `TC_DATA\json\configurator\schema\CFG0_report_constraint_conflicts.json`

After you generate a report using the workflow handler, you can refer these schemas to get more information about the report such as constraints, severity, conflicts, session info, and variant rule name.

SYNTAX

CFG0-find-constraint-conflicts
-revisionRuleName=*revision-rule*
-ruleDate=
rule date

ARGUMENTS

-revisionRuleName

Specifies the revision rule for generating the report.

If the value is empty, then the revision rule from the input variant rule is considered.

-ruleDate

Specifies the rule date for generating the report.

The date should be in the **ISO 8601** format.

EXAMPLES

Variability data:

Family	Values
• Engine	• Diesel
	• Petrol
	• Hybrid
• Powertrain	• Manual
	• Automatic

Configurator rules:

DefaultRule D1 = (Powertrain=Manual → Engine=Diesel)

DefaultRule D2 = (Powertrain=Manual → Engine=Petrol)

Variant rule:

Variant rule VR1 = Powertrain = Manual

Note:

All data is configured for **Latest Working Revision Rule**.

When we start the workflow on variant rule **VR1**.

The workflow handler output report contains the conflicts between **D1** and **D2**.

Argument	Values
-revisionRuleName	Latest Working
-ruleDate	

CM_Approve_ECO_Markup_Handler

DESCRIPTION

Applies the markups created under the target object (ECN) to a new revision of the corresponding impacted item revisions, provided the following conditions are met.

- The impacted item revision is not currently checked out.
- Another revision may be created on which to apply the markup.

Note:

To verify if you can create another revision, the handler checks **MaxAllowedWorkRevsForItemCreate**, **MaxAllowedWorkRevsForItemCopyRev**, and **MaxAllowedWorkRevsItemCpRevExist**.

- The **BOMViewRevision** of the impacted item revision is of the default view type.
- The **BOMViewRevision** of the impacted item revision has a release status attached.

Note:

The item revision and the **BOMViewRevision** require a release status.

If there is an error during **Revise** or **Apply Markup**, the impacted item revision and its markup will revert to their original state.

The **BOMViewRevision** of the new item revision will have the same release status attached.

Note:

Designed for use in the **Review and Apply BOM Markups** process template.

SYNTAX

CM-Approve-ECO-Markup

ARGUMENTS

None.

PLACEMENT

Requires no specific placement. Typically placed on the **Complete** action.

RESTRICTIONS

The item revision and the **BOMViewRevision** require a release status.

CM-baseline-solution-item-revisions-on-change-notice

DESCRIPTION

Performs a smart baseline on the assemblies of any item revisions listed as **Solution Items** on target **ChangeNoticeRevisions**.

SYNTAX

CM-baseline-solution-item-revisions-on-change-notice

[-baseline_rev_rule=<revision rule name>]

[-baseline_process=<workflow process name>]

ARGUMENTS

-baseline_rev_rule

Defines the name of the revision rule used to configure the item revision's assembly structure for baselining.

Will use the default **Structure Manager** revision rule if omitted.

-baseline_process

Defines the name of the workflow process used to release the baseline revisions.

Will use the default baseline process **TC Default Baseline Process** if omitted.

PLACEMENT

Place on any action. Typically attached to the **Complete** action.

RESTRICTIONS

None.

CM_Cancel_ECO_Markup_Handler

DESCRIPTION

Sets the active markups for the impacted assemblies of the target object (ECN) to inactive.

If an error occurs, the markup will revert to its original state.

Note:

Designed for use in the **Review and Apply BOM Markups** process template.

SYNTAX

CM-Cancel-ECO-Markup

ARGUMENTS

None.

PLACEMENT

Requires no specific placement. Typically placed on the **Complete** action.

RESTRICTIONS

None.

CM-derive-change

DESCRIPTION

A user would be able to update COTS workflow templates using the **CM-derive-change** handler to automate deriving a change request from a problem report, or a change notice from a change request. Setting **auto_derive** to *true* will automatically derive the proper result when submitted using the default workflow template.

SYNTAX

CM-derive-change

[-from_type=<valid change object type>]

[-to_type=<valid change object type>]

[-synopsis=<valid string>]

[-description=<valid string or empty>]

[-template=<process-template-name or default>]

ARGUMENTS

-from_type

Target object type to derive from. **Derive** will derive from all workflow targets of this type, or subtypes of this.

-to_type

The change object type to be created by the **Derive** operation. Must be a valid change type that can implement the designated **-from_type**.

-synopsis

Synopsis to be assigned to create change object.

-description

Description to be assigned to created change object.

-template

If the value component of the **-template** argument specifies the name of a workflow template, the newly created change object is submitted to a workflow using that defined workflow template.

If the value component of the **-template** argument is empty, the newly created change object is submitted to a workflow using the default workflow template of the created change type.

Note:

If the **-template** argument is not provided, then the newly created change object will not be submitted to a workflow.

PLACEMENT

Place on any action. Typically attached to the **Complete** action.

RESTRICTIONS

None.

CM-inactivate-edit-context

DESCRIPTION

Deactivates the change space associated with the change notice revision of the target.

SYNTAX

CM-inactivate-edit-context

ARGUMENTS

None.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

CM-promote-change-notice

DESCRIPTION

Performs the following operations within a transaction and rolls back all changes if there is a failure:

1. Applies release status to **ChangeNoticeRevision** workflow target objects.
2. Receives any change space data objects from the **ChangeNoticeRevision** POM Space and promotes or shares them to public data objects.

Note:

If specific object types contained in the POM space require pre- or post-promote validation, this can be accomplished by overriding the following methods on the respective types:

- **fnd0ValidateBOTypePrePromote**
- **fnd0ValidateBOTypePostPromote**

3. Applies release status to all of the solution items of the **ChangeNoticeRevision** target objects and any other targets not addressed in step 1.

Note:

If specific object types require pre-release validation, this can be accomplished by overriding the following method on the respective type:

- **fnd0ValidateBOTypeForRelease**

Note:

The arguments and their effect on the behavior are all related to how the release status is applied to the target objects and **ChangeNoticeRevision** solution objects. The handler arguments are a copy of the arguments and processing behavior of the **EPM-set-status** handler.

SYNTAX

CM-promote-change-notice -action=append | replace | rename | delete [-status=*old_name*,] [-new_status=*new_name*] [-retain_release_date] [-set_effectivity] [-status_not_shared] [-promote=share]

ARGUMENTS

-action

append

Attaches the status objects from the root task to the target objects, not impacting any previous status objects applied to the same targets.

replace

Deletes all existing status objects attached to target objects and attaches the status objects from the root task to the target objects.

rename

Renames an existing status object attached to the target objects from **old_name** to **new_name**.

- If a status object with the **old_name** status is not found, it renames the last status object attached to the target objects.

If the target object has an existing status, the status object is renamed from **old_name** to **new_name**.

delete

Deletes the status **status_name** specified by the **-status** argument from the target object.

- If the **delete** argument is not used in combination with the **-status** argument, all status objects are removed from the target objects.
- If the status objects being removed from the target objects were created in the same workflow, they are attached to the root task upon creation and are not removed from the root task by this handler.

-status

Used with the **-action** argument to define the status.

- If the action is **append** or **replace** and the status by the name given is not present on the root task, it will create a new status with this name and attach it to the root task.
- If the action is **delete**, it deletes the status objects from the target object but does not delete it from the root task.
- If the action is **rename**, it renames the status objects to the new value specified in **-new_status**.

The value provided should be the name of a status type already defined in the Business Modeler IDE, not the display name.

-new_status

Specifies the new name for the status object.

- The name provided should be the name of a status type already defined in the Business Modeler IDE, not the display name.

- This argument is only used in case of **rename** option for **-action** argument.
- If the status type is not already defined, a status object is not based on a status type, which means that effectivity and configuration may not work against it.

-retain_release_date

Retains the original release date on the target object if it had previously been released.

Note:

This option is not valid when **-action=replace** is used.

-set_effectivity

When used, the system creates the open-ended date effectivity with release date as start date.

-status_not_shared

The default behavior is to share a single release status object reference for all target objects. When this argument is present, it changes that behavior and an individual copy of the release status object is added to each target object.

-promote

share

Specifies that the change space data objects from the **ChangeNoticeRevision** POM Space will be shared to public.

Any value other than **share** promotes the change space data objects from the **ChangeNoticeRevision** POM Space to public.

PLACEMENT

Place on any action. Typically attached to the **Complete** action.

RESTRICTIONS

If no argument is supplied or if an argument other than the one specified is supplied to the handler, the default behavior is to treat it as an action **append** argument.

If **replace** is used and there is more than one status object attached to the root task, the status on the target objects is replaced by the latest status on the root task.

EXAMPLES

- This example adds the status object of the root task to the target object.

Argument	Values
-action	append

- This example creates a new status with this name and attaches to the root task if status by the name given is not present on the root task already.

Argument	Values
-action	append
-status	released

- This example adds the status object of the root task to the target object and retains the original released date of the target object.

Argument	Values
-action	append
-retain_release_date	

- This example replaces all existing status objects with the status object of the root task.

Argument	Values
-action	replace

- This example replaces existing status objects with the status object of the root task. It also sets an open-ended effectivity with release date as the start date on the new status object.

Argument	Values
-action	replace
-set_effectivity	

- This example renames all the status objects named **pre-released** to the name of the new status object, **released**.

Argument	Values
-action	rename
-status	pre-released
-new_status	released

- This example deletes all status objects from the target object but does not delete it from the root task.

Argument	Values
----------	--------

-action	delete
---------	--------

- This example deletes a **released** status from the target object but does not delete it from the root task.

Argument	Values
----------	--------

-action	delete
-status	released

- This example takes the release status attached to root task and creates an individual copy of the release status object for each target object.

Argument	Values
----------	--------

-action	append
-status_not_shared	

- This example creates a new status with name **released** and attaches it to the root task if status by the name given is not present on the root task already. Also it creates an individual copy of the release status object for each target object.

Argument	Values
----------	--------

-action	append
-status_not_shared	
-status	released

- This example shares the change space contents to public and attaches **shared** status to the root task. Each time the **shared** operation is performed, the **shared** status is replaced and a copy of the release status object for each target object is created.

Argument	Values
----------	--------

-action	replace
-status_not_shared	
-status	Cm0TC Shared
-promote	share

CM_validate_ECO_Markup_Handler

DESCRIPTION

Verifies that the **Review and Apply BOM Markups** process template contains at least one target object.

Note:

If the target object is missing, it triggers a **PS_markup_target_invalid** error.

SYNTAX

CM-validate-ECO-Markup

ARGUMENTS

None.

PLACEMENT

Requires no specific placement. Typically placed on the **Start** action of the root task.

RESTRICTIONS

None.

CONFMGMT-cut-back-effectivity

DESCRIPTION

Reduces the effectivity range of problem item objects attached to a change object so it does not overlap with the combined effectivity range of the solution items. This facilitates the release of solution items to replace problem items for a given effectivity range.

Note:

This handler should be used only for 4th Generation Design (4GD) objects.

For example, a cast component C is a solution item for a forged component F, a problem item with a unit effectivity of 1 through 10 in 4G Designer on 4GD data. C is assigned the same effectivity (unit 1 through 10) because it has the same purpose. To replace C with F with unit effectivity 3 through 10, a change notice is created that tracks F as a problem item and C as a solution item. The change notice is assigned an unit effectivity of 3 and up. The handler applies the change notice effectivity to the solution item and then reduces the effectivity range of the problem item. As a result, C has an effectivity range of 3 through 10 and F's effectivity is reduced to 1 through 2. For every unit in the range of 1 through 10, either C or F is effective. The effective ranges of C and F neither overlap nor do they have a gap.

The effectivity range of the change is determined either by the release status attachment of the workflow process or by the effectivity range on the change object using **EffectivityConfigurable** behavior.

If the process does not have a release status attachment, the release statuses of the change object are used. An error occurs if multiple release statuses with effectivity data are found and handler arguments are used that require the definition of the effectivity range of the change object. By default, the system uses the effectivity range of the release statuses, unless user provides the **useECNEffectivity** argument.

If the **useECNEffectivity** argument is used, the effectivity range of the change object is determined as the effectivity of the change object using **EffectivityConfigurable** behavior. An error is returned if the change object does not have **EffectivityConfigurable** behavior

EffectivityConfigurable objects with no effectivity data behave as if they had an effectivity condition **Unit=1 OR Unit!=1** (in other words, **TRUE** unless explicitly stated otherwise). For more information, see the **defaultSolveTypePreferenceName** argument.

The effectivity range to be subtracted from a problem item attachment is the combined effectivity range of all **EffectivityConfigurable** objects in the corresponding solution item set. You can use the **designatorProperty** argument to define corresponding sets of solution and problem items. Solution item sets that do not correspond to a problem item set do not affect problem item effectivity ranges. Problem item sets that do not correspond to a solution item will be effected out permanently. Solution items without **EffectivityConfigurable** behavior (for example, datasets) are skipped in the computation of the effectivity range to be subtracted.

The handler only modifies problem item objects exposing **EffectivityConfigurable** behavior, such as **Cpd0DesignElement**. These modifications are not subject to access control rules.

SYNTAX

CONFMGMT-cut-back-effectivity

```
[ -engineeringChangeTypeName = { ChangeNoticeRevision | object-type-name } ]
[ -problemItemRelationshipName = { CMHasProblemItem | relationship-type-name } ]
[ -solutionItemRelationshipName = { CMHasSolutionItem | relationship-type-name } ]
[ -verifyEffectivity = { NoAction | Compare | Validate } ]
[ -solutionItemEffectivity = { NoAction | ApplyCMEffectivity | MergeCMEffectivity |
ResetToCMEffectivity } ]
[ -designatorProperty = { "" | property-name } ]
[ -defaultSolveTypePreferenceName = { "" | preference-name } ]
[-dropEndItemQualification ]
[-useECNEffectivity ]
```

ARGUMENTS

-engineeringChangeTypeName

Sets the type of the target object managing the change. Any object type name is valid as long as there is only one such target attachment and the object type supports the relationship types specified below. The default value is **ChangeNoticeRevision**.

-problemItemRelationshipName

Sets the type name of the relationship that associates objects to be replaced by the objects specified by the **-solutionItemRelationshipName** argument with the change object. The type name must be compatible with the above change object type. The default value is **CMHasProblemItem**, but Siemens Digital Industries Software recommends you use **CMHasImpactedItem** as the relationship name.

-solutionItemRelationshipName

Sets the type name of the relationship that associates objects, which replace the objects specified by the **-problemItemRelationshipName** argument, with the change object. The type name must be compatible with the change object type. The default value is **CMHasSolutionItem**.

-verifyEffectivity

Specifies the action to take with respect to the effectivity range of the change object and its solution item attachments. The action skips solution items for which no **EffectivityConfigurable** effectivity is saved or which do not expose **EffectivityConfigurable** behavior. Possible values are:

- **NoAction**
Takes no action. This is the default.
- **Compare**

Displays a separate warning for every solution item whose effectivity range does not equal the effectivity range of the change object. An error is returned if no effectivity has been saved for the change object.

- **Validate**

Returns an error if any solution item's **EffectivityConfigurable** effectivity range does not equal the effectivity range of the change object. An error is returned if no effectivity has been saved for the change object.

-solutionItemEffectivity

Specifies the action to take for solution item effectivity. Possible values are:

- **NoAction**

Takes no action. This is the default.

- **ApplyCMEffectivity**

Reduces the **EffectivityConfigurable** effectivity range of each solution item to be within the range of the change object (in other words, combines both with a logical **AND**). An error is returned if no release status effectivity is saved for the change object. The result is identical to action **ResetToCMEffectivity** for solution items, for which no **EffectivityConfigurable** effectivity has been saved, or which do not expose **EffectivityConfigurable** behavior.

- **MergeCMEffectivity**

Sets the **EffectivityConfigurable** effectivity range of each solution item to equal the range of the change object for the common effectivity intent; the effectivity range of the solution item having other intents are kept unchanged.

- If effectivity ranges of the solution item and the change object do not have a common effectivity intent, then the solution item effectivity range is extended with the effectivity range of the change object.
- An error is returned if no effectivity range has been saved for the change object or the effectivity range on the solution item or the change object has multiple effectivity intents or intent families.

Note:

This mode is supported only with the **-useECNEffectivity** parameter.

- **ResetToCMEffectivity**

Sets the **EffectivityConfigurable** effectivity range of each solution item to equal the range of the release status effectivity of the change object. An error is returned if no release status effectivity has been saved for the change object. The result is identical to action **NoAction** for solution items, which do not expose **EffectivityConfigurable** behavior.

-designatorProperty

Specifies the property to use to group change object attachments into sets for the purpose of replacing problems items with corresponding solution items. These sets are formed by virtue of

having a common value for the same property (for example, a logical designator as stored on a partition membership in the preferred partition scheme). If a property is specified, the solution item attachments of the change object are grouped into sets formed by the value for this property. If the property name is an empty string (the default) there is one set for all solution items that corresponds to one set for all problem items.

-defaultSolveTypePreferenceName

By default, **EffectivityConfigurable** objects without effectivity condition behave as if they had an effectivity condition **Unit=1 OR Unit!=1**, that is, equivalent to the Boolean constant **TRUE**. If the value for this argument is different from the empty string (default) it is expected to specify a preference having the same semantics as defined for **TC_Default_Solve_Type** in the **confmgmt** module, which can be used to define whether or not **EffectivityConfigurable** objects without effectivity condition pass effectivity filter criteria. If the given preference is not found in the scope specified by the **defaultSolveTypePreferenceScope** argument a default solve type of **529** is assumed, that is **solveMismatch|solveFalse|solveInvert** except where explicitly otherwise stated. The effectivity range that is assumed for **EffectivityConfigurable** objects without effectivity condition can be configured to be the following:

- **Unit=1 OR Unit!=1**
Equivalent to the Boolean constant **TRUE**, if the solve type specifies that **EffectivityConfigurable** objects without effectivity condition pass effectivity filters.
- **Unit=1 AND Unit!=1**
Equivalent to the Boolean constant **FALSE**, if the solve type specifies that **EffectivityConfigurable** objects without effectivity condition do not pass effectivity filters.

-dropEndItemQualification

(Optional) If provided and if an end item qualification is present, it is dropped and changed to an effectivity condition when it is copied from

- the ReleaseStatus attachment of the workflow process.
- the ReleaseStatus of the attached change notice if the workflow process does *not* have a ReleaseStatus attachment.

-useECNEffectivity

(Optional) If provided, the effectivity range of the change is determined by the effectivity range on the change notice object. The change notice object should carry the effectivity range using **EffectivityConfigurable** behavior. An error is returned if this argument is provided and the change notice object does not have **EffectivityConfigurable** behavior.

PLACEMENT

A typical placement is to precede the **add-status** action handler that attaches the release status to the change object, so that the release status is not attached to the change object if this handler errors out.

RESTRICTIONS

None.

EXAMPLES

- This example illustrates the use of the handler with a change object type that is available in the Teamcenter foundation template. It configures the handler to reduce the effectivity of the solution item attachments to not be effective beyond the effective range of the change.

Argument	Values
-engineeringChangeTypeName	ItemRevision
-problemItemRelationshipName	IMAN_reference
-solutionItemRelationshipName	IMAN_manifestation
-verifyEffectivity	NoAction
-solutionItemEffectivity	ApplyCMEffectivity
-designatorProperty	object_desc
-defaultSolveTypePreferenceName	TC_Default_Solve_Type
-dropEndItemQualification	None
-useECNEffectivity	None

CONTMGMTS1000D-increment

DESCRIPTION

Sets properties depending on whether the **Civ0DM4Revision** object in a workflow is rejected or released.

- If the **Civ0DM4Revision** object is *rejected*, the **inWork** number is incremented.
- If the **Civ0DM4Revision** object is *released*, the following properties are set:
 - The **issueNum** property is incremented.
 - The **inWork** number is reset to **00**.
 - The **issue_day**, **issue_month** and **issue_year** properties are set to the current date.

SYNTAX

CONTMGMTS1000D-increment {-incInWork | -incIssueNum}

ARGUMENTS

-incInWork

Increments only the **inWork** number. Use this argument for this handler on tasks after reviewers rejections.

-incIssueNum

Increments **issueNum**, resets **inWork** to **00**, and sets **issue_day**, **issue_month** and **issue_year** to the current date. Use this argument for this handler on a task after the document gets final approval.

PLACEMENT

Place on the **Start** or **Perform** action of a normal task.

RESTRICTIONS

This handler can be used only with **Civ0DM4Revision** objects.

CONTMGMTS1000D-setQAStatus

DESCRIPTION

Sets the **Quality Assurance Status** property of the data module and updates the XML of the data module to reflect the QA status.

SYNTAX

CONTMGMTS1000D-setQAStatus -verification=*status*-vertype=*type*

ARGUMENTS

-verification

Sets the QA verification status for the data module. You can use one of the following three values:

- **unverified**
- **firstVerification**
- **secondVerification**

-vertype

Sets the verification type of the QA status on the data module. You can use one of the following three values:

- **tabtop**
The content was verified without the physical presence of the equipment or system, such as with design documentation.
- **onobject**
The content was verified by practical demonstration of the procedure on the product.
- **ttandoo**
Both table top and on object verifications have been performed.

This argument is ignored if the **-verification** argument is set to **unverified**:

PLACEMENT

Place on the **Start** or **Perform** action of a **Do** task.

RESTRICTIONS

This handler can be used only with **Civ0DM4Revision** objects.

CPD-collect-related-items

DESCRIPTION

Collects objects related to design elements from a designated source pseudofolder in a change object. For example, this handler collects the source item revision, parent design elements (such as reuse) and their corresponding source item revisions, and adds them to designated target pseudofolder of the change object.

SYNTAX

CPD-collect-related-items

```
-source_folder_relation_type=relation-name
-processing_type=parent|assembly|default
-destination_folder_relation_type=relation-name
```

ARGUMENTS

-source_folder_relation_type

Processes the design elements from the pseudofolder of the change object specified by the relation type. The value can be one of the following:

- **CMHasProblemItem**
- **CMHasImpactedItem**
- **CMHasSolutionItem**

-processing_type

Defines how the design elements from the source folder are navigated to collect the related objects. The following modes are supported:

- **parent**
The parent design element corresponding to the input design element and its source object are retrieved and copied to the target pseudofolder of the change object.
- **assembly**
Reuse design element for the input design element and the corresponding source object that are retrieved and copied to the target pseudofolder of the change object.
- **default**
Reuse design element and parent design element for the input design element and their corresponding source objects that are retrieved and copied to the target pseudofolder of the change object.

-destination_folder_relation_type

The related objects collected for the objects in the source folder based on the processing type are copied to the pseudofolder of the change object. Processes the design elements from the

pseudofolder of the change object specified by the relation type. The value can be one of the following:

- **CMHasProblemItem**
- **CMHasImpactedItem**
- **CMHasSolutionItem**

PLACEMENT

Requires no specific placement.

RESTRICTIONS

This handler is specific to design elements as the source objects.

EXAMPLES

- This example collects the reuse design element for the input design element in the **Problems** folder of an ECN, which would be a subordinate design element, and the source item revision for them. It then copies them to the **Impacted** folder of the ECN.

Argument	Values
-source_folder_relation_type	CMHasProblemItem
-processing_type	assembly
-destination_folder_relation_type	CMHasImpactedItem

- This example collects the immediate parent for the input design element in the **Problems** folder of an ECN and the source item revision. It then copies them to the same **Problems** folder of the ECN.

Argument	Values
-source_folder_relation_type	CMHasProblemItem
-processing_type	parent
-destination_folder_relation_type	CMHasProblemItem

CPD-update-item-realization

DESCRIPTION

Updates the realization of all reuse design elements attached as references, using the source assembly item revision or installation assembly item revision provided by the target.

If the realization update fails, this handler reports the failed subordinates and corresponding error codes in the log file.

SYNTAX

CPD-update-item-realization

ARGUMENTS

None.

PLACEMENT

Place on the **Complete** action of any task.

RESTRICTIONS

None.

CPD-where-used-item-revision

DESCRIPTION

Finds all realized reuse design elements in the database for a specific revision of the source item assembly or installation assembly provided by the target in the process. If specified, the search scope is restricted to certain collaborative designs that are attached as references to the process.

All found reuse design elements are added to the references.

SYNTAX

CPD-where-used-item-revision

ARGUMENTS

None.

PLACEMENT

Place on the **Complete** action of any task.

RESTRICTIONS

None.

CPD0WORKSET_collect_impacted_worksets_handler

DESCRIPTION

Collects disclosed worksets where impacted 4GD design components of the change item are a part of its subset content.

SYNTAX

CPD0WORKSET_collect_impacted_worksets_handler-disclosureType=*disclosure-workset-type*-sourceRelationType=*source-relation-type-reuseOnly*-targetRelationType=*target-relation-type*

ARGUMENTS

-disclosureType

Defines the type of the disclosure workset revision. The default value is **Cpd0WorksetRevision**.

-sourceRelationType

Defines the type of relation to extract the design components attached to the change item. The default value is **CMHasImpactedItem**.

-reuseOnly

Fetches the disclosed workset for reuse design components only, if specified. Else, fetches the disclosed workset for all included design components from **sourceRelationType**.

-targetRelationType

Defines the type of relation to attach the disclose workset revision to the change item. The default value is **CMHasImpactedItem**.

EXAMPLES

The following example shows how a workflow set with the **CPD0WORKSET_collect_impacted_worksets_handler** handler finds a disclosed workset and attaches it to a change item.

Workset1

Subset1

ReuseDE1

Workset2

Subset2

SubordinateDE1

ChangeNotice1

Problems

```

    RootItem1
    ChildItem1
Impacted

    ReuseDE1
    SubordinateDE1

```

Scenario 1 — **ChangeNotice1** is submitted to the workflow set with the default arguments. In this case, the workflow first gets **ReuseDE1** and **SubordinateDE1** design elements from **ChangeNotice1**. The workflow then locates the worksets, **Workset1** and **Workset2**, that contain these design elements and attaches the worksets to the **Impacted** folder.

```

ChangeNotice1

    Problems

        RootItem1
        ChildItem1
    Impacted

        ReuseDE1
        SubordinateDE1
        Workset1
        Workset2

```

Scenario 2 — **ChangeNotice1** is submitted to the workflow with **-reuseOnly** and **targetRelationType=CMHasSolutionItem** arguments. In this case, the workflow only finds **Workset1** and attached it to the **Solution** folder.

```

ChangeNotice1

    Problems

        RootItem1
        ChildItem1
    Impacted

        ReuseDE1
        SubordinateDE1
    Solution

        Workset1

```

CSI-propagate-folder-contents

DESCRIPTION

Copies change objects in the change folders to the corresponding schedule task change folders.

SYNTAX

CSI-propagate-folder-contents **-relation=relation-name** [**-no_condition_check= true|false**][[**-exclude_type=types-to-be-excluded**] | [**-include_type=types-to-be-included**]][[**-allowed_status=status-to-be-propagated**] | [**-disallowed_status=status-to-not-be-propagated**]]

ARGUMENTS

-relation

Propagates the change objects with the specified relation. The value can be one of the following:

- **CMHasProblemItem**
- **CMHasImpactedItem**
- **CMHasSolutionItem**
- **CMReferences**

To propagate objects that have different relations, add another instance of the handler to the task. For example, to propagate objects with the **CMHasProblemItem** and the **CMHasImpactedItem** relation, add the **CSI-propagate-folder-contents** handler with the **-relation=CMHasProblemItem** argument and value along with another **CSI-propagate-folder-contents** handler with the **-relation=CMHasImpactedItem** argument and value.

-bypass_condition_check

(Optional) Specifies whether to bypass condition checking. Valid values are **true** and **false**. If this argument is not specified, condition checking is used.

-exclude_type=object-type

(Optional) Does not propagate objects of the specified type.

The **-exclude_type** and **-include_type** arguments are mutually exclusive. Only one of these can be specified as arguments to the handler. If both arguments are specified, an error is displayed when running a workflow process using this handler.

-include_type=object-type

(Optional) Propagates objects of the specified type.

The **-exclude_type** and **-include_type** arguments are mutually exclusive. Only one of these can be specified as arguments to the handler. If both arguments are specified, an error is displayed when running a workflow process using this handler.

-allowed_status

(Optional) Propagates objects with the specified status.

The **-allowed_status** and **-disallowed_status** arguments are mutually exclusive. Only one of these can be specified as arguments to the handler. If both arguments are specified, an error is displayed when running a workflow process using this handler.

-disallowed_status

(Optional) Does not propagate objects with the specified status.

The **-allowed_status** and **-disallowed_status** arguments are mutually exclusive. Only one of these can be specified as arguments to the handler. If both arguments are specified, an error is displayed when running a workflow process using this handler.

PLACEMENT

Place on the **Start** task of the workflow process.

RESTRICTIONS

None.

EXAMPLES

- This example propagates change objects with the **CMHasProblemItem** relation.

Argument	Values
-relation	CMHasProblemItem

- This example propagates change objects with the **CMHasProblemItem** relation, but does not check conditions.

Argument	Values
-relation	CMHasProblemItem
-bypass_condition_check	true

- This example propagates change item revisions with the **CMHasProblemItem** relation and **Completed** status, but does not check conditions.

Argument	Values
-relation	CMHasProblemItem
-bypass_condition_check	true
-include_type	ItemRevision
-allowed_status	Completed

DOCMGTAPP-apply-pdf-control

DESCRIPTION

Applies a system stamp, watermark, logo (if attached), distribution statement text (if attached), workflow signoff table (if the target object is in a review task), and Teamcenter attributes when the logical object is related to the attached PDF dataset. A target object can be an item, an item revision or its subtype, or the PDF dataset itself.

The system stamp is an imprint comprising data such as a watermark and optional boilerplate text. In Business Modeler IDE, the data model administrator creates a system stamp configuration, associating the configuration with the XML command file that defines the watermark and text.

For this handler to apply the stamp and watermark, the following conditions are required:

- The PDF dataset must be related to the item revision or its subtype.
- The system stamp configuration must be enabled for the item revision or its subtype. The **Applies To** attribute of the system stamp configuration must be set to **PDF_Control**.
- The **PDF Control** access privilege must be granted.

SYNTAX

DOCMGTAPP-apply-pdf-control -user_stamp=*text string*

ARGUMENTS

-user_stamp

(Optional) Specifies any string for the text portion of the stamp.

PLACEMENT

Place on the **Start** action or the **Complete** action.

RESTRICTIONS

None

DOCMGTAPP-insert-pdf-cover-page

DESCRIPTION

Inserts a cover page to a PDF dataset attached to the target being sent in the workflow. The target can be an item, an item revision or its subtype, or the PDF dataset itself. The cover page is a PDF dataset that is related to the item revision by using the **Document Page Type** relation. Its **Page Type** relation property is set to **Cover Page**.

For this handler to insert a PDF cover page, the following conditions are required:

- The PDF dataset must be related to the item revision or its subtype. If it is related using the **Document Page Type** related, its **Page Type** relation property must be set to **Base Document**.
- The PDF cover page must be related to the item revision or its subtype.

SYNTAX

DOCMGTAPP-insert-pdf-cover-page [-create_new_dataset= <true|false> [-new_dataset_suffix= <text>]]

ARGUMENTS

-create_new_dataset

(Optional) If **true**, creates a new PDF dataset with the cover page inserted. If **false**, the original PDF file is modified.

-new_dataset_suffix

If **-create_new_dataset** argument is specified as true, you can enter any text string for the dataset suffix name.

PLACEMENT

Place on the **Start** action or the **Complete** action.

RESTRICTIONS

None

DOCMGT-render-document-revision

DESCRIPTION

Translates Source Datasets associated with target Item revisions to Derived Datasets, for example, MSWordX Datasets to PDF Datasets. Settings from the **Item Revision Definition Configuration (IRDC)** and **Dispatcher Service Configuration** determine the file formats of the input Source Dataset and output Derived Datasets.

Note:

- This handler requires Teamcenter Dispatcher RenderMgtTranslator for the translation, previewservice and Teamcenter Visualization Convert and Print.
- Target item revisions must be valid and checked in.

The translation is asynchronous; the workflow can continue while translation begins and runs to completion. The translated files are stored as Derived Datasets in Teamcenter and may be related to the input Source Datasets and Item revisions.

Tip:

You can use a **Do** task to wait for the RenderMgtTranslator dispatcher translation process to set the **Complete** action before the workflow continues. The RenderMgtTranslator dispatcher process sets the task state to **Completed** when the translation is successful.

SYNTAX

DOCMGT-render-document-revision -existing_file=[replace | preserve]

ARGUMENTS

-existing_file

- **replace**
 - The new translated file replaces the existing Derived Dataset file (*the Source Dataset must be related to its Derived Dataset*) or added to the newly created output Derived Dataset.
 - For Released Items or Source Datasets, set preferences FndODM_AllowRenderAllReleasedItemsOrSrcDatasets to "true" in order to replace existing Derived Dataset file.
- **preserve**
This is the default value.

- The existing Derived Dataset must be related to its Source Dataset
- If the Source Dataset last modified date is later than its related Derived Dataset last modified date, then the new translated file will replace the existing Derived Dataset file. Otherwise the new translated file will not replace its existing Derived Dataset file.

PLACEMENT

Place on the **Start** action of a **Do** task.

Note:

Whenever this handler is used, upon successful completion, an Active Workspace user gets notified: either the process initiator, the task responsible party, or the *Dispatcher-client-proxy-user* user.

When the workflow administrator sets up the workflow:

- If there is only one **Do** task in the workflow to render documents, the handler is placed on the **Start** action of the **Do** task and the workflow initiator gets a notification.
- If there are several tasks in the workflow, including a **Do** task for rendering documents, and the handler is placed on the **Start** action of the **Do** task, the notification goes to the user who completed the predecessor task.
- If a successor task invokes this same handler or the **DOCMGT-update-document-property** handler, an administrator can add a predecessor **Do** task to ensure that the user who completes the predecessor task receives the notification. Otherwise, the Dispatcher client user receives the notification.

You can use a **Do** task to wait for the RenderMgtTranslator dispatcher translation process to set the **Complete** action before the workflow continues.

Caution:

Do not place this handler on the **perform** action of the **perform-signoffs** task. Otherwise, this handler runs multiple times.

RESTRICTIONS

- Requires Dispatcher to translate the dataset's file.
- Item revisions with attached datasets such as Microsoft Word and Microsoft Excel must be included as targets of the workflow.
- Do not use this handler with a workflow that is running in the background.

DOCMGT-update-docprop-logicalobject

DESCRIPTION

Updates the datasets (for example, MSWordX with a **.docx** extension or MSEXcelX with a **.xlsx** extension) associated with the target item revisions with the latest attribute exchange data. Attribute exchange data can include Teamcenter properties, logos, distribution statements, and workflow sign off tables, if the target object is in a review task. Attributes are exchanged between Teamcenter and the files.

Note:

- The generic (logical object) attribute exchange currently supports Microsoft Word, Excel, and PowerPoint datasets only.
- The Microsoft Word, Excel, and PowerPoint datasets must be related to the logical objects for the generic attribute exchange to occur.
- Target item revisions must be valid and checked in.

The attribute exchange process from this workflow action handler bypasses the **Fnd0TriggerLOAttrExch** business object constant configuration.

- Logos and distribution statements must be enabled based on their document configuration setting.
- System stamp must be enabled for a business object revision and logical objects must be defined for its datasets.

The update is synchronous.

SYNTAX

DOCMGT-update-docprop-logicalobject

ARGUMENTS

None

PLACEMENT

Place on the **Start** action of a **Task**.

Caution:

Do not place this handler on the **perform** action of the **perform-signoffs** task. Otherwise, this handler runs multiple times.

RESTRICTIONS

Item revisions with attached datasets such as Microsoft Word, Excel, or PowerPoint must be included as targets of the workflow process.

DOCMGT-update-document-property

DESCRIPTION

Update the MSWordX Datasets with `.docx` file extension associated with the target Item **Revisions** with the latest attribute exchange data, if there are any from Teamcenter to file (`.docx` file).

Note:

- This handler requires Teamcenter Dispatcher for the update.
- The **RenderMgtTranslator** service must be enabled.
- Use the Business Modeler IDE to set up and deploy IRDC and dispatcher service configuration objects to the Teamcenter database.
- Target item revisions must be valid and checked in.

The update is asynchronous. The workflow continues while the update begins and runs to completion.

Tip:

You can use a **Do** task to wait for the update process to initiate the **Complete** action before the workflow continues. The update process sets the task state to **Completed** when the update is successful.

SYNTAX

DOCMGT-update-document-property

ARGUMENTS

None

PLACEMENT

Place on the **Start** action of a **Do** task.

Note:

Whenever this handler is used, upon successful completion, an Active Workspace user gets notified: either the process initiator, the task responsible party, or the *Dispatcher-client-proxy-user* user.

When the workflow administrator sets up the workflow:

- If there is only one **Do** task in the workflow to update document properties, the handler is placed on the **Start** action of the **Do** task and the workflow initiator gets a notification.
- If there are several tasks in the workflow, including a **Do** task for updating document properties, and the handler is placed on the **Start** action of the **Do** task, the notification goes to the user who completed the predecessor task.
- If a successor task invokes this same handler or the **DOCMGT-render-document-revision** handler, an administrator can add a predecessor **Do** task to ensure that the user who completes the predecessor task receives the notification. Otherwise, the Dispatcher client user receives the notification.

Caution:

Do not place this handler on the **perform** action of the **perform-signoffs** task. Otherwise, this handler runs multiple times.

RESTRICTIONS

- Requires Dispatcher to update the dataset's files.
- Item revision with attached datasets containing Microsoft WordX .docx extension must be included as targets of the workflow process.
- Do not use this handler with a workflow that is running in the background.

EPM-adhoc-signoffs

DESCRIPTION

Note:

The Teamcenter rich client displays the **Ad Hoc done** checkbox, but the Active Workspace client does not.

Determines the behavior of the **Ad-hoc done** check box in the **select-signoff-team** task's interface, allowing the initializing user, address list members and resource pool members to add users to the signoff team in an ad hoc manner. If the task template contains predefined signoff profiles, the ad hoc selections add one-time-only additions to the required signoff team. Alternatively, if the task template contains no predefined signoff profiles, the ad hoc additions comprise the whole of the signoff team.

When this handler is attached to the **select-signoff-team** task, the check box is not selected by default. You can modify this behavior using the **-auto_complete** argument.

Note:

When this handler is *not* attached to the **select-signoff-team** task, the check box displays by default as checked, in expectation that ad hoc additions are not required. Users can still clear the check box, add additional signoff team members to the signoff team, and then select the check box again.

Remember that the check box only indicates that the user has completed any ad hoc additions to the signoff team; it does not signify that the required profiles have been added to the signoff team. Even if the user fits into any of the signoff profiles, it is added only as an ad hoc user and not as the signoff profile member.

Using the **-auto_complete** argument with this handler allows the **select-signoff-team** task to complete automatically. If the system's **ad hoc done** query is returned as **true** and any predefined signoff profiles have been selected, the task automatically completes without user interaction. Therefore, the **select-signoff-team** task template can be configured to automatically choose a signoff team and decide whether or not to allow users to modify this predefined signoff team at execution of the task.

This handler's arguments are listed in order of precedence, meaning that the system attempts to find a match for the argument as a user before it tries to find a match as an address list, and so on. When a **select-signoff-team** task is created, based on a task template that uses this handler, it parses these arguments and add those signoffs to the task.

If the **-required** argument is specified; the signoffs will be added as required signoffs which cannot be removed or marked as optional by users. After that point, the ad hoc signoff functionality allows subsequent modifications to the signoff list. Therefore, what is specified in this handler is only used to initialize this task; during execution of the workflow process, the ad hoc signoff functionality accepts further changes.

By default, this handler is run at workflow process initiation, rather than at the task where it is assigned. It initializes the signoff lists at workflow process initiation, allowing the workflow process initiator to view signoff assignments early in the workflow process and set the assignments as desired. However, this also means that assignments are based on target/assignment data as it exists at the time of initiation. For instance, if you use the **\$TARGET_GROUP** keyword argument with this handler and the handler is run at workflow process initiation, it looks at the group that owns the targets when the workflow process is initiated, not when the task using this handler is run. When you use this method, keyword arguments always resolve to the workflow process initiator.

Alternatively, if the **-ce** argument is used, the handler is not run when the workflow process is initiated. The handler is run instead when the **select-signoff-team** task starts.

If the **-condition_name** argument is specified; the handler will add the reviewers or set auto complete only if the condition is met. However, it will not reset the auto-complete flag if it is already set on the select-signoff-team task.

SYNTAX

EPM-adhoc-signoffs

[-auto_complete]

**[-assignee= {user:user | person:person
| addresslist:list**

**| resourcepool:group::role
| allmembers:group::role**

| user:PROP::property_name

**| resourcepool:PROP::property_name
| allmembers:PROP::property_name
| \$PROPOSED_RESPONSIBLE_PARTY | \$PROPOSED_REVIEWERS | \$USER
| \$PROCESS_OWNER | \$TARGET_OWNER [type]**

**| \$PROJECT_ADMINISTRATOR
| \$PROJECT_TEAM_ADMINISTRATOR
| \$PROJECT_AUTHOR | \$PROJECT_MEMBER[group::role]
| \$REQUESTOR | \$ANALYST
| \$CHANGE_SPECIALIST1 | \$CHANGE_SPECIALIST2 | \$CHANGE_SPECIALIST3**

| \$CHANGE_REVIEW_BOARD | \$CHANGE_IMPLEMENTATION_BOARD}}

[-from_include_type=object-type1[,object-type2,...]]

[-from_exclude_type=object-type1[,object-type2,...]]

[-from_attach=target | reference | schedule_task]

[-from_relation=relation-type]

[-from_include_related_type=object-type1[,object-type2,...]] |

[-from_exclude_related_type=object-type1[,object-type2,...]]
[-quorum=quorum-value]

[-ce]
[-clear_signoffs]
[-target_task=multilevel-task-path]

[-required]

[-project_scope=all | owning_project]

[-check_first_object_only=true | false]

[-condition_name=condition1]

[-condition_scope=all | any | none]

ARGUMENTS

-auto_complete (optional)

(Optional.) Allows the task to complete without user interaction. Automatically selects the **Ad-hoc done** check box in the **select-signoff-team** task interface. The task is assumed to be populated; no **select-signoff-team** task needs to be performed through the interface (providing at least one of the signoff profiles have been fulfilled).

When this argument is not used, the system does not automatically select the **Ad-hoc done** check box, preventing the **select-signoff-team** task from completing until the user manually checks it, typically after ad hoc signoffs have been added. Absence of the **EPM-adhoc-signoffs** handler implies the presence of this argument, and the **Ad-hoc done** check box is selected and behaves accordingly.

-assignee

(Optional.) Assigns signoff members to **select-signoff-team** or **Notify** task under a **Route** task.

Separate multiple assignees with commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference.

The following value formats are allowed:

- **user:user**
Adds the user specified to the signoff member list for the task to which it is attached. Accepts a valid Teamcenter user ID.
- **user:PROP::property_name**
Adds the user specified by the property name to the signoff member list for the task to which it is attached.

If the property is a multi-value property, only the first value is used when only a single user is assigned in the workflow. When more than one user is assigned, all property values are used.

- **resourcepool:PROP::property_name**
Adds the resource pool specified by the property name to the signoff member list for the task to which it is attached.
If the property is a multi-value property, only the first value is used when only a single user is assigned in the workflow. When more than one user is assigned, all property values are used.
- **allmembers:PROP::property_name**
Adds all members of a group/role combination that is specified by the property name to the signoff member list.
If the property is a multi-value property, only the first value is used when only a single user is assigned in the workflow. When more than one user is assigned, all property values are used.
- **person:person**
Adds the user whose name is specified to the signoff member list for the task to which it is attached. Accepts a valid Teamcenter person name.

Note:

If the person's name includes a comma, you must include an escape character (\) to add the correct person. For example, to use **wayne, joan**:

-assignee=person:waynel, joan

- **addresslist:list**
Adds all members of the address list specified to the signoff member list.
- **resourcepool:group::role**
Results in a single assignment which can be performed by any single member of this group/role. You can define resource pools in the form of *group::*, *group::role*, or *role*.

Note:

When a resource pool task is performed by a user it is automatically claimed by that user. If that task is a **Review** task and it is started again, the task is assigned to the user who performed it in the previous iteration, rather than the resource pool, unless the following arguments are used.

- **-auto_complete**
- **-clear_signoffs**
- **-ce**

Accepts valid Teamcenter resource pool names and these keywords:

- **\$GROUP**
Current user's current group.
- **\$ROLE**
Current user's current role.
- **\$TARGET_GROUP[type]**
Owning group of the first target object of the specified type. The *type* value is optional. If not specified, the first target is used.
- **\$PROCESS_GROUP**
Owning group of the workflow process.
- **allmembers:group::role**
Adds all members of a group/role combination to the signoff member list. You can define role in groups in the form of *group::*, *group::role*, or *role*. Accepts valid Teamcenter resource pool names and these keywords:
 - **\$GROUP**
Current user's current group.
 - **\$ROLE**
Current user's current role.
 - **\$TARGET_GROUP[type]**
Owning group of the first target object of the specified type. The *type* value is optional. If not specified, the first target is used.
 - **\$PROCESS_GROUP**
Owning group of the workflow process.
- **\$PROPOSED_RESPONSIBLE_PARTY**
Affects assignments based on the user assigned as the responsible party for the first target object.
- **\$PROPOSED_REVIEWERS**
Affects assignments based on members assigned as reviewers for the first target object.
- **\$USER**
Adds the current user to the signoff member list.
- **\$PROCESS_OWNER**
Adds the workflow process owner to the signoff member list.
- **\$TARGET_OWNER [type]**
Adds the owner of the first target of specified type to the signoff member list. The *type* value is optional. If not specified, the first target is used.

- **\$PROJECT_ADMINISTRATOR, \$PROJECT_TEAM_ADMINISTRATOR, \$PROJECT_AUTHOR, \$PROJECT_MEMBER[group::role]**
Dynamically adds the project team members belonging to the role specified in the argument value. The project team is determined by the project team associated with the first target object. If the **\$PROJECT_MEMBER[group::role]** argument is specified, only the project members of the qualifying projects which belong to the specified group and role are selected for assignment. If the group and role are not specified, all the project members from qualifying projects are selected.
You can specify a sub-group with the syntax *group++sub-group::role*.
- **\$REQUESTOR, \$ANALYST, \$CHANGE_SPECIALIST1, \$CHANGE_SPECIALIST2, \$CHANGE_SPECIALIST3, \$CHANGE_REVIEW_BOARD, \$CHANGE_IMPLEMENTATION_BOARD**
Dynamically resolves to the user or resource pool associated with the first Change target object in the workflow process. The particular user or resource pool is determined by the role specified in the argument value.
If custom participants are defined by the customer, those participants can be used as recipients.

Note:

Change-related keywords apply only to change objects. If the workflow process does not contain a change object as a target, the argument resolves to null.

Change Manager does not need to be enabled before these keywords take effect, but during installation, **Change Management** must be selected under **Extensions**→**Enterprise Knowledge Foundation** in Teamcenter Environment Manager.

-from_include_type=object-type1[,object-type2,...]

(Optional) Specifies the object types to be used to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**).

-from_exclude_type=object-type1[,object-type2,...]

(Optional) Specifies the object types to be excluded when getting the property value when it is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**).

-from_attach= target | reference | schedule_task

(Optional) Specifies which type of attachment (**target**, **reference**, or **schedule_task**) to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). If this argument is not specified, the default is **target**.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**)).

-from_relation

(Optional) Specifies the relation of the objects to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). It must be a valid relation.

- For manifestations, use **IMAN_manifestation**.
- For specifications, use **IMAN_specification**.
- For requirements, use **IMAN_requirement**.
- For references, use **IMAN_reference**.
- For BOM views, use **PSBOMViewRevision**.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**)).

-from_include_related_type=object-type1[,object-type2]

(Optional) Specifies the related object types to be used to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**)) and you use the **-from_relation** argument.

This argument should not be used with the **-from_exclude_related_type** argument.

-from_exclude_related_type=object-type1[,object-type2]

(Optional) Specifies related object types to be excluded when getting the property value when it is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**)) and you use the **-from_relation** argument.

This argument should not be used with the **-from_include_related_type** argument.

-quorum

(Optional.) Determines the approval quorum for the **perform-signoffs** task. The value can either be a percentage or a number. For example, if it is set to **51%** then of all the signoff members, 51% of members need to approve for the task to move ahead. If it is set to **5**, then 5 members need to approve for the task to move ahead. The value specified here will override the quorum specified on the **select-signoff-team** task template. If no value is specified, the quorum specified on the **select-**

signoff-team task template is used. This argument is ignored if the handler is placed on a **Notify** task.

-ce

(Optional.) Disables the default behavior of running this handler when the workflow process is initiated. Instead, the handler is run when the **select-signoff-team** task is initiated in the workflow.

If **-ce** is specified, the **select-signoff-team** task does not auto-complete even if a process assignment list is assigned during process initiation. For the **select-signoff-team** task to auto-complete, you must also use the **-auto_complete** handler argument.

-clear_signoffs

(Optional.) If specified, all existing signoffs are removed from the **select-signoff-team** subtask before the new signoffs are added. If you specify this argument, you must also use the **-ce** argument before it.

-target_task

(Optional) Specifies the multilevel task path to which the reviewers are added. The path is from the root task to the **select-signoff-team** subtask with the path levels separated with colons (:). For example: **Change Request Review:QA Review:select-signoff-team**

-required

(Optional) If specified, all signoffs added through this handler instance are marked as mandatory.

-project_scope

(Optional) Specifies which projects are used to resolve project-based assignments. The **all** value specifies all projects in the list of projects. The **owning_project** value specifies the owning project only.

If this argument is not specified, the default value is the first project in the project list.

-check_first_object_only

(Optional) The **true** value specifies that only the first object is checked. If the value is **false**, all objects are checked. If this argument is not specified, or if it is specified without a value, only the first object is checked.

If the **-include_type**, **-exclude_type**, **-include_related_type**, or **-exclude_related_type** arguments are specified, they determine the types of objects that are checked.

-condition_name

(Optional) The name of the condition to evaluate against the objects identified for assigning reviewers from. The condition signature should accept a **WorkspaceObject & UserSession**. The handler assigns the reviewers only if the condition results are successful, based on the **-condition_scope** argument.

-condition_scope

(Optional) The criteria for evaluating condition results against workflow objects.

all	All objects should meet the condition. This is the default behavior if this argument is not supplied with the -condition_name argument.
any	Any object should meet the condition.
none	No object should meet the condition.

PLACEMENT

Place on the **Start** action of a **select-signoff-team** subtask.

This handler runs at workflow process initiation if the **-ce** argument is not specified. If **-ce** is specified, the handler runs in a conventional manner at the point of handler placement on the task action.

Place on the **Undo** action of a **select-signoff-team** subtask and specify the **-ce** argument to clear the **Ad-hoc done** check box when the subtask is demoted. In this situation, the next time the subtask reaches the **Start** action of the **select-signoff-team** subtask, the user is again prompted to select a signoff team.

RESTRICTIONS

Ignores any invalid arguments without reporting an error.

The keywords always refer to the initiating user because all instances of this handler in a workflow process are run when the workflow process is initiated, not when tasks are approved.

If the **-ce** argument is not specified, all instances of this handler are run when the workflow process is initiated and in this case the keywords refer to the initiating user.

EXAMPLES

- This example places the handler on the **Undo** action of the **select-signoff-team** subtask. If the **select-signoff-team** subtask is demoted, the **-ce** argument clears the **Ad-hoc done** check box. When the workflow process returns to the **select-signoff-team** subtask, the responsible party is again prompted to select the signoff team because the **Ad-hoc done** check box is clear, indicating the task is not yet complete.

Argument	Values
----------	--------

-ce	
-----	--

- This example has a valid user, resource pool, address list and handler-specific keywords as argument values. So **Smith**, the current logged on users group/role resource pool, members of the **List1** address list, and the members assigned as reviewers are added as signoff attachments to the **select-signoff-team** task on which this handler is added. The handler is run at the time of workflow process initiation.

Argument	Values
-assignee	user:Smith, resourcepool:\$GROUP::\$ROLE, addresslist:List1, \$PROPOSED_REVIEWERS
-quorum	80%

If the handler with the above arguments is specified on the **Notify** task under the **Route** task, the signoff attachments are added to the **Notify** task and used for sending notifications. The quorum is set to **80%** which means that of all the signoff members, 80% need to approve for the task to move ahead.

- This example has a valid user, resource pool, address list, and handler-specific keywords as argument values. So **Smith**, the current logged on users group/role resource pool, members of **List1** address list, and the members assigned as reviewers are added as signoff attachments to the **select-signoff-team** task on which this handler is added. Because of the **-ce** option, the handler is run when the task action on which it is attached is run. The quorum is set to **80%** which means that of all the signoff members, 80% need to approve for the task to move ahead.

Argument	Values
-assignee	user:Smith, resourcepool:\$GROUP::\$ROLE, addresslist:List1, \$PROPOSED_REVIEWERS
-quorum	80%
-ce	

If the handler with the above arguments is specified on the **Notify** task under the **Route** task, the signoff attachments are added to the **Notify** task and used for sending notifications.

- This example assigns the user whose ID is Smith to the signoff team

Argument	Values
-assignee	user:Smith

- This example assigns the owning user ID of the first **UGMASTER** target found by the system to the signoff team.

Argument	Values
-assignee	user:\$TARGET_OWNER[UGMASTER]

- This example assigns the project team administrator of the project team associated with the first target found by the system to the signoff team.

Argument**Values**

-assignee	user:\$PROJECT_TEAM_ADMINISTRATOR
------------------	--

- This example assigns all members of the **jhList** address list to the signoff team.

Argument**Values**

-assignee	addresslist:jhList
------------------	---------------------------

- This example assigns the **manufacturing** resource pool (any role within the manufacturing group) to the signoff team.

Argument**Values**

-assignee	resourcepool:manufacturing::
------------------	-------------------------------------

- This example assigns the **\$PROCESS_GROUP** resource pool (any role within the **xyz** group, where **xyz** is the owning group of the workflow process) to the signoff team.

Argument**Values**

-assignee	resourcepool:\$PROCESS_GROUP::
------------------	---------------------------------------

- This example assigns the **\$TARGET_GROUP** resource pool (any roles within the **abc** group, where **abc** is the group of the first item revision target) to the signoff team.

Argument**Values**

-assignee	resourcepool:\$TARGET_GROUP::
------------------	--------------------------------------

- This example assigns the engineer role within the manufacturing group resource pool to the signoff team.

Argument**Values**

-assignee	resourcepool:manufacturing::engineer
------------------	---

- This example assigns the current logged on role within the current logged on group resource pool to the signoff team.

Argument**Values**

-assignee	resourcepool:\$GROUP::\$ROLE
------------------	-------------------------------------

- This example assigns the engineer role within any group resource pool to the signoff team.

Argument	Values
-assignee	resourcepool:::engineer

- This example adds user **smith** and all reviewers of the first target item revision object to the signoff team. The quorum is set to **51%** which means that at least more than half of the signoff members need to approve for the **perform-signoffs** task to move ahead. Because of the **-ce** option, the handler is run when the task action on which it is attached is run.

Argument	Values
-assignee	user:smith, \$PROPOSED_REVIEWERS
-quorum	51%
-ce	

- This example adds all members of the **Engineering** group and **Engineer** role to the signoff team. The members are dynamically evaluated when the **select-signoff-team** task completes. The quorum is set to **80%** which means that of all the signoff members, 80% need to approve for the task to move ahead. Because of the **-ce** option, the handler is run when the task action on which it is attached is run.

Argument	Values
-assignee	allmembers:Engineering::Engineer
-quorum	80%
-ce	

- This example adds all members of the **list1** address list and the **Engineering:Engineer** resource pool to the signoff team. The quorum is set to **5** which mean that of all the signoff members, 5 need to approve for the task to move ahead. Because of the **-ce** option, the handler is run when the task action on which it is attached is run.

Argument	Values
-assignee	resourcepool:Engineering::Engineer, addresslist:list1
-quorum	5
-ce	

- This example has a valid user, resource pool, address list, and handler specific keywords as argument values. So **smith**, the current logged on users group/role resource pool, members of the **list1** address

list, and the members assigned as reviewers are assigned to the signoff team. Because of the **-ce** option, the handler is run when the task action on which it is attached is run.

Argument	Values
-assignee	user:smith,resourcepool:\$GROUP::\$ROLE, addressList:list1,\$PROPOSED_REVIEWERS
-ce	

If the handler with these arguments is specified on the **Notify** task under the **Route** task, the signoff attachments are added to the **Notify** task and used for sending notifications.

- This example has a valid user, resource pool, and handler-specific keywords as values. So **smith**, the current logged on users group/role resource pool, members of the project associated with the first target object, and members assigned as reviewers are added to the signoff team. Because of the **-ce** option, the handler is run when the task action on which it is attached is run.

Argument	Values
-assignee	user:smith,resourcepool:\$GROUP::\$ROLE, \$PROJECT_MEMBER,\$PROPOSED_REVIEWERS
-ce	

If the handler with these arguments is specified on the **Notify** task under the **Route** task, the signoff attachments are added to the **Notify** task and used for sending notifications.

- This example has a valid user, resource pool, and handler-specific keywords as values. So **smith**, the current logged-on user group/role resource pool, and **CHANGE_REVIEW_BOARD** and **ANALYST** associated with the first change target object are added to the signoff team. Because of the **-ce** option, the handler is run when the task action on which it is attached is run.

Argument	Values
-assignee	user:smith,resourcepool:\$GROUP::\$ROLE, \$CHANGE_REVIEW_BOARD,\$ANALYST
-ce	

If the handler with these arguments is specified on the **Notify** task under the **Route** task, the signoff attachments are added to the **Notify** task and used for sending notifications.

- This example removes all existing members of the signoff team and adds **PROPOSED_RESPONSIBLE_PARTY**. Because of the **-ce** option, the handler is run when the task action on which it is attached is run. The **-auto_complete** option allows the task to complete without user

interaction by automatically selecting the **Ad-hoc done** check box in the **select-signoff-team** subtask interface, and the task does not need to be performed through the interface.

Argument	Values
-ce	
-clear_signoffs	
-assignee	\$PROPOSED_RESPONSIBLE_PARTY
-auto_complete	

If the handler with these arguments is specified on the **Notify** task under the **Route** task, the signoff attachments are added to the **Notify** task and used for sending notifications.

- This example assigns all members of the **Engineering** group and **Designer** role of the first project team associated with the first target found by the system to the signoff team as optional signoffs.

Argument	Values
-assignee	\$PROJECT_MEMBER[Engineering::Designer]

- This example assigns all members of the **Engineering** group and **Designer** role of the owning project team associated with the first target found by the system to the signoff team as required signoffs.

Argument	Values
-assignee	\$PROJECT_MEMBER[Engineering::Designer]
-project_scope	owning_project
-check_first_object_only	
-required	

- This example assigns all members of the **Engineering** group and **Designer** role of all project teams associated with the first target found by the system to the signoff team as optional signoffs.

Argument	Values
-assignee	\$PROJECT_MEMBER[Engineering::Designer]
-project_scope	all
-check_first_object_only	true

- This example assigns all members of the **Engineering** group and **Designer** role of the first project team associated with each target found by the system to the signoff team as optional signoffs.

Argument	Values
-assignee	\$PROJECT_MEMBER[Engineering::Designer]
-check_first_object_only	false

- This example places the handler on the **Start** action of the **select-signoff-team** subtask. The **-ce** argument ensures that the **\$PROPOSED_REVIEWERS** variable is not set until the **select-signoff-team** subtask is initiated. Without the **-ce** argument, the **\$PROPOSED_REVIEWERS** variable is assigned the values of **\$PROPOSED_REVIEWERS** that existed at process initiation.

Note:

These dynamic variables can change value throughout a process, so care needs to be taken to ensure the desired functionality.

Argument	Values
-ce	
-assignee	\$PROPOSED_REVIEWERS

EPM-apply-digital-signature

DESCRIPTION

Applies the digital signature of the logged-on user to the target objects and, optionally, the schedule task.

SYNTAX

EPM-apply-digital-signature [-include_schedule_task]

ARGUMENTS

-include_schedule_task

(Optional) Applies the digital signature to the schedule task and all target objects of the workflow. If this argument is not provided, the digital signature is applied only on the target objects of the workflow.

PLACEMENT

Place either on the **Perform** action of the **perform-signoffs** task or the **Complete** action of the following tasks:

- **Do task**
- **Condition task**
- **select-signoff-team task**

On a **Route** task, place on the **Complete** action of the **select-signoff-team** subtask of the **Review** task.

RESTRICTIONS

Do not place a workflow handler that modifies digital signature key property values before this handler on the same action on the same workflow task. Modifying digital signature key properties after applying a digital signature voids the signature.

EPM-assign-responsible-party-dynamic-participant

DESCRIPTION

Assigns the specified user or resource pool as the dynamic participant to the target attachment.

Note:

Participants can be assigned to **Item Revision** subtypes only. **Non-Revision Items** are removed from processing and, if no **Targets** are left, may result in this warning: **No attachment of the specified type can be found.**

If the BMIDE constant **Fnd0ParticipantEligibility** is defined for the dynamic participant, the handler gets the corresponding group member which matches the group and role criteria defined in the BMIDE constant. If the user identified through the **-assignee** argument does not have the correct group and role membership, the handler reports an error and does not assign the user to the dynamic participant.

If the value is specified as **\$PROJECT_AUTHOR** or **\$PROJECT_MEMBER[group::role]**, the relevant first project member is selected.

Note:

Use the **WRKFLW_display_participants** preference to specify which dynamic-participant types are displayed when assigning dynamic participants for an object.

SYNTAX

EPM-assign-responsible-party-dynamic-participant

```
-name= {PROPOSED_RESPONSIBLE_PARTY
| ANALYST
| CHANGE_SPECIALIST1
| CHANGE_SPECIALIST2
| CHANGE_SPECIALIST3}
[-assignee= [user:user | person:person
| resourcepool:group::role
| user:PROP::property_name
| resourcepool:PROP::property_name
| $PROPOSED_RESPONSIBLE_PARTY | $USER
| $PROCESS_OWNER | $TARGET_OWNER [type]
| $PROJECT_ADMINISTRATOR
| $PROJECT_TEAM_ADMINISTRATOR
| $PROJECT_AUTHOR | $PROJECT_MEMBER[group::role]
| $REQUESTOR | $ANALYST
| $CHANGE_SPECIALIST1
| $CHANGE_SPECIALIST2
| $CHANGE_SPECIALIST3]]
[-from_include_type=object-type1[,object-type2,...]]
```

```

-from_exclude_type=object-type1[,object-type2,...]
[-to_include_type=object-type1[,object-type2,...]]
-to_exclude_type=object-type1[,object-type2,...]
[-from_attach= target | reference | schedule_task]
[-from_relation=relation-type]
[-from_include_related_type=object-type1[,object-type2,...] |
-from_exclude_related_type=object-type1[,object-type2,...]]
[-first_object_only]
[-bypass_condition_check]
[-project_scope=all | owning_project]
[-check_first_object_only=true | false]
[-condition_name=condition1]
[-condition_scope=all | any | none]

```

ARGUMENTS

-name

Specifies the keyword of the dynamic participant that you want to assign participants. Accepts one of the following:

- **PROPOSED_RESPONSIBLE_PARTY**
- **ANALYST**
- **CHANGE_SPECIALIST1**
- **CHANGE_SPECIALIST2**
- **CHANGE_SPECIALIST3**

Note:

Change-related keywords apply only to change objects. If the workflow process does not contain a change object as a target, the argument resolves to null.

Change Manager does not need to be enabled before these keywords take effect, but during installation, **Change Management** must be selected under **Extensions**→**Enterprise Knowledge Foundation** in Teamcenter Environment Manager.

-assignee

Makes the user or resource pool the specified keyword evaluates to the responsible party for the task to which this handler is added. Accepts one of the following in the format specified below:

- **user:user**
Adds the user specified to the signoff member list for the task to which it is attached. Accepts a valid Teamcenter user ID.

- **person:person**

Adds the user whose name is specified to the signoff member list for the task to which it is attached. Accepts a valid Teamcenter person name.

Note:

If the person's name includes a comma, you must include an escape character (\) to add the correct person. For example, to use **wayne, joan**:

-assignee=person:waynel, joan

- **resourcepool:group::role**

Results in a single assignment which can be performed by any single member of this group/role. You can define resource pools in the form of *group::*, *group::role*, or *role*. Accepts valid Teamcenter resource pool names and these keywords:

- **\$GROUP**

Current user's current group.

- **\$ROLE**

Current user's current role.

- **\$TARGET_GROUP [type]**

Owning group of the first target object of the specified type. The *type* value is optional. If not specified, the first target is used.

- **\$PROCESS_GROUP**

Owning group of the workflow process.

- **user:PROP::property_name**

Adds the user specified by the property name to the signoff member list for the task to which it is attached.

If the property is a multi-value property, only the first value is used when only a single user is assigned in the workflow. When more than one user is assigned, all property values are used.

- **resourcepool:PROP::property_name**

Adds the resource pool specified by the property name to the signoff member list for the task to which it is attached.

If the property is a multi-value property, only the first value is used when only a single user is assigned in the workflow. When more than one user is assigned, all property values are used.

- **\$PROPOSED_RESPONSIBLE_PARTY**

Affects assignments based on the user assigned as the responsible party for the first target object.

- **\$USER**

Adds the current user to the signoff member list.

- **\$PROCESS_OWNER**
Adds the workflow process owner to the signoff member list.
- **\$TARGET_OWNER [type]**
Adds the owner of the first target of specified type to the signoff member list. The *type* value is optional. If not specified, the first target is used.
- **\$PROJECT_ADMINISTRATOR, \$PROJECT_TEAM_ADMINISTRATOR, \$PROJECT_AUTHOR, \$PROJECT_MEMBER[group::role]**
Dynamically adds the project team members belonging to the role specified in the argument value. The project team is determined by the project team associated with the first target object. If the **\$PROJECT_MEMBER[group::role]** argument is specified, only the project members of the qualifying projects which belong to the specified group and role are selected for assignment. If the group and role are not specified, all the project members from qualifying projects are selected.
You can specify a sub-group with the syntax *group++sub-group::role*.
- **\$REQUESTOR, \$ANALYST, \$CHANGE_SPECIALIST1, \$CHANGE_SPECIALIST2, \$CHANGE_SPECIALIST3**
Dynamically resolves to the user or resource pool associated with the first change target object in the workflow process. The particular user or resource pool is determined by the role specified in the argument value.

Note:

Change-related keywords apply only to change objects. If the workflow process does not contain a change object as a target, the argument resolves to null.

Change Manager does not need to be enabled before these keywords take effect, but during installation, **Change Management** must be selected under **Extensions**→**Enterprise Knowledge Foundation** in Teamcenter Environment Manager.

-from_include_type=object-type1[,object-type2,...]

(Optional) Specifies the object types to be used to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**).

-from_exclude_type=object-type1[,object-type2,...]

(Optional) Specifies the object types to be excluded when getting the property value when it is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**).

-to_include_type=object-type1[,object-type2,...]

(Optional) Specifies the object types to be used while assigning participants on the target attachment. They must be valid object types.

The **-to_include_type** and **-to_exclude_type** arguments are mutually exclusive. If you use one, you cannot use the other.

-to_exclude_type=object-type1[,object-type2,...]

(Optional) Specifies the object types to be excluded while assigning participants on the target attachment. They must be valid object types.

The **-to_include_type** and **-to_exclude_type** arguments are mutually exclusive. If you use one, you cannot use the other.

-from_attach= target | reference | schedule_task

(Optional) Specifies which type of attachment (**target**, **reference**, or **schedule_task**) to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). If this argument is not specified, the default is **target**.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**).

-from_relation

(Optional) Specifies the relation of the objects to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). It must be a valid relation.

- For manifestations, use **IMAN_manifestation**.
- For specifications, use **IMAN_specification**.
- For requirements, use **IMAN_requirement**.
- For references, use **IMAN_reference**.
- For BOM views, use **PSBOMViewRevision**.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**).

-from_include_related_type=object-type1[,object-type2]

(Optional) Specifies the related object types to be used to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**) and you use the **-from_relation** argument.

-from_exclude_related_type=object-type1[,object-type2]

(Optional) Specifies related object types to be excluded when getting the property value when it is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**) and you use the **-from_relation** argument.

-first_object_only

(Optional) Sets the participants on the first target attachment matching the **-to_include_type** and **-to_exclude_type** arguments. If this argument is not specified, the participants are set on all target attachments matching the **-to_include_type** and **-to_exclude_type** arguments.

-bypass_condition_check

(Optional) Bypasses the Business Modeler IDE condition check before assigning participants. If this argument is not specified, the Business Modeler IDE conditions are checked before assigning participants.

-project_scope

(Optional) Specifies which projects are used to resolve project-based assignments. The **all** value specifies all projects in the list of projects. The **owning_project** value specifies the owning project only.

If this argument is not specified, the default value is the first project in the project list.

-check_first_object_only

(Optional) The **true** value specifies that only the first object is checked. If the value is **false**, all objects are checked. If this argument is not specified, or if it is specified without a value, only the first object is checked.

If the **-include_type**, **-exclude_type**, **-include_related_type**, or **-exclude_related_type** arguments are specified, they determine the types of objects that are checked.

-condition_name

(Optional) The name of the condition to evaluate against the identified objects from which to assign participants. The condition signature should accept a **WorkspaceObject & UserSession**. The handler assigns the reviewers only if the condition results are successful, based on the **-condition_scope** argument.

-condition_scope

(Optional) The criteria for evaluating condition results against workflow objects. Values are the following:

all	All objects should meet the condition. This is the default behavior if this argument is not supplied with the -condition_name argument.
any	Any object should meet the condition.
none	No object should meet the condition.

PLACEMENT

Place on the **Start** action.

RESTRICTIONS

Can only be used to assign dynamic participants that resolve to a single user. For example:

PROPOSED_RESPONSIBLE_PARTY or ANALYST

EXAMPLES

- Assigns the user **Smith** as the **PROPOSED_RESPONSIBLE_PARTY** participant for all target objects in the workflow process.

Argument	Values
-name	PROPOSED_RESPONSIBLE_PARTY
-assignee	user:Smith

- Reads the **owning_user** property from the target and assigns the user as the **PROPOSED_RESPONSIBLE_PARTY** participant for the first target object only.

Argument	Values
-name	PROPOSED_RESPONSIBLE_PARTY
-assignee	user:PROP::owning_user
-first_object_only	

- Reads the **owning_user** property from the **Document Revision** type target and assigns the user as the **PROPOSED_RESPONSIBLE_PARTY** participant.

Argument	Values
-name	PROPOSED_RESPONSIBLE_PARTY
-assignee	user:PROP::owning_user
-from_include_type	DocumentRevision

- Traverses the **References** relation from the **Part Revision** types of the targets to get the **Document Revision** objects. It then reads the **owning_user** property from the **Document Revision** and assigns the user as the **PROPOSED_RESPONSIBLE_PARTY** participant for all target objects.

Argument	Values
-name	PROPOSED_RESPONSIBLE_PARTY
-assignee	user:PROP::owning_user
-from_include_type	Part Revision
-from_relation	IMAN_reference
-from_include_related_type	DocumentRevision

- This example assigns the first member of the **Engineering** group and **Designer** role of the first project team associated with the first target found by the system to the dynamic participant.

Argument	Values
-name	PROPOSED_RESPONSIBLE_PARTY
-assignee	\$PROJECT_MEMBER[Engineering::Designer]

EPM-assign-signoff-dynamic-participant

DESCRIPTION

Assigns the specified users or resource pools as the dynamic participant to the target attachment.

If the BMIDE constant **Fnd0ParticipantEligibility** is defined for the dynamic participant, the handler gets the corresponding group member which matches the group and role criteria defined in the BMIDE constant. If the user identified through the **-assignee** argument does not have the correct group and role membership, the handler reports an error and does not assign the user to the dynamic participant.

SYNTAX

```
EPM-assign-signoff-dynamic-participant
-name= {PROPOSED_REVIEWERS
| CHANGE_REVIEW_BOARD
| CHANGE_IMPLEMENTATION_BOARD}
[-assignee= [user:user | person:person | resourcepool:group::role
| user:PROP::property_name
| resourcepool:PROP::property_name
| $PROPOSED_RESPONSIBLE_PARTY | $USER
| $PROCESS_OWNER | $TARGET_OWNER [type]
| $PROJECT_ADMINISTRATOR
| $PROJECT_TEAM_ADMINISTRATOR
| $PROJECT_AUTHOR | $PROJECT_MEMBER[group::role]
| $REQUESTOR | $ANALYST
| $CHANGE_SPECIALIST1
| $CHANGE_SPECIALIST2
| $CHANGE_SPECIALIST3]]
[-from_include_type=object-type1[,object-type2,...]]
[-from_exclude_type=object-type1[,object-type2,...]]
[-to_include_type=object-type1[,object-type2,...]]
[-to_exclude_type=object-type1[,object-type2,...]]
[-from_attach= target | reference | schedule_task]
[-from_relation=relation-type]
[-from_include_related_type=object-type1[,object-type2,...]]
[-from_exclude_related_type=object-type1[,object-type2,...]]
[-clear] [-first_object_only]
[-bypass_condition_check]
[-project_scope=all | owning_project]
[-check_first_object_only=true | false]
[-condition_name=condition1]
[-condition_scope=all | any | none]
```

ARGUMENTS

-name

Specifies the keyword of the dynamic participant that you want to assign participants to. Accepts one of the following:

- **PROPOSED_REVIEWERS**
- **CHANGE_REVIEW_BOARD**
- **CHANGE_IMPLEMENTATION_BOARD**

Note:

Change-related keywords apply only to change objects. If the workflow process does not contain a change object as a target, the argument resolves to null.

Change Manager does not need to be enabled before these keywords take effect, but during installation, **Change Management** must be selected under **Extensions**→**Enterprise Knowledge Foundation** in Teamcenter Environment Manager.

-assignee

Makes the user or resource pool the specified keyword evaluates to the responsible party for the task to which this handler is added. Accepts one of the following in the format specified below:

- **user:***user*
Adds the user specified to the signoff member list for the task to which it is attached. Accepts a valid Teamcenter user ID.
- **person:***person*
Adds the user whose name is specified to the signoff member list for the task to which it is attached. Accepts a valid Teamcenter person name.

Note:

If the person's name includes a comma, you must include an escape character (\) to add the correct person. For example, to use **wayne, joan**:

-assignee=person:waynel, joan

- **resourcepool:***group::role*
Results in a single assignment which can be performed by any single member of this group/role. You can define resource pools in the form of *group::*, *group::role*, or *role*. Accepts valid Teamcenter resource pool names and these keywords:
 - **\$GROUP**
Current user's current group.
 - **\$ROLE**
Current user's current role.

- **\$TARGET_GROUP [type]**
Owning group of the first target object of the specified type. The *type* value is optional. If not specified, the first target is used.
- **\$PROCESS_GROUP**
Owning group of the workflow process.
- **user:PROP::property_name**
Adds the user specified by the property name to the signoff member list for the task to which it is attached.
If the property is a multi-value property, only the first value is used when only a single user is assigned in the workflow. When more than one user is assigned, all property values are used.
- **resourcepool:PROP::property_name**
Adds the resource pool specified by the property name to the signoff member list for the task to which it is attached.
If the property is a multi-value property, only the first value is used when only a single user is assigned in the workflow. When more than one user is assigned, all property values are used.
- **\$PROPOSED_RESPONSIBLE_PARTY**
Affects assignments based on the user assigned as the responsible party for the first target object.
- **\$USER**
Adds the current user to the signoff member list.
- **\$PROCESS_OWNER**
Adds the workflow process owner to the signoff member list.
- **\$TARGET_OWNER [type]**
Adds the owner of the first target of specified type to the signoff member list. The *type* value is optional. If not specified, the first target is used.
- **\$PROJECT_ADMINISTRATOR, \$PROJECT_TEAM_ADMINISTRATOR, \$PROJECT_AUTHOR, \$PROJECT_MEMBER[group::role]**
Dynamically adds the project team members belonging to the role specified in the argument value. The project team is determined by the project team associated with the first target object. If the **\$PROJECT_MEMBER[group::role]** argument is specified, only the project members of the qualifying projects which belong to the specified group and role are selected for assignment. If the group and role are not specified, all the project members from qualifying projects are selected.
You can specify a sub-group with the syntax *group++sub-group::role*.
- **\$REQUESTOR, \$ANALYST, \$CHANGE_SPECIALIST1, \$CHANGE_SPECIALIST2, \$CHANGE_SPECIALIST3**
Dynamically resolves to the user or resource pool associated with the first change target object in the workflow process. The particular user or resource pool is determined by the role specified in the argument value.

Note:

Change-related keywords apply only to change objects. If the workflow process does not contain a change object as a target, the argument resolves to null.

Change Manager does not need to be enabled before these keywords take effect, but during installation, **Change Management** must be selected under **Extensions**→**Enterprise Knowledge Foundation** in Teamcenter Environment Manager.

-from_include_type=*object-type1[,object-type2,...]*

(Optional) Specifies the object types to be used to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**).

-from_exclude_type=*object-type1[,object-type2,...]*

(Optional) Specifies the object types to be excluded when getting the property value when it is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**).

-to_include_type=*object-type1[,object-type2,...]*

(Optional) Specifies the object types to be used while assigning participants on the target attachment. They must be valid object types.

The **-to_include_type** and **-to_exclude_type** arguments are mutually exclusive. If you use one, you cannot use the other.

-to_exclude_type=*object-type1[,object-type2,...]*

(Optional) Specifies the object types to be excluded while assigning participants on the target attachment. They must be valid object types.

The **-to_include_type** and **-to_exclude_type** arguments are mutually exclusive. If you use one, you cannot use the other.

-from_attach= **target** | **reference** | **schedule_task**

(Optional) Specifies which type of attachment (**target**, **reference**, or **schedule_task**) to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). If this argument is not specified, the default is **target**.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**).

-from_relation

(Optional) Specifies the relation of the objects to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). It must be a valid relation.

- For manifestations, use **IMAN_manifestation**.
- For specifications, use **IMAN_specification**.
- For requirements, use **IMAN_requirement**.
- For references, use **IMAN_reference**.
- For BOM views, use **PSBOMViewRevision**.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**).

-from_include_related_type=object-type1[,object-type2]

(Optional) Specifies the related object types to be used to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

Use this argument when a property is designated

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**) and you use the **-from_relation** argument.

-from_exclude_related_type=object-type1[,object-type2]

(Optional) Specifies related object types to be excluded when getting the property value when it is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**) and you use the **-from_relation** argument.

-clear

(Optional) Removes all previously assigned participants before assigning new participants. If this argument is not specified, new participants are appended to existing participants list.

-first_object_only

(Optional) Sets the participants on the first target attachment matching the **-to_include_type** and **-to_exclude_type** arguments. If this argument is not specified, the participants are set on all target attachments matching the **-to_include_type** and **-to_exclude_type** arguments.

-bypass_condition_check

(Optional) Bypasses the Business Modeler IDE condition check before assigning participants. If this argument is not specified, the Business Modeler IDE conditions are enforced before assigning participants.

-project_scope

(Optional) Specifies which projects are used to resolve project-based assignments. The **all** value specifies all projects in the list of projects. The **owning_project** value specifies the owning project only.

If this argument is not specified, the default value is the first project in the project list.

-check_first_object_only

(Optional) The **true** value specifies that only the first object is checked. If the value is **false**, all objects are checked. If this argument is not specified, or if it is specified without a value, only the first object is checked.

If the **-include_type**, **-exclude_type**, **-include_related_type**, or **-exclude_related_type** arguments are specified, they determine the types of objects that are checked.

-condition_name

(Optional) The name of the condition to evaluate against the identified objects from which to assign participants. The condition signature should accept a **WorkspaceObject & UserSession**. The handler assigns the reviewers only if the condition results are successful, based on the **-condition_scope** argument.

-condition_scope

(Optional) The criteria for evaluating condition results against workflow objects. Values are the following:

all	All objects should meet the condition. This is the default behavior if this argument is not supplied with the -condition_name argument.
any	Any object should meet the condition.
none	No object should meet the condition.

PLACEMENT

Place on the **Start** action.

RESTRICTIONS

Can only be used to assign dynamic participants that resolve to a multiple users. For example:

PROPOSED_REVIEWERS or **CHANGE_REVIEW_BOARD**

EXAMPLES

- Assigns the users **Smith** and **David** as the **PROPOSED_REVIEWERS** participant for all target objects in the workflow process.

Argument	Values
-name	PROPOSED_REVIEWERS
-assignee	user:Smith,David

- Reads the **owning_user** and **last_mod_user** properties from the target and assigns the user as the **PROPOSED_REVIEWERS** participant for the first target object only.

Argument	Values
-name	PROPOSED_REVIEWERS
-assignee	user:PROP::owning_user,user:PROP::last_mod_user
-first_object_only	

- Reads the **owning_user** and **last_mod_user** properties from the **Document Revision** type target and assigns the user as the **PROPOSED_REVIEWERS** participant.

Argument	Values
-name	PROPOSED_REVIEWERS
-assignee	user:PROP::owning_user,user:PROP::last_mod_user
-from_include_type	DocumentRevision

- Traverses the **References** relation from the **Part Revision** types of the targets to get the **Document Revision** objects. It then reads the **owning_user** and **last_mod_user** properties from the **Document Revision** and assigns the user as the **PROPOSED_REVIEWERS** participant for all target objects.

Argument	Values
-name	PROPOSED_REVIEWERS
-assignee	user:PROP::owning_user,user:PROP::last_mod_user
-from_include_type	Part Revision

Argument	Values
-from_relation	IMAN_reference
-from_include_related_type	DocumentRevision

- This example assigns all members of the **Engineering** group and **Designer** role of the first project team associated with the first target found by the system to the dynamic participant.

Argument	Values
-name	PROPOSED_RESPONSIBLE_PARTY
-assignee	\$PROJECT_MEMBER[Engineering::Designer]

- This example assigns all members of the **Engineering** group and **Designer** role of the owning project team associated with the first target found by the system to the dynamic participant.

Argument	Values
-name	PROPOSED_REVIEWERS
-assignee	\$PROJECT_MEMBER[Engineering::Designer]
-project_scope	owning_project
-check_first_object_only	

- This example assigns all members of the **Engineering** group and **Designer** role of all project teams associated with the first target found by the system to the dynamic participant.

Argument	Values
-name	PROPOSED_REVIEWERS
-assignee	\$PROJECT_MEMBER[Engineering::Designer]
-project_scope	all
-check_first_object_only	true

- This example assigns all members of the **Engineering** group and **Designer** role of the first project team associated with each target found by the system to the dynamic participant.

Argument	Values
-name	PROPOSED_REVIEWERS
-assignee	\$PROJECT_MEMBER[Engineering::Designer]
-check_first_object_only	false

EPM-assign-team-selector

DESCRIPTION

Assigns all **select-signoff-team** tasks in the entire workflow process to the specified user, person, initiator (owner), or resource pool of the workflow process. Only one argument can be defined; all arguments are mutually exclusive of each other.

SYNTAX

EPM-assign-team-selector

```
-assignee= [user:user | person:person | resourcepool:group::role
| user:PROP::property_name
| resourcepool:PROP::property_name
| $PROPOSED_RESPONSIBLE_PARTY | $USER
| $PROCESS_OWNER | $TARGET_OWNER [type]
| $PROJECT_ADMINISTRATOR
| $PROJECT_TEAM_ADMINISTRATOR
| $PROJECT_AUTHOR | $PROJECT_MEMBER[group::role]
| $REQUESTOR | $ANALYST
| $CHANGE_SPECIALIST1
| $CHANGE_SPECIALIST2
| $CHANGE_SPECIALIST3]
[-from_include_type=object-type1[,object-type2,...]]
[-from_exclude_type=object-type1[,object-type2,...]]
[-from_attach= target | reference | schedule_task]
[-from_relation=relation-type]
[-from_include_related_type=object-type1[,object-type2,...] |
-from_exclude_related_type=object-type1[,object-type2,...]]
[-target_task=multilevel-task-path]
[-project_scope=all | owning_project]
[-check_first_object_only=true | false]
[-condition_name=condition1]
[-condition_scope=all | any | none]
```

ARGUMENTS

-assignee

Makes the user or resource pool the specified keyword evaluates to the responsible party for the task to which this handler is added. Accepts one of the following in the format specified below:

- **user:user**
Adds the user specified to the signoff member list for the task to which it is attached. Accepts a valid Teamcenter user ID.
- **person:person**

Adds the user whose name is specified to the signoff member list for the task to which it is attached. Accepts a valid Teamcenter person name.

Note:

If the person's name includes a comma, you must include an escape character (\) to add the correct person. For example, to use **wayne, joan**:

-assignee=person:wayne\, joan

- **resourcepool:group::role**

Results in a single assignment which can be performed by any single member of this group/role. You can define resource pools in the form of *group::*, *group::role*, or *role*.

Note:

When a resource pool task is performed by a user it is automatically claimed by that user. If that task is a **Review** task and it is started again, the task is assigned to the user who performed it in the previous iteration, rather than the resource pool.

Accepts valid Teamcenter resource pool names and these keywords:

- **\$GROUP**
Current user's current group.
- **\$ROLE**
Current user's current role.
- **\$TARGET_GROUP [type]**
Owning group of the first target object of the specified type. The *type* value is optional. If not specified, the first target is used.
- **\$PROCESS_GROUP**
Owning group of the workflow process.
- **user:PROP::property_name**
Adds the user specified by the property name to the signoff member list for the task to which it is attached.
If the property is a multi-value property, only the first value is used when only a single user is assigned in the workflow. When more than one user is assigned, all property values are used.
- **resourcepool:PROP::property_name**
Adds the resource pool specified by the property name to the signoff member list for the task to which it is attached.
If the property is a multi-value property, only the first value is used when only a single user is assigned in the workflow. When more than one user is assigned, all property values are used.

- **\$PROPOSED_RESPONSIBLE_PARTY**
Affects assignments based on the user assigned as the responsible party for the first target object.
- **\$USER**
Adds the current user to the signoff member list.
- **\$PROCESS_OWNER**
Adds the workflow process owner to the signoff member list.
- **\$TARGET_OWNER [type]**
Adds the owner of the first target of specified type to the signoff member list. The *type* value is optional. If not specified, the first target is used.
- **\$PROJECT_ADMINISTRATOR, \$PROJECT_TEAM_ADMINISTRATOR, \$PROJECT_AUTHOR, \$PROJECT_MEMBER[group::role]**
Dynamically makes the first project team member belonging to the role specified in the argument value as the responsible party. The project team is determined by the project team associated with the first target object.
 - If the **\$PROJECT_MEMBER[group::role]** argument is specified, only the project members of the qualifying projects which belong to the specified group and role are selected for assignment. If the group and role are not specified, all the project members from qualifying projects are selected.
 - If the value is specified as **\$PROJECT_AUTHOR** or **\$PROJECT_MEMBER[group::role]**, the relevant first project member is selected.
 - You can specify a sub-group with the syntax *group++sub-group::role*.
- **\$REQUESTOR, \$ANALYST, \$CHANGE_SPECIALIST1, \$CHANGE_SPECIALIST2, \$CHANGE_SPECIALIST3**
Dynamically resolves to the user or resource pool associated with the first change target object in the workflow process. The particular user or resource pool is determined by the role specified in the argument value.

Note:

Change-related keywords apply only to change objects. If the workflow process does not contain a change object as a target, the argument resolves to null.

Change Manager does not need to be enabled before these keywords take effect, but during installation, **Change Management** must be selected under **Extensions→Enterprise Knowledge Foundation** in Teamcenter Environment Manager.

-from_include_type=object-type1[,object-type2,...]

(Optional) Specifies the object types to be used to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**)).

-from_exclude_type=object-type1[,object-type2,...]

(Optional) Specifies the object types to be excluded when getting the property value when it is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**)).

-from_attach= target | reference | schedule_task

(Optional) Specifies which type of attachment (**target**, **reference**, or **schedule_task**) to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). If this argument is not specified, the default is **target**.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**)).

-from_relation

(Optional) Specifies the relation of the objects to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). It must be a valid relation.

- For manifestations, use **IMAN_manifestation**.
- For specifications, use **IMAN_specification**.
- For requirements, use **IMAN_requirement**.
- For references, use **IMAN_reference**.
- For BOM views, use **PSBOMViewRevision**.

This argument must be used with the **-from_attach** argument. A derived object is identified by starting with objects of the specified attachment type indicated by the **-from_attach** argument and then locating the first secondary object with the specified relation indicated by the **-relation** argument.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**)).

-from_include_related_type=object-type1[,object-type2]

(Optional) Specifies the related object types to be used to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**) and you use the **-from_relation** argument.

This argument should not be used with the **-from_exclude_related_type** argument.

-from_exclude_related_type=object-type1[,object-type2]

(Optional) Specifies related object types to be excluded when getting the property value when it is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**) and you use the **-from_relation** argument.

This argument should not be used with the **-from_include_related_type** argument.

-target_task

(Optional) Specifies the multilevel task path to which the reviewers are added. The path is from the root task to the **select-signoff-team** subtask with the path levels separated with colons (:). For example: **Change Request Review:QA Review:select-signoff-team**

-project_scope

(Optional) Specifies which projects are used to resolve project-based assignments. The **all** value specifies all projects in the list of projects. The **owning_project** value specifies the owning project only.

If this argument is not specified, the default value is the first project in the project list.

-check_first_object_only

(Optional) The **true** value specifies that only the first object is checked. If the value is **false**, all objects are checked. If this argument is not specified, or if it is specified without a value, only the first object is checked.

If the **-include_type**, **-exclude_type**, **-include_related_type**, or **-exclude_related_type** arguments are specified, they determine the types of objects that are checked.

-condition_name

(Optional) The name of the condition to evaluate against the identified objects from which to assign tasks. The condition signature should accept a **WorkspaceObject & UserSession**. The handler assigns the reviewers only if the condition results are successful, based on the **-condition_scope** argument.

-condition_scope

(Optional) The criteria for evaluating condition results against workflow objects. Values are the following:

all	All objects should meet the condition. This is the default behavior if this argument is not supplied with the -condition_name argument.
------------	--

any Any object should meet the condition.

none No object should meet the condition.

PLACEMENT

Place on the **Start** action of the root task.

RESTRICTIONS

None.

EXAMPLES

- This example assigns the user **jim** all **select-signoff-team** tasks in that workflow process.

Argument	Values
-assignee	user:jim

- This example assigns the person **Jim Smith** all **select-signoff-team** tasks in that workflow process.

Argument	Values
-assignee	person:Jim Smith

- This example assigns the owner of the workflow process all **select-signoff-team** tasks in that workflow process.

Argument	Values
-assignee	\$PROCESS_OWNER

- This example assigns the user or resource pool assigned as the responsible party for all **select-signoff-team** tasks in that workflow process.

Argument	Values
-assignee	\$PROPOSED_RESPONSIBLE_PARTY

- This example makes the project administrator of the project associated with the first target the responsible party for all **select-signoff-team** tasks in that workflow process.

Argument**Values****-assignee****\$PROJECT_ADMINISTRATOR**

- This example makes the user or resource pool associated as **REQUESTOR** with the first change target the responsible party for all **select-signoff-team** tasks in the workflow process.

Argument**Values****-assignee****\$REQUESTOR**

- This example assigns the first member of the **Engineering** group and **Designer** role of the first project team associated with the first target found by the system to the **select-signoff-team** task.

Argument**Values****-assignee****\$PROJECT_MEMBER[Engineering::Designer]**

EPM-attach-related-objects

DESCRIPTION

Attaches the specified related objects of the target objects as target or reference attachments to the workflow process. This handler searches all target objects, finds the secondary objects with the specified relation or in the specified reference property and type (if specified), then adds them as target or reference attachments. If a secondary object is already part of the target list, it is ignored.

Note:

If the **WRKFLW_allow_replica_targets** preference is set to **true** and if any replica object qualifies to be attached as a workflow target, that object is attached as a **Replica Proposed Target** to the workflow process. If the intended attachment type is not a target, the replica object is attached as the attachment type defined in **-attachment** argument.

If the preference is set to **false** or is undefined, the handler reports an error and attaches replica objects as targets.

Further, if the **-from_attach** argument is set to **schedule_task** and if the attached schedule task is a proxy link, the handler ignores the schedule task proxy link for any processing.

Note:

If the handler attempts to attach related objects that are checked out, the workflow process fails. You can use a **Validate** task to branch to a workflow path to have the objects checked in.

Note:

To replace the obsolete **EPM-attach-item-revision-targets** handler, use the following two instances of the **EPM-attach-related-objects**:

- **EPM-attach-related-objects**

Arguments	Values
-relation	IMAN_specification
-attachment	target

- **EPM-attach-related-objects**

Argument	Values
-relation	PSBOMViewRevision
-attachment	target

Note:

Enable debugging functionality for this handler with the **TC_HANDLERS_DEBUG** environment variable.

SYNTAX**EPM-attach-related-objects**

```
{-relation=relation-name | -property=property-name}
[-include_related_type=object-type1[,object-type2,...]] |
| -exclude_related_type=object-type1[,object-type2,...]] |
[-lov=lov-name]
-attachment= target | reference
[-from_attach= target | reference | schedule_task]
  [-allowed_status=status1
  [,null,status2,...] | * | all | any | null | none | IN_PROCESS]
  [-disallowed_status=status1
  [,null,status2,...] | * | all | any | null | none | IN_PROCESS]
```

ARGUMENTS

-relation=*relation-name* | -property=*property-name*

Specifies the relation or the property that is used to locate and attach secondary objects. You can use only one of these two arguments.

-relation=*relation-name*

Specifies the relation of the secondary objects to be attached to the target. The relation name must be valid for the relation type.

Relation type	Valid relation name
Manifestation	IMAN_manifestation
Specification	IMAN_specification
Requirement	IMAN_requirement
Reference	IMAN_reference
BOM view	PSBOMViewRevision

Note:

You cannot use this argument with the **-property** argument.

-property=property-name

Specifies the target object property whose value lists the secondary objects to be attached to the target.

Note:

You cannot use this argument with the **-relation** argument.

-include_related_type=object-type1[,object-type2]

Specifies object types to be attached.

They must be valid object types. This argument is optional.

This argument should not be used with the **-exclude_related_type** argument.

-exclude_related_type=object-type1[,object-type2]

Specifies object types to be excluded.

They must be valid object types. This argument is optional.

This argument should not be used with the **-include_related_type** argument.

-lov=lov-name

Specifies a list of values (LOV) to use to define which objects to attach.

Use only with the **-attachment**, **-allowed_status** and **-disallowed_status** arguments. This argument is mutually exclusive of the **-relation**, **-include_related_type**, and **-exclude_related_type** arguments.

For an overview of using LOVs in handlers, see [Lists of values as argument values](#).

-attachment= target | reference

Attachment type with which the objects are attached to the workflow process.

-from_attach= target | reference | schedule_task

(Optional) Finds the related objects with the specified relation or property argument from the specified types of attachments (**target**, **reference**, or **schedule_task**).

-allowed_status=status1[,null,status2,...] | * | all | any | null | none | IN_PROCESS

Defines allowed statuses. Only objects with a release status matching a status defined in the list are attached.

null | NULL | none | NONE matches no status (or WIP).

*** | all | ALL | any | ANY** matches any status set, excluding null.

IN_PROCESS checks whether the object is currently in a workflow process.

Note:

The **-allowed_status** and **-disallowed_status** arguments are mutually exclusive. If you use one of them, you cannot use the other in the same handler instance.

-disallowed_status=status1[,null,status2,...] | * | all | any | null | none | IN_PROCESS

Defines statuses that are not allowed. Only objects with a release status not matching a status defined in the list are attached.

null | NULL | none | NONE matches no status (or WIP).

*** | all | ALL | any | ANY** matches any status set, excluding null.

IN_PROCESS checks whether the object is currently in a workflow process.

Note:

The **-allowed_status** and **-disallowed_status** arguments are mutually exclusive. If you use one of them, you cannot use the other in the same handler instance.

-user_access

By default, this handler automatically turns on bypass, which means if it encounters an object that the current user does not have access to, the handler will still be allowed to attach the object without an error.

However, you can use **-user_access** to prevent the handler from using bypass. If the handler is configured with **-user_access** and the handler encounters an object that the current user does not have access to, then the object will not attach and an error will occur.

This argument does not take a value.

Note:

This functionality may be affected by preference **WRKFLW_access_level_for_handlers_execution**. The default behavior for the **-user_access** argument is used when **WRKFLW_access_level_for_handlers_execution** is set to its default value of **regular**. However, if **WRKFLW_access_level_for_handlers_execution** is set to

system, then bypass will always be used regardless of how the **EPM-attach-related-objects** handler is configured. So in this case, **-user_access** will have no effect.

LOV

For an overview of using LOVs in handlers, see [Lists of values as argument values](#).

The LOV can contain multiple optional lines containing filter options followed by multiple lines containing multilevel object paths.

Note:

For an overview and examples of multilevel object paths in handlers, see [Defining multilevel object paths](#).

Each multilevel object path line can optionally have a filter option added as a second field after a tilde (~).

OPTION=*value*

OPTION=*value*

{\$TARGET|\$REFERENCE}.multi.level.object.path[~ **OPTION=*value*]**

{\$TARGET|\$REFERENCE}.multi.level.object.path[~ **OPTION=*value*]**

OPTION=*value*

Defines a configurable option to filter object selection.

If you supply an option on an LOV line on its own, it applies to all subsequent lines containing multilevel object paths. The option does not affect any multilevel object paths listed before the option.

If you supply an option on the same line as a multiple level object path, as a second field after a tilde (~) character, it only applies to that line.

Valid values are:

- **REV RULE={LATEST|Rule}**
Specifies the revision rule used to select the revision attached to the workflow process if initiated on an item. Use the **LATEST** keyword to select only the latest revision.
- **INCLUDE PARENTS=YES**
Specifies that all objects found by traversing a multilevel path are attached to the workflow process, not just the last set of objects in a path. For example, when a multilevel path is used to first find items in a workflow process, then find revisions in the item, then find datasets in the

revisions, it is only the datasets that are attached by default. Setting this argument to **YES** causes both the revisions and the datasets to be attached.

This argument reduces the number of lines required in the LOV and improves performance.

\$TARGET|\$REFERENCE

Defines the starting point from which to look for objects. Valid values are:

- **\$TARGET**
Defines the starting point as the workflow process target attachments.
- **\$REFERENCE**
Defines the starting point as the workflow process reference attachments.

multi.level.object.path

Defines a multilevel object path to traverse to find the required objects to attach to the workflow process. For an overview of using multilevel object paths in handlers, see [Defining multilevel object paths](#).

For example, **(ItemRevision).IMAN_specification.(Dataset)**.

Attaches any datasets attached to the specification relation to any revisions found.

For more examples, see the **Examples** section.

PLACEMENT

Typically placed on the **Start** action of the root task so that the list of target attachments is updated at workflow process initiation.

To allow targets to be added to a workflow process containing a task on which this handler has been placed (other than the root task), verify that the **EPM-disallow-adding-targets** handler does not exist on the root task of the respective workflow process template and ensure that the affected users have change access to the workflow process object. You may use the **EPM-set-rule-based-protection** handler to ensure that the required change access is asserted. See Executing workflow handlers for more information.

RESTRICTIONS

- Requires one or more target objects to find the related objects. Placement should allow at least one target object before the execution of this handler takes place.
- To attach both targets and references using LOVs requires two occurrences of the handler: one to attach the targets by setting the **-attachment** argument to **target**, and one to attach the references using the **-attachment** argument to **reference**.
- The LOV argument cannot be used to attach objects based on properties.

EXAMPLES

- This example attaches all objects with a specification relation as target objects to the workflow process, when a workflow process is initiated on an item revision:

Arguments	Values
-relation	IMAN_specification
-attachment	target

Note:

If an object is already attached as target, it is not added.

- In this example, all objects listed in the **altid_list** property value are attached to the workflow process as target objects, when a workflow process is initiated on an item revision:

Arguments	Values
-property	altid_list
-attachment	target

Note:

- The property named in the argument value must exist on the target.
- If an object is already attached as target, it is not added.

- To attach all objects with a reference relation as reference objects, add this handler one more time with the syntax:

Argument	Values
-relation	IMAN_reference
-attachment	reference

- This example attaches the BOM view revision type **View** as a target:

Argument	Values
-relation	PSBOMViewRevision
-include_related_type	view
-attachment	target

Alternatively, you can use these LOV settings:

Argument	Values
-lov	SYS_EPM_attach_view_bvr

where the **SYS_EPM_attach_view_bvr** LOV contains the value:

\$TARGET.(ItemRevision).PSBOMViewRevision.BOMView Revision

- This example attaches the **UGMASTER** and the **UGPART** datasets (associated by the **IMAN_specification** relation to the item revision) to the item revision as target objects.

Argument	Values
-relation	IMAN_specification
-include_related_type	UGMASTER, UGPART
-attachment	target

Alternatively, you can use these LOV settings:

Argument	Values
-lov	SYS_EPM_attach_UGMASTER_UGPART

where the **SYS_EPM_attach_UGMASTER_UGPART** LOV contains the data:

\$TARGET.(ItemRevision).IMAN_specification.UGMASTER,UGPART

- This example uses the **-exclude_related_type** argument to specify object types that are not to be attached as targets to the workflow process. It attaches all objects attached to the **Specification** relation in any target revisions as targets to the workflow process, except for the dataset types **UGMASTER** and **Text**.

Argument	Values
-relation	IMAN_specification
-exclude_related_type	UGMASTER, Text
-attachment	target

Alternatively, you can use these LOV settings:

Argument	Values
-lov	SYS_EPM_exclude_UGMASTER

where the **SYS_EPM_exclude_UGMASTER** LOV contains the data:

\$TARGET.(ItemRevision).IMAN_specification.(*)!UGMASTER!Text

Note:

Use an * for any class, then exclude **UGMASTER** and **Text**:

- This example attaches all specification objects, all BOM view revisions, all forms attached to datasets through a **Form** reference (except **UGPartAttr** forms), and all forms attached through a **manifestation** relation. Only attach objects that not released.

Argument	Values
-lov	SYS_EPM_attach_main_objects
-attachment	target
-allowed_status	null

Where the **SYS_EPM_attach_main_objects** LOV contains the data:

Value	Description
\$TARGET.(ItemRevision).Specification.*	Attach all objects in target revision Specification relation
\$TARGET.(ItemRevision).IMAN_specification.UGMASTER.UGPART-ATTR.UGPartAttr	Attach all forms attached to datasets in target revision # Specification relation as a Form reference, but excluding the # form type UGPartAttr.

Value	Description
<code>\$TARGET.(ItemRevision).PSBOMViewRevision.*</code>	Attach all BOM View Revisions in target revision
<code>\$TARGET.(ItemRevision).Manifestation.(Form)</code>	Attach all forms in target revision Manifestation relation

- This example attaches all required revision attachments, such as specification objects and BOM view revisions, regardless of whether the workflow process is initiated on revisions, items or folders containing the items or revisions. If the method of initiating workflow processes on items or folders is convenient, use the **EPM-remove-objects** handler to remove the items and/or folders from the targets after this handler.

When the targets are item revisions, attach all specification objects, all BOM view revisions and any objects attached to specification datasets as relations and references (only attaches workspace objects).

When the targets are items, attach all of the latest revisions and all objects mentioned above for each revision.

When the targets are folders, attach any items in the folders and the item revisions and the revision attachments. For any revisions in the folder, attach the revisions' attachments.

Only attach objects not already released or with a status of **Pending**.

Argument	Values
<code>-lov</code>	<code>SYS_EPM_attach_main_objects</code>
<code>-attachment</code>	<code>target</code>
<code>-allowed_status</code>	<code>null, Pending</code>

Where the `SYS_EPM_attach_main_objects` LOV contains the data:

Value	Description
<code>INCLUDE PARENTS = YES</code>	Set option for all lines to include all objects found
<code>REV RULE = LATEST</code>	Set the revision rule for any items
<code>\$TARGET.(ItemRevision).IMAN_specification, PSBOMViewRevision.*.* ~</code>	Attach required objects from REVISION targets
<code>\$TARGET.(Item).Revisions.*.IMAN_specification, PSBOMViewRevision.*.*</code>	Attach required objects from latest revisions in ITEM targets

Value	Description
\$TARGETS.(Folder).*(Item).Revisions.* IMAN_specification, PSBOMViewRevision.*.*	Attach required objects from FOLDER targets
\$TARGETS.(Folder).*(ItemRevision). IMAN_specification, PSBOMViewRevision.*.*	Look for items and revisions in the folders

ADDITIONAL INFORMATION

With the addition of this handler, these handlers are deprecated:

EPM-attach-item-revision-target

As the **EPM-attach-item-revision-target** handler attaches BOM view revisions and objects with **IMAN_specification** relation, this handler can be replaced using one of the following options:

- Adding the **EPM-attach-related-objects** handler two times (one for specification relation and one for BOM view revisions) with the syntax:
EPM-attach-related-objects

Argument	Values
-relation	IMAN_specification
-attachment	target

EPM-attach-related-objects

Argument	Values
-relation	PSBOMViewRevision
-attachment	target

- Adding the **EPM-attach-related-objects** handler once using an LOV:
EPM-attach-related-objects

Argument	Values
-lov	SYS_EPM_attach_default_objects
-attachment	target

Where the **SYS_EPM_attach_main_objects** LOV contains the data:

\$TARGET . (ItemRevision) . Specification, PSBOMViewRevision . *

EPM-auto-assign

DESCRIPTION

Makes the specified user or resource pool the responsible party for the task to which the handler is added. Optionally, you can make the same specified user or resource pool the responsible party for all subtasks of the parent task.

Note:

If you use keyword arguments to dynamically generate this assignment, and the system resolve the argument to a user or resource pool, then the argument is ignored.

SYNTAX

EPM-auto-assign [-subtasks]

```
[ -assignee= {user:user | person:person | resourcepool:group::role
| user:PROP::property_name
| resourcepool:PROP::property_name
| $PROPOSED_RESPONSIBLE_PARTY | $USER
| $PROCESS_OWNER | $TARGET_OWNER [type]
| $PROJECT_ADMINISTRATOR
| $PROJECT_TEAM_ADMINISTRATOR
| $PROJECT_AUTHOR | $PROJECT_MEMBER[group::role]
| $REQUESTOR | $ANALYST
| $CHANGE_SPECIALIST1
| $CHANGE_SPECIALIST2
| $CHANGE_SPECIALIST3}]
[ -from_include_type=object-type1[,object-type2,...]]
[ -from_exclude_type=object-type1[,object-type2,...]]
[ -from_attach= target | reference | schedule_task]
[ -from_relation=relation-type]
[ -from_include_related_type=object-type1[,object-type2,...] |
- from_exclude_related_type=object-type1[,object-type2,...]]
[ -target_task=multilevel-task-path]
[ -project_scope=all | owning_project]
[ -check_first_object_only=true | false]
[ -condition_name=condition1]
[ -condition_scope=all | any | none]
```

ARGUMENTS

-subtasks

Propagates task assignments to subtasks of the current task (nonrecursively). Optional.

-assignee

Assigns as the responsible party for the task to which this handler is added either the specified person, user, resource pool, or the user or resource pool the specified keyword evaluates to.

Accepts one of the following in the format specified below:

- **user:user**
Adds the specified user to the signoff member list and as the responsible party for the task to which the handler is attached. Accepts a valid Teamcenter user ID.
- **person:person**
Adds the person whose name is specified to the signoff member list and as the responsible party for the task to which the handler is attached. Accepts a valid Teamcenter person name.

Note:

If the person's name includes a comma, you must include an escape character (\) to add the correct person. For example, to use **wayne, joan**:

-assignee=person:wayne\, joan

- **resourcepool:group::role**
Results in a single assignment which can be performed by any single member of this group/role. You can define resource pools in the form of *group::*, *group::role*, or *role*.

Note:

When a resource pool task is performed by a user it is automatically claimed by that user. If that task is a **Review** task and it is started again, the task is assigned to the user who performed it in the previous iteration, rather than the resource pool.

Accepts valid Teamcenter resource pool names and these keywords:

- **\$GROUP**
Current user's current group.
- **\$ROLE**
Current user's current role.
- **\$TARGET_GROUP[type]**
Owning group of the first target object of the specified type. The *type* value is optional. If not specified, the first target is used.
- **\$PROCESS_GROUP**
Owning group of the workflow process.

Note:

The **\$ROLE_IN_GROUP** keyword (formerly **\$ROLEINGROUP**) cannot be used. Use **resourcepool:\$GROUP::\$ROLE** instead.

- **user:PROP::*property_name***
Adds the user specified by the property name to the signoff member list for the task to which it is attached.
If the property is a multi-value property, only the first value is used when only a single user is assigned in the workflow. When more than one user is assigned, all property values are used.
- **resourcepool:PROP::*property_name***
Adds the resource pool specified by the property name to the signoff member list for the task to which it is attached.
If the property is a multi-value property, only the first value is used when only a single user is assigned in the workflow. When more than one user is assigned, all property values are used.
- **\$PROPOSED_RESPONSIBLE_PARTY**
Affects assignments based on the user assigned as the responsible party for the first target object.
- **\$USER**
Adds the current user to the signoff member list and as the responsible party.
- **\$PROCESS_OWNER**
Adds the workflow process owner to the signoff member list and as the responsible party.
- **\$TARGET_OWNER [*type*]**
Adds the owner of the first target of the specified type to the signoff member list and as the responsible party. The *type* value is optional. If not specified, the first target is used.
- **\$PROJECT_ADMINISTRATOR, \$PROJECT_TEAM_ADMINISTRATOR, \$PROJECT_AUTHOR, \$PROJECT_MEMBER[*group::role*]**
Dynamically makes the first project team member belonging to the role specified in the argument value as the responsible party. The project team is determined by the project team associated with the first target object.
 - If the **\$PROJECT_MEMBER[*group::role*]** argument is specified, only the project members of the qualifying projects which belong to the specified group and role are selected for assignment. If the group and role are not specified, all the project members from qualifying projects are selected.
 - If the value is specified as **\$PROJECT_AUTHOR** or **\$PROJECT_MEMBER[*group::role*]**, the relevant first project member is selected.
 - You can specify a sub-group with the syntax *group++sub-group::role*.

- **\$REQUESTOR, \$ANALYST, \$CHANGE_SPECIALIST1, \$CHANGE_SPECIALIST2, \$CHANGE_SPECIALIST3**

Dynamically resolves to the user or resource pool associated with the first change target object in the workflow process. The particular user or resource pool is determined by the role specified in the argument value.

Note:

Change-related keywords apply only to change objects. If the workflow process does not contain a change object as a target, the argument resolves to null.

Change Manager does not need to be enabled before these keywords take effect, but during installation, **Change Management** must be selected under **Extensions**→**Enterprise Knowledge Foundation** in Teamcenter Environment Manager.

-from_include_type=object-type1[,object-type2,...]

(Optional) Specifies the object types to be used to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

-from_exclude_type=object-type1[,object-type2,...]

(Optional) Specifies the object types to be excluded when getting the property value when it is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

-from_attach= target | reference | schedule_task

(Optional) Specifies which type of attachment (**target**, **reference**, or **schedule_task**) to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). If this argument is not specified, the default is **target**.

-from_relation

(Optional) Specifies the relation of the objects to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). It must be a valid relation.

- For manifestations, use **IMAN_manifestation**.
- For specifications, use **IMAN_specification**.
- For requirements, use **IMAN_requirement**.
- For references, use **IMAN_reference**.
- For BOM views, use **PSBOMViewRevision**.

This argument must be used with the **-from_attach** argument. A derived object is identified by starting with objects of the specified attachment type indicated by the **-from_attach** argument and

then locating the first secondary object with the specified relation indicated by the **-relation** argument.

-from_include_related_type=object-type1[,object-type2]

(Optional) Specifies the related object types to be used to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

Use this argument when a property is designated and you use the **-from_relation** argument.

This argument should not be used with the **-from_exclude_related_type** argument.

-from_exclude_related_type=object-type1[,object-type2]

(Optional) Specifies related object types to be excluded when getting the property value when it is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

Use this argument when a property is designated and you use the **-from_relation** argument.

This argument should not be used with the **-from_include_related_type** argument.

-target_task

(Optional) Specifies the multilevel task path to which the reviewers are added. The path is from the root task to the subtask with the path levels separated with colons (:). For example: **Change Request Review:QA Review:perform-signoff**

-project_scope

(Optional) Specifies which projects are used to resolve project-based assignments. The **all** value specifies all projects in the list of projects. The **owning_project** value specifies the owning project only.

If this argument is not specified, the default value is the first project in the project list.

-check_first_object_only

(Optional) The **true** value specifies that only the first object is checked. If the value is **false**, all objects are checked. If this argument is not specified, or if it is specified without a value, only the first object is checked.

If the **-include_type**, **-exclude_type**, **-include_related_type**, or **-exclude_related_type** arguments are specified, they determine the types of objects that are checked.

-condition_name

(Optional) The name of the condition to evaluate against the identified objects from which to assign tasks. The condition signature should accept a **WorkspaceObject & UserSession**. The handler assigns the reviewers only if the condition results are successful, based on the **-condition_scope** argument.

-condition_scope

(Optional) The criteria for evaluating condition results against workflow objects. Values are the following:

all	All objects should meet the condition. This is the default behavior if this argument is not supplied with the -condition_name argument.
any	Any object should meet the condition.
none	No object should meet the condition.

PLACEMENT

Place on the **Start** action.

RESTRICTIONS

None.

EXAMPLES

- This example makes **Smith** the responsible party for the task to which this handler is assigned and all of the task's subtasks.

Argument	Values
-subtasks	
-assignee	user:Smith

- This example makes the workflow process owner the responsible party for the task to which this handler is assigned.

Argument	Values
-assignee	\$PROCESS_OWNER

- This example makes the engineer role within manufacturing group resource pool the responsible party for the task to which this handler is assigned.

Argument	Values
-assignee	resourcepool:manufacturing::engineer

- This example makes the responsible party group the responsible party for the task to which this handler is assigned.

Argument**Values****-assignee****\$PROPOSED_RESPONSIBLE_PARTY**

- This example makes the project administrator of the project associated with the first target the responsible party for the task to which this handler is assigned.

Argument**Values****-assignee****\$PROJECT_ADMINISTRATOR**

- This example makes the user or resource pool associated as **ANALYST** with the first change target the responsible party for the task to which this handler is assigned.

Argument**Values****-assignee****\$ANALYST**

- This example assigns the first member of the **Engineering** group and **Designer** role of the first project team associated with the first target found by the system to the task as responsible party.

Argument**Values****-assignee****\$PROJECT_MEMBER[Engineering::Designer]**

EPM-auto-assign-rest

DESCRIPTION

Automatically makes the specified assignee the responsible party for any unassigned subtasks of the parent task to which this handler is added.

- If this handler is attached to the root task with no argument specified, the workflow process initiator is made the responsible party for all tasks in the workflow process.
- If this handler is attached to the root task and one or more entries are contained in the list, the first valid user or resource pool is made the responsible party for all tasks in the workflow process.

SYNTAX

EPM-auto-assign-rest

```
-assignee= [user:user | person:person | resourcepool:group::role
| user:PROP::property_name
| resourcepool:PROP::property_name
| $PROPOSED_RESPONSIBLE_PARTY | $USER
| $PROCESS_OWNER | $TARGET_OWNER [type]
| $PROJECT_ADMINISTRATOR
| $PROJECT_TEAM_ADMINISTRATOR]
| $PROJECT_AUTHOR | $PROJECT_MEMBER[group::role]
| $REQUESTOR | $ANALYST
| $CHANGE_SPECIALIST1
| $CHANGE_SPECIALIST2
| $CHANGE_SPECIALIST3
[-from_include_type=object-type1[,object-type2,...]]
[-from_exclude_type=object-type1[,object-type2,...]]
[-from_attach= target | reference | schedule_task]
[-from_relation=relation-type]
[-from_include_related_type=object-type1[,object-type2,...]] |
-from_exclude_related_type=object-type1[,object-type2,...]]
[-project_scope=all | owning_project]
[-check_first_object_only=true | false]
[-condition_name=condition1]
[-condition_scope=all | any | none]
```

ARGUMENTS

-assignee

(Optional) Makes the user or resource pool the specified keyword evaluates to the responsible party for the task to which this handler is added. Assignee is an *optional* argument.

Accepts one of the following in the format specified below:

- **user:user**
Adds the user specified to the signoff member list and as the responsible party for the task to which the handler is attached. Accepts a valid Teamcenter user ID.
- **person:person**
Adds the person whose name is specified to the signoff member list and as the responsible party for the task to which the handler is attached. Accepts a valid Teamcenter person name.

Note:

If the person's name includes a comma, you must include an escape character (\) to add the correct person. For example, to use **wayne, joan**:

-assignee=person:wayne\, joan

- **resourcepool:group::role**
Results in a single assignment which can be performed by any single member of this group/role. You can define resource pools in the form of *group::*, *group::role*, or *role*.

Note:

When a resource pool task is performed by a user it is automatically claimed by that user. If that task is a **Review** task and it is started again, the task is assigned to the user who performed it in the previous iteration, rather than the resource pool.

Accepts valid Teamcenter resource pool names and these keywords:

- **\$GROUP**
Current user's current group.
- **\$ROLE**
Current user's current role.
- **\$TARGET_GROUP[type]**
Owning group of the first target object of the specified type. The *type* value is optional. If not specified, the first target is used.
- **\$PROCESS_GROUP**
Owning group of the workflow process.

Note:

The **\$ROLE_IN_GROUP** keyword (formerly **\$ROLEINGROUP**) cannot be used. Use **resourcepool:\$GROUP::\$ROLE** instead.

- **user:PROP::property_name**

Adds the user specified by the property name to the signoff member list for the task to which it is attached.

If the property is a multi-value property, only the first value is used when only a single user is assigned in the workflow. When more than one user is assigned, all property values are used.

- **resourcepool:PROP::property_name**
Adds the resource pool specified by the property name to the signoff member list for the task to which it is attached.
If the property is a multi-value property, only the first value is used when only a single user is assigned in the workflow. When more than one user is assigned, all property values are used.
- **\$PROPOSED_RESPONSIBLE_PARTY**
Affects assignments based on the user assigned as the responsible party for the first target object.
- **\$USER**
Adds the current user to the signoff member list and as the responsible party.
- **\$PROCESS_OWNER**
Adds the workflow process owner to the signoff member list and as the responsible party.
- **\$TARGET_OWNER [type]**
Adds the owner of the first target of the specified type to the signoff member list and as the responsible party. The type value is optional. If not specified, the first target is used.
- **\$PROJECT_ADMINISTRATOR, \$PROJECT_TEAM_ADMINISTRATOR, \$PROJECT_AUTHOR, \$PROJECT_MEMBER[group::role]**
Dynamically makes the first project team member belonging to the role specified in the argument value as the responsible party. The project team is determined by the project team associated with the first target object.
 - If the **\$PROJECT_MEMBER[group::role]** argument is specified, only the project members of the qualifying projects which belong to the specified group and role are selected for assignment. If the group and role are not specified, all the project members from qualifying projects are selected.
 - If the value is specified as **\$PROJECT_AUTHOR** or **\$PROJECT_MEMBER[group::role]**, the relevant first project member is selected.
 - You can specify a sub-group with the syntax *group++sub-group::role*.
- **\$REQUESTOR, \$ANALYST, \$CHANGE_SPECIALIST1, \$CHANGE_SPECIALIST2, \$CHANGE_SPECIALIST3**
Dynamically resolves to the user or resource pool associated with the first change target object in the workflow process. The particular user or resource pool is determined by the role specified in the argument value.

Note:

Change-related keywords apply only to change objects. If the workflow process does not contain a change object as a target, the argument resolves to null.

Change Manager does not need to be enabled before these keywords take effect, but during installation, **Change Management** must be selected under **Extensions**→**Enterprise Knowledge Foundation** in Teamcenter Environment Manager.

-from_include_type=object-type1[,object-type2,...]

(Optional) Specifies the object types to be used to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

-from_exclude_type=object-type1[,object-type2,...]

(Optional) Specifies the object types to be excluded when getting the property value when it is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

-from_attach= target | reference | schedule_task

(Optional) Specifies which type of attachment (**target**, **reference**, or **schedule_task**) to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). If this argument is not specified, the default is **target**.

-from_relation

(Optional) Specifies the relation of the objects to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). It must be a valid relation.

- For manifestations, use **IMAN_manifestation**.
- For specifications, use **IMAN_specification**.
- For requirements, use **IMAN_requirement**.
- For references, use **IMAN_reference**.
- For BOM views, use **PSBOMViewRevision**.

This argument must be used with the **-from_attach** argument. A derived object is identified by starting with objects of the specified attachment type indicated by the **-from_attach** argument and then locating the first secondary object with the specified relation indicated by the **-relation** argument.

-from_include_related_type=object-type1[,object-type2]

(Optional) Specifies the related object types to be used to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

Use this argument when a property is designated and you use the **-from_relation** argument.

This argument should not be used with the **-from_exclude_related_type** argument.

-from_exclude_related_type=object-type1[,object-type2]

(Optional) Specifies related object types to be excluded when getting the property value when it is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

Use this argument when a property is designated and you use the **-from_relation** argument.

This argument should not be used with the **-from_include_related_type** argument.

-project_scope

(Optional) Specifies which projects are used to resolve project-based assignments. The **all** value specifies all projects in the list of projects. The **owning_project** value specifies the owning project only.

If this argument is not specified, the default value is the first project in the project list.

-check_first_object_only

(Optional) The **true** value specifies that only the first object is checked. If the value is **false**, all objects are checked. If this argument is not specified, or if it is specified without a value, only the first object is checked.

If the **-include_type**, **-exclude_type**, **-include_related_type**, or **-exclude_related_type** arguments are specified, they determine the types of objects that are checked.

-condition_name

(Optional) The name of the condition to evaluate against the identified objects from which to assign tasks. The condition signature should accept a **WorkspaceObject & UserSession**. The handler assigns the reviewers only if the condition results are successful, based on the **-condition_scope** argument.

-condition_scope

(Optional) The criteria for evaluating condition results against workflow objects. Values are the following:

all	All objects should meet the condition. This is the default behavior if this argument is not supplied with the -condition_name argument.
any	Any object should meet the condition.
none	No object should meet the condition.

PLACEMENT

Place on the **Start** action. Typically placed on the root task after the **EPM-assign-team-selector** handler.

RESTRICTIONS

None.

EXAMPLES

- In this example, a five-task workflow process containing the task templates below is initiated by user **Jones**. The **EPM-auto-assign-rest** handler is placed on the root task, and the **EPM-auto-assign** handler is placed on the fourth task, set with the **-assignee=\$PROCESS_OWNER** argument. The workflow consists of a **Do** task, **Review** task, **Review** task, and **Do** task. Because the **EPM-auto-assign-rest** handler is placed on the root task and **Smith** is specified with the **-assignee** argument, **Smith** is the responsible party for the first three tasks (and their subtasks). Because the **EPM-auto-assign -assignee=\$PROCESS_OWNER** handler is placed on the fourth task, **Jones** is the responsible party for the fourth task and its subtasks. **Smith** is the owner of the fifth task.

Argument	Values
-assignee	user:Smith

- This example assigns the user or resource pool assigned as the responsible party for the subtasks of the task to which this handler is assigned.

Argument	Values
-assignee	\$PROPOSED_RESPONSIBLE_PARTY

- This example assigns the user or resource pool associated as **ANALYST** with the first change target object the responsible party for the subtasks of the task to which this handler is assigned.

Argument	Values
-assignee	\$ANALYST

- This example assigns the first member of the **Engineering** group and **Designer** role of the first project team associated with the first target found by the system to the remaining tasks as responsible party.

Argument	Values
-assignee	\$PROJECT_MEMBER[Engineering::Designer]

EPM-auto-check-in-out

DESCRIPTION

Automatically checks in/out the target objects of a workflow process to the assigned reviewer or the responsible party. This prevents other users who have write access to the target objects from being able to modify them. Optionally, when a dataset is checked in/out, it checks in/out the BOM view of the type specified.

SYNTAX

EPM-auto-check-in-out

```
-assignee=$REVIEWERS | $RESPONSIBLE_PARTY
-action=check-in | check-out
  [-include_related_type=dataset-type::bom-view-type]
  [-include_replica]
```

ARGUMENTS

-assignee

Note:

The **-assignee** argument is *optional* and not required for **-action=check-in**.

Use **\$REVIEWERS** for **Review** tasks. Use **\$RESPONSIBLE_PARTY** otherwise.

Note:

The object is checked out to the first reviewer.

-action

Action to check in (**check-in**) or check out (**check-out**) the objects.

-include_related_type

(Optional) Also check in/out the type specified in the form of *dataset-type::bom-view-type*. This value works for BOM views only. A BOM view of the specified type is checked in/out if a dataset of a specified type is checked in/out.

-include_replica

(Optional) Remote checks-in or remote checks-out the **Replica Proposed Targets** objects of the workflow along with the target objects. For remote check-outs, the objects are checked out to the current site executing the workflow.

PLACEMENT

- For **Review** and **Route** tasks where **-assignee=\$REVIEWERS**:
 - If **-action=check-out**, place the handler on the **Complete** action of the **select-signoff-team** subtask, or **Start** action of the **perform-signoffs** subtask.
 - If **-action=check-in**, place the handler on the **Complete** action of the **perform-signoffs** subtask.
- For all other tasks or where **-assignee=\$RESPONSIBLE_PARTY**:
Requires no specific placement.

RESTRICTIONS

Placement of the **EPM-auto-check-in-out** handler with the **-action=check-out** defined should be determined considering the placement of **EPM-assert-targets-checked-in** rule handler, which displays an error if target objects are not checked in. If this handler is used in a **Review** task, this should be used only when the number of reviewers equals one.

EXAMPLES

This example, placed on a **Review** task, checks out the objects to the reviewer once the task is assigned to the reviewer and checks in the objects once the reviewer signs off. You can place this action handler in the **Complete** action of the **select-signoff-team** subtask using the **Check out** action, and in the **Complete** action of the **perform-signoffs** subtask using the **Check in** action.

Argument	Values
-assignee	\$REVIEWERS
-action	check-out
-include_related_type	UGMASTER::view

This setting checks out all the target objects; if a **UGMASTER** is checked out, the BOM view of type **view** is also checked out. If **UGMASTER** is referenced in multiple item revisions, the BOM view of the first item revision is checked out.

This example, placed on a **Review** task, checks in the objects once the task is completed and all reviewers sign off. You can place this action handler in the **Complete** action of the **Review** task using the **Check in** action, or in the **Complete** action of the **perform-signoffs** subtask using the **Check in** action.

Argument	Values
-action	check-in

EPM-change-all-started-to-pending

DESCRIPTION

Ensures that all tasks that are started, but not are not completed, are cleaned up at the conclusion of the workflow process.

SYNTAX

EPM-change-all-started-to-pending

ARGUMENTS

None.

PLACEMENT

Place on the **Complete** action of the root task.

RESTRICTIONS

None.

EPM-change-group-owner

DESCRIPTION

Changes the owning group for the item master of any item type whose revision is attached as target.

SYNTAX

EPM-change-group-owner -group=*group-id*

ARGUMENTS

-group

A valid Teamcenter **group_id**.

PLACEMENT

Place on the **Complete** action.

RESTRICTIONS

None.

EXAMPLES

- This example is used with a workflow initiated with an item revision and document revision attached as targets. It sets the owning group of the respective master item and master document to **engineering**.

Argument	Values
-group	engineering

EPM-change-ownership

DESCRIPTION

Changes the ownership of all target objects to the group and user ID of the reviewer or the responsible party.

The advantage of changing ownership is to allow a revision rule to configure WIP (work in process) data based on owner and group settings.

If this handler is used in **Review** tasks, the number of reviewers should be one.

To save processing time and/or improve robustness, the handler can be configured to be active only in one or more actions (**-active=action**). If the handler is called as part of trigger to another action, the handler silently returns immediately.

SYNTAX

EPM-change-ownership -assignee=\$REVIEWERS | \$RESPONSIBLE_PARTY
[-active= action [-active=other-action]][-depth=level]

ARGUMENTS

-assignee

User to whom the ownership is given.

Use **\$REVIEWERS** if this handler is used in a **Review** task. Use **\$RESPONSIBLE_PARTY** otherwise.

[-active=action [-active=other-action]]

Name of the action for which this handler is valid.

If this argument is used, and the handler is called as part of a trigger to an unlisted action, the handler silently returns immediately. You can use the following valid action names as values.

EPM_add_attachment_action

EPM_remove_attachment_action

EPM_approve_action

EPM_reject_action

EPM_promote_action

EPM_demote_action

EPM_refuse_action

EPM_assign_approver_action

EPM_notify_action

This argument can be useful when the handler is placed on the **Perform** action. These actions automatically run the following **Perform** action handlers, raising the potential for unnecessary processing.

This argument is optional.

-depth

Recursion depth. This argument is optional and the default is set to **1**.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

Set the number of reviewers to **1** when this handler is placed on a **Review** task.

EXAMPLES

This example, when placed on the **Complete** action of the **select-signoff-team** subtask of a **Review** task, changes the ownership of all the target objects to reviewers and their groups.

Argument	Values
-assignee	\$REVIEWERS

EPM-change-target-group

DESCRIPTION

Changes the group ownership of the target objects to the current **group_id** of the user. If the target is an item revision object, the group of its item master is set to the current group ID of the user as well.

SYNTAX

EPM-change-target-group

ARGUMENTS

None.

PLACEMENT

Place on the **Complete** action.

RESTRICTIONS

None.

EPM-change-target-group-owner

DESCRIPTION

Changes the owner and/or the owning group for the target objects.

Note:

The handler does not validate if the owning user belongs to the owning group. It makes the change even if the user does not belong to the group.

SYNTAX

EPM-change-target-group-owner [-owner=*user-id*][-group=*group-id*]

ARGUMENTS

-owner

Valid Teamcenter **user_id**.

-group

Valid Teamcenter **group_id**.

PLACEMENT

Place on the **Complete** action.

RESTRICTIONS

None.

EXAMPLES

- This example changes the group and owner of the targets to **engineering** and **jim**, respectively.

Argument	Values
-owner	jim
-group	engineering

- This example changes the only group of the targets to **production**.

Argument**Values****-group****production**

- This example changes only the owner of the targets to **smith**.

Argument**Values****-owner****smith**

EPM-check-signoff-comments

DESCRIPTION

Requires users to type a comment when making a signoff decision. You can specify whether the comment is required for the approve decision or the reject decision. If neither decision is specified, comments are required to complete either signoff decision.

SYNTAX

EPM-check-signoff-comments [-decision= approve | reject]

ARGUMENTS

-decision

Specifies which signoff decision requires comments to be entered when making a signoff decision for either a **Review** task or an **Acknowledge** task.

Use **approve** to require comments to be added before selecting **Approve** for a **Review** task, or **Acknowledge** for an **Acknowledge** task.

Use **reject** to require comments to be added before rejecting a signoff for a **Review** task.

If this argument is not used, comments are required for either decision before completing a signoff.

PLACEMENT

Place on the **Perform** action of the **perform-signoffs** task.

RESTRICTIONS

Place on the **perform-signoffs** task.

Note:

The **EPM-check-signoff-comments** handler is only necessary in specialized cases where it is combined with other rule handlers containing a rule quorum.

Otherwise, signoff quorum handling is internalized in the workflow engine and does not need this handler.

This usage is rare, and unless this specialized need is required, it should be avoided.

EXAMPLES

- This example requires that the user type comments before rejecting a signoff:

Argument	Values
-decision	reject

- This example requires the user to type comments before approving a signoff:

Argument	Values
-decision	approve

EPM-create-form

DESCRIPTION

Creates an instance of a specified form and attaches that form to the specified task. For more information, refer to the **EPM-display-form** handler.

Configuring a task to display forms using EPM-create-form, EPM-display-form, and EPM-hold

To configure a task to display a form when a user performs a specified action, use the **EPM-hold** handler. This handler pauses the task, requiring the user to perform an action on the task before the task can complete. Without the use of this handler, a task completes automatically once started.

To create an instance of a specified form and attach the form to the specified task, use the **EPM-create-form** handler.

Therefore, the **EPM-create-form** handler creates the form when the **Start** action is initiated, the **EPM-display-form** handler displays the form when the **Perform** action is initiated, and the **EPM-hold** handler prevents the task from automatically completing, allowing the form to be completed by the user.

Variations on the above example may be required for a more sophisticated interaction when it is required that the task not complete until required fields are entered in the form. This type of configuration requires the creation of customized rule handlers.

SYNTAX

```
EPM-create-form -type=formtype [-name=string] [-description=string]
[ [-property=field-name] [-value=value]] [-target_task=task-name.attachment-type]
```

ARGUMENTS

-type

Valid **FormType** object.

-name

User-defined form name. Default is the workflow process name.

-description

User-defined description of the form. Default value is **null**.

-property

Specifies the particular field of the form that has a default value. Users can choose to set the default value to more than one field by adding the field names separated by commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference. The default value for each field is set by the **-value** argument. Do not use this argument for field names of **Typed_Reference** and **Untyped_Reference** types. This argument is optional.

Note:

Use this argument with the **-value** argument to populate the initial values in forms created by a workflow. If you do not use this argument and instead set the initial value in the business object definition, the workflow process defines the value as empty until you perform an edit and save it.

-value

Specifies the default value for a particular field of the form specified by the **-property** argument. Users can choose to set the default values for more than one field by adding the values separated by commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference in the same order as listed in the **-property** argument values. Do not use this argument for field names of **Typed_Reference** and **Untyped_Reference** types. This argument is optional.

Note:

Use this argument with the **-property** argument to populate the initial values in forms created by a workflow. If you do not use this argument and instead set the initial value in the business object definition, the workflow process defines the value as empty until you perform an edit and save it.

-target_task

Task name and attachment type receiving the new form as an attachment. The default value is the current task.

Accepts one of four *keywords* for *attachment-type*:

- **\$REFERENCE**
Reference attachments
- **\$TARGET**
Target object attachments

The default value is **\$REFERENCE**.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

EXAMPLES

- This example shows how to create form type **ECN Form**, form name **ECN**, form description **Engineering Change Management Form**, and attachment type **EPM_reference** attachment. The form is attached to the root task of the workflow process.

Argument	Values
-type	ECN Form
-name	ECN
-description	Engineering Change Management Form
-target_task	\$ROOT.\$REFERENCE

- This example attaches the form as a target attachment to the current task:

Argument	Values
-target_task	\$ROOT.\$TARGET

To attach the form as a reference attachment to the current task, do not set the **-target_task** argument, because this is the default location this handler uses when this argument is not defined.

EPM-create-relation

DESCRIPTION

Creates a specified relation between the target/reference objects of the workflow process. The relation to be created must be a valid relation. The handler goes through all the primary objects of the specified type and creates a specified relation with all the secondary objects of the specified type.

SYNTAX

EPM-create-relation *-relation=relation-name* **-primary_attachment=** target | reference
-primary_type=*type-of-primary-object* **-secondary_attachment=**target | reference
-secondary_type=*type-of-secondary-object*

ARGUMENTS

-relation

The relation type to be created.

-primary_attachment

The objects that have to be considered as primary objects (target or reference).

-primary_type

Type of object to be considered as primary object.

Considers all the target or reference attachments of this type as primary objects. Target or reference is specified in **-primary** argument.

This argument checks for the exact type name and does not consider the subtypes.

-secondary_attachment

The objects that have to be considered as secondary objects (target or reference).

-secondary_type

Type of object to be considered as secondary object.

Considers all the target or reference attachments of this type as secondary objects. Target or reference is specified in **-secondary** argument.

This argument checks for the exact type name and does not consider the subtypes.

PLACEMENT

Place on the **Complete** action of the task.

RESTRICTIONS

None.

EXAMPLES

In this example, the workflow process has two item revisions as target objects and one **UGPART** object as a reference object. There is no relation between the two item revisions and the **UGPART**. To create a requirements relationship between the two, with the item revisions as primary and the **UGPART** as secondary:

Argument	Values
-relation	IMAN_requirement
-primary_attachment	target
-primary_type	ItemRevision
-secondary_attachment	reference
-secondary_type	UGPART

EPM-create-status

DESCRIPTION

Attaches the specified status type to the root task.

SYNTAX

EPM-create-status **-status**=*status-type*

ARGUMENTS

-status

Adds the specified status type to the root task. If this argument is not supplied, the task name where the handler is attached is used. The name provided should be the name of a status type already defined in the Business Modeler IDE, not the display name.

If the status type is not already defined, a status object is created that is not based on a status type, which means that effectivity and configuration may not work against it.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

EXAMPLES

- This example attaches the **Released** status to the root task.

Argument	Values
-status	Released

EPM-create-sub-process

DESCRIPTION

This handler starts subprocesses from a workflow process. The new subprocess can take on attachments of the parent process, and those attachments can be grouped by property.

This action handler creates subprocesses and attaches the specified target/reference objects of the parent process as target/reference attachments to the new subprocesses. This handler goes through all of the target/reference objects of the parent process, finds the corresponding object type, and adds them as target/reference attachments of the new subprocess. This handler allows you to launch one or multiple workflow processes from within a parent process. You can use this handler to set a dependency between the parent process and subprocess in a way that causes the parent process to wait for the subprocess's (task) completion. The action handler can be added multiple times to a task action to provide abilities such as using different workflow process templates per target object type or other combinations.

If you want the progress of the parent process to be dependent on the subprocess completing, use the **-dependency** argument with this handler and place the handler on the **Start** action of the parent task to start the subprocess correctly. However, the parent task checks if the dependent subprocess is complete only when the parent task reaches the **Complete** action.

For example, if you place this handler with the **-dependency** argument on a **Review** task, it starts the subprocess, allows users to select a signoff team and perform signoffs, then checks the subprocess for its completion status. If the subprocess is not complete when the signoffs are completed, an error is displayed.

The **-include_replica** argument adds the parent's **Replica Proposed Targets** to the newly created subprocesses.

Note:

When this handler creates a subprocess, the process owner and responsible parties for the new subprocess are defined as the current session's user. It may not match the responsible party of the workflow task having this handler, particularly when the task is automated and its actions are triggered after completing a previous task.

If the process owner and responsible parties should be different than the currently logged-in user, use **EPM-auto-assign** or **EPM-assign-team-selector** in the subprocess template.

SYNTAX

EPM-create-sub-process

-template=*process-template-name*

[-from_attach=Target | Reference | ALL]

[-to_attach=Target | Reference | ALL]

[-include_type=object-type]

[-exclude_type=object-type]

[-process_name=name-for-process]

[-description=string]

[-multiple_processes]

[-dependency= multilevel-parent-process-task-path::multilevel-sub-process-task-path]

[-transfer]

[-process_assembly]

-depth=depth-of-traversal

-rev_rule=revision-rule-to-apply

-relation=relation-type-to-look

[-include_related_type=type-of-related-components-to-be-included]

[-exclude_related_type=type-of-related-components-to-be-excluded]

[-include_replica]

[-group_by_property=property-to-be-used-for-grouping]

ARGUMENTS

-template=process-template-name

The workflow process template name that is used to start a new workflow process.

This argument is required.

-from_attach=Target | Reference | ALL

The following are the objects attachments to be inherited from the parent process target and/or reference folder:

- **Target**

Takes the attachments from the target folder of the parent process.

- **Reference**

Takes the attachments from the reference folder of the parent process

- **ALL**

Takes targets and reference attachments.

The **-from_attach** and **-to_attach** arguments must be used together. If you use one argument, you must use the other.

This argument is optional.

The preference to enable for multiple workflow processes for the same objects needs to be set if **-from_attach** is used with either the **Target** or **ALL** option. The **EPM_multiple_processes_targets** preference attaches components that are currently in process as targets if it is set to **ON**.

-to_attach=Target | Reference | ALL

The following are the objects to attach with the new workflow process:

- **Target**

Attaches to target folder of new workflow process.

- **Reference**

Attaches to reference folder of new workflow process

- **ALL**

Attached from target folder of the parent process to the target folder of a new workflow process and reference folder of the parent process to the reference folder of a new process.

The **-from_attach** and **-to_attach** arguments must be used together. If you use one argument, you must use the other.

This argument is optional.

-include_type=object-type

Defines the types to be included as targets and/or references.

- Must be valid workspace object types. For example: **ItemRevision** and **ITEM**.
- If this argument is specified as **Dataset**, any type of dataset (**UGMASTER**, **UGPART**, **Text**, and so on) is considered.
- If this argument is specified as **ItemRevision**, any type of item revision (**DocumentRevision** and any custom item revision types) is considered.

This argument is optional. If this argument is passed to the handler, **-from_attach** and **-to_attach** should also be passed to the handler.

-exclude_type=object-type

Defines the types to be excluded from being adding as targets/reference.

- Must be valid workspace object types. For example: **ItemRevision** and **ITEM**
- If this argument is specified as **Dataset**, any type of dataset (**UGMASTER**, **UGPART**, **Text**, and so on) is considered.
- If this argument is specified as **ItemRevision**, any type of item revision (**DocumentRevision**, and so on, and any custom item revision types) is considered.

This argument is optional. If this argument is passed to the handler, **-from_attach** and **-to_attach** should also be passed to the handler.

-process_name=name-of-process

The name used identifies the new workflow process. You can use the **\$TARGET** keyword, which is replaced by the target display name *targetname-item-name*.

When a workflow process name is given as **subprocess** and no **-multiple_processes** arguments are used, the workflow process name alone is used as there is only one, so the subprocess would be called **subprocess**. In this case, to include a number in the name, put it in the argument name and only one is created. If the workflow process name is not given and the **-multiple_process** argument is not used, the parent process name is **parentprocess**; in this case, it is **parentprocess:1**. The same is true for cases where there are no targets on the parent process.

If the workflow process name is not given, and the **-multiple_processes** argument is used, the name assigned is in the format of *subprocesstargetdisplayname-item-name:count*. In this case, that would be **item1/A-wheel:1**, **item2/B-axle:2**, **item3/A-bearing:3**. In the case where the parent had no targets, the name is **parentprocess:1**.

If the workflow process name is given with the **\$TARGET** keyword, such as **subprocess1_\$TARGET**, and the **-multiple_processes** argument is used, the name assigned is in the format *subprocess1_subprocesstargetname-item-name:count* format. In this case, that is **subprocess1_item1/A-wheel:1**, **subprocess1_item2/B-axle:2**, **subprocess1_item3/A-bearing:3**. In a case where the parent had no targets, the name is **subprocess1_:1**.

This argument is optional.

-description=string

Workflow process description.

If the description is not specified, it is set to blank.

This argument is optional.

-multiple_processes

Each target object to be considered becomes a target in its own individual subprocess. If not specified, all targets are in a single subprocess.

To learn how to use this argument, see the example section.

This argument is optional.

-dependency=multilevel-parent-process-task-path::multilevel-sub-process-task-path

Creates a dependency between a parent process task and a specified subprocess task; the parent process's task proceeds after the subprocess's task completes.

You must use a multilevel path to specify the task templates. Separate path levels with colons (:). Separate the multilevel path of the parent task from the multilevel path of the subprocess task with a double colon (: :). For example:

**Change Approval:QA Review:perform-signoffs::Design Change:
Part Review:perform-signoffs**

If you use a double colon (::) only without specifying either a source or target task, a subprocess task is created, and a dependency is established between the parent process task and the newly created subprocess task.

If a parent process task is not specified, the task containing this handler is designated as the parent process task. If a subprocess task is not specified, or not found, the dependency is not set.

This argument is optional.

Note:

- If you try to complete a task that has a dependency on an uncompleted subprocess task, you receive a warning indicating that the interprocess task dependencies are not met for the dependent task.
- By default, if you do not use this argument, the signoff details for the subprocess are not included in the parent process signoff report for standard tasks. To include the details for an independent subprocess, change the value of the **WRKFLW_signoff_report_show_sub_process** preference.

-transfer

Transfers attachments of the parent process to the subprocess. The parent process has no attachments as target/reference that exists in the subprocess.

-process_assembly

Signals the handler to traverse the assembly and start a subprocess on its components. Multiple workflow processes can be started if the **-multiple_processes** argument is specified. This argument works in conjunction with **-depth**, **-rev_rule**, **-include_related_type**, and **-exclude_related_type** arguments. This argument can be used together with the **-relation** argument. Both arguments can be specified on the same instance of the handler.

-depth=depth of traversal

Specifies the depth of traversal for an assembly. Specify **all** to traverse all levels. If not specified, the default value is 1.

-rev_rule=revision-rule-to-apply

Defines the name of the revision rule to be applied for BOM traversal. If not supplied, the default revision rule would be used

-relation=relation-type-to-look

Finds the objects attached to the target objects with the given relation. The value must be a valid relation.

Specifies whether a relation is used to locate secondary objects. The relation of the objects to be attached to the target object. Must be a valid relation.

To specify manifestation, use **IMAN_manifestation**.

For specification use **IMAN_specification**.

For requirement use **IMAN_requirement**.

For reference use **IMAN_reference**.

For BOM views use **PSBOMViewRevision**.

This argument works in conjunction with **-include_related_type**, and **-exclude_related_type** arguments. This argument can be used together with the **-process_assembly** argument. Both arguments can be specified on the same instance of the handler.

-include_related_type=type-of-related-components-to-be-included

Defines the types of related component objects to be included as targets and/or references.

- Must be valid workspace object types. For example: **ItemRevision** and **ITEM**.
- If this argument is specified as **Dataset**, any type of dataset (**UGMASTER**, **UGPART**, **Text**, and so on) is considered.
- If this argument is specified as **ItemRevision**, any type of item revision (**DocumentRevision** and any custom item revision types) is considered.

This argument works in conjunction with **-process_assembly** and **-relation** arguments.

This argument is optional.

-exclude_related_type=type-of-related-components-to-be-excluded

Defines the types of related component objects to be excluded from being adding as targets and/or reference.

- Must be valid workspace object types. For example: **ItemRevision** and **ITEM**
- If this argument is specified as **Dataset**, any type of dataset (**UGMASTER**, **UGPART**, **Text**, and so on) is considered.
- If this argument is specified as **ItemRevision**, any type of item revision (**DocumentRevision**, and so on, and any custom item revision types) is considered.

This argument works in conjunction with **-process_assembly** and **-relation** arguments.

This argument is optional.

Note:

The **-include_related_type** and **-exclude_related_type** arguments can be used in conjunction with each other. If used in conjunction, the **-include_related_type** argument takes precedence; first the objects are processed against **-include_related_type**, and then **-exclude_related_type**.

-include_replica

(Optional) Adds the parent's **Replica Proposed Targets** to the newly created subprocesses under these conditions:

- If the **-from_attach** argument specifies either **Target** or **ALL**, the **Replica Proposed Targets** are also attached to subprocess with the targets.
- If the **-to_attach** argument specifies **Target** and any of the qualified objects are replicas, they are attached as **Replica Proposed Targets** instead of targets.
- If the **-include_replica** argument is not used, the handler does not add the **Replica Proposed Targets** attachments to the subprocess.

-group_by_property

- Input attachments are grouped according to the property assigned such as **object_type** and **object_owner**. One subprocess is spawned for each group. Each subprocess has objects (attachments) in that group.
- When used with the **-multiple_processes** arguments, one subprocess is spawned for each target object.

This argument is optional, but must be used with **-from attach**.

PLACEMENT

Place in the **Start** or **Complete** action of a task template.

Note:

If you use the **-dependency** argument and the current task is dependent on the subprocess, you must place the handler on the **Start** action. If you place it on the **Complete** action, the **-dependency** argument causes an error.

The handler can be added multiple times to a task action to provide abilities such as using different workflow process templates per target object type or other combinations.

RESTRICTIONS

- When using **-relation** or **-process assembly**, the targets/reference attachments for the subprocess are processed based on the secondary related/assembly components of the parent target/reference attachments.
- If a user demotes a task that already created subprocesses, when the task gets activated again, it creates another subprocess. Depending on the user's choice, they should either delete the original subprocess or the new subprocess. Currently this is a manual step for the user.
- The **-depth** and **-rev_rule** arguments are used only when the **-process_assembly** argument is used. The **-exclude_related_type** and **-include_related_type** arguments are used only when **-process_assembly** or **-relation** is used.
- For the **group_by_property** argument, these p are not supported: **PROP_operationinput**, **PROP_unknown**, or properties containing multiple values, for instance, **array/list**.
- For the **group_by_property** argument, these property value types are not supported: **PROP_external_reference**, **PROP_untyped**.

EXAMPLES

The following examples illustrate how to configure the handler arguments. These examples illustrate creating a parent process template containing a **Do** task and adding the handler to the task to create a subprocess.

- The examples where the current task is dependent on the subprocess and that use the **-dependency** argument must be placed on the **Start** action.
- The examples without the **-dependency** argument can be placed on either the **Start** or **Complete** action of a task.

Note:

You can add this handler to any action from which you want to create the subprocess. Use the following examples to understand how to configure the handler arguments.

- This example launches a new process using the **Change Approval** template and sets the dependency between the parent process initiating task that starts a new subprocess and **SubProcess_001**. The task that initiates the new subprocess cannot be completed until **SubProcess_001** is completed. Place this handler on the **Start** action.

Argument	Values
-template	Change Approval
-dependency	::
-process_name	SubProcess_001

- The example creates a new workflow process using the **Change Approval** template with no attachments. The **-process_name** and **-process_desc** are optional.

Argument	Values
-template	Change Approval
-process_name	0006/A_Change Approval
-description	This is a demo description text

- This example creates a new workflow process on the **Change Approval** template by inheriting all the targets/reference attachments of the parent process as target/reference attachments, respectively, of the newly created workflow process. If the workflow process name is not defined, it generates a workflow process name for the child process in the *Parentprocess:count* format. The workflow process description is left blank.

Argument	Values
-template	Change Approval
-from_attach	ALL
-to_attach	ALL

- This example creates a new workflow process on the **Change Approval** template by inheriting all the target attachments of the parent process as target attachments for the subprocess.

Argument	Values
-template	Change Approval
-from_attach	TARGET
-to_attach	TARGET

- This example creates a new workflow process on the **Change Approval** template by inheriting all the attachments (target and reference) of the parent process as target attachments for the subprocess.

Argument	Values
-template	Change Approval
-from_attach	ALL
-to_attach	TARGET

- This example launches a new workflow process on the **Change Approval** template. All target and reference attachments of the **ItemRevision** and **UGMASTER** types of the parent process are attached as targets for the new process.

Argument	Values
-template	Change Approval
-from_attach	ALL
-to_attach	TARGET
-include_type	ItemRevision, UGMASTER

- This example launches a new workflow process on the **Change Approval** template. All objects (both target and reference attachments) of the **ItemRevision** and **UGMASTER** type of the parent process are attached as target and reference attachments respectively for the new workflow process.

Argument	Values
-template	Change Approval
-include_type	ItemRevision, UGMASTER
-from_attach	TARGET
-to_attach	ALL

- This example launches a new workflow process on the **Change Approval** template. All objects of the **ItemRevision** type of the parent process are excluded as targets for the new workflow process.

Argument	Values
-template	Change Approval
-from_attach	ALL

Argument	Values
-to_attach	TARGET
-exclude_type	ItemRevision

- This example launches a new workflow process on the **Change Approval** template by specifying the -**include_type** and -**exclude_type** arguments. It specifies the list of attachment types to be included in -**include_type** and the list of types to be excluded in -**exclude_type**. This argument launches a subprocess with only **ItemRevision**.

Argument	Values
-template	Change Approval
-from_attach	ALL
-to_attach	ALL
-include_type	ItemRevision
-exclude_type	UGMASTER

- This example launches a new workflow process on the **Change Approval** template and sets the dependency between the **DoChecklist** task in the **DesignReview** parent process and the **perform-signoffs** subtask of the **QA Review** task of the **Change Approval_001** subprocess. The **DoChecklist** task of the parent process cannot complete until the **perform-signoffs** task in the subprocess completes. Place this handler on the **Start** action.

Argument	Values
-template	Change Approval
-dependency	DesignReview:DoChecklist::Change Approval_001:QA Review:perform-signoffs

- This example launches a new workflow process using the **Change Approval** template. Because no path is specified for the parent process, the task containing this handler is used as the parent process task. A dependency is created between the task containing this handler and the **perform-signoffs** subtask of the **QA Review** task of the **Change Approval_001** subprocess. The task containing this handler cannot complete until the **perform-signoffs** task in the subprocess completes. Place this handler on the **Start** action.

Argument	Values
-template	Change Approval
-dependency	::Change Approval_001:QA Review:perform-signoffs

- This example launches new workflow processes on the **Change Approval** template. Each object instance of the **ItemRevision** type on target attachments of the parent process launches a new workflow process with that instance as target. For example, if the parent process has three **ItemRevision** objects as the target, three different workflow processes are launched.

Argument	Values
-template	Change Approval
-from_attach	ALL
-to_attach	TARGET
-include_type	ItemRevision
-multiple_processes	

- The following handler configuration looks for an assembly in the targets, configures it as per the **Latest Working** revision rule and starts multiple workflow processes on all its components.

Argument	Values
-template	Change Approval
-from_attach	TARGET
-to_attach	TARGET
-multiple_processes	
-process_assembly	
-depth	All
-rev_rule	Latest Working

- The following handler configuration starts a subprocess on the **UGMaster** dataset attached to the target objects with **Iman_specification** relation.

Argument	Values
-template	Change Approval
-from_attach	TARGET
-to_attach	TARGET
-multiple_processes	
-relation	Iman_specification
-include_related_type	UGMaster

- The following handler configuration looks for an assembly in the targets, configures it as per the **Latest Working** revision rule and starts multiple workflow processes on all its components. It also starts a subprocess on the objects that are attached to the target objects with the **Iman_specification** relation.

Argument	Values
-template	Change Approval
-from_attach	TARGET
-to_attach	TARGET
-multiple_processes	
-process_assembly	
-depth	All
-rev_rule	Latest Working
-relation	Iman_specification

- The following handler configuration starts a subprocess using the **Change Approval** template. All target objects of the **Dataset** type except for **MSWord** type objects are attached as targets to the subprocess.

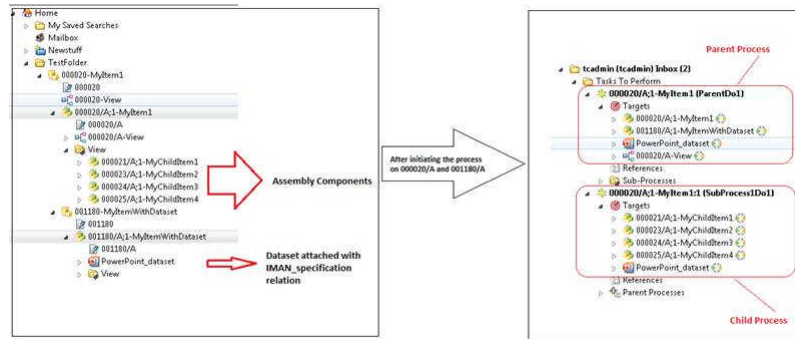
Argument	Values
-template	Change Approval
-from_attach	TARGET
-to_attach	TARGET
-include_type	Dataset
-exclude_type	MSWord

- The following configuration initiates the parent process on 000020/A (with assembly components) and 001180/A (with a dataset).

Argument	Values
-template	SubProcess1
-from_attach	ALL
-to_attach	ALL

Argument

Values

-relation**IMAN_specification****-process_assembly**

- The following handler configuration starts a subprocess using the **Change Approval** template. It spawns a Change Approval subprocess for each group formed.

Argument

Values

-template**Change Approval****-from_attach****ALL****-to_attach****ALL****-group_by_property****Object_type**

- The following handler configuration starts a subprocess using the **Change Approval** template. It spawns one **Change Approval** subprocess for each target object in each group. The subprocesses spawned are named per the value in the **-process_name** argument.

Argument

Values

-template**Change Approval****-from_attach****ALL****-group_by_property****Object_type****-to_attach****ALL****-multiple_processes****-process_name****newSubprocess**

RESTRICTIONS ON ARGUMENTS

These examples show how *not* to use this handler.

- Do not create a workflow process without specifying the **-template** name.

Argument	Values
-process_name	0006/A_Change Approval
-from_attach	TARGET
-to_attach	TARGET

- Do not create a workflow process with the **-multiple_processes** argument but not providing the **-from_attach** and **-to_attach** arguments.

Argument	Values
-template	Change Approval
-multiple_processes	

- Do not create a workflow process by only specifying either one of the arguments: **-from_attach** or **-to_attach**.

Argument	Values
-template	Change Approval
-from_attach	TARGET

EPM-debug

DESCRIPTION

Allows you to print information (for example, state, action, and arguments) about the last action triggered. Typically used for debugging.

SYNTAX

EPM-debug **-comment**=*string*

ARGUMENTS

-comment

Additional descriptive string appended to the action name.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

EXAMPLES

This example notifies the user when the **Complete** action runs by printing **Complete, action is executing** to the standard output device.

Argument	Values
-comment	action is executing

Note:

This example assumes you have attached this handler to a **Complete** action.

EPM-demote

DESCRIPTION

Clears all signoff decisions from the current and previous **Review** tasks. An optional argument allows the user to specify the task name that the workflow process is demoted to.

SYNTAX

EPM-demote [-target_task=*task-name*]

ARGUMENTS

-target_task

Specifies to which previous task the workflow process is demoted. Must specify a valid task in the current workflow process.

If this argument is not specified, the workflow process is demoted to the previous task.

PLACEMENT

None.

RESTRICTIONS

None.

EXAMPLES

This example shows how to demote the workflow process to the task named **design**.

Argument	Values
-target_task	design

EPM-demote-on-reject

DESCRIPTION

Demotes the current task to the previous task, or to the task specified on the **-target_task** argument of the **EPM-demote** handler placed on the **Undo** action of the current task.

By default, the handler checks the approval quorum requirements at each rejection and demotes the task when the quorum limit cannot be met. Consider a **perform-signoffs** task assigned to seven reviewers with an approval quorum of three. The first four rejections do not demote the task. The fifth rejection, which would prevent the approval quorum of three from being met, demotes the task.

You can override the default behavior and specify the number of rejections required to demote the workflow process using the **-num_rejections** argument. Using the above example, override the quorum requirement by setting this argument to **2**. The task demotes on the second rejection, instead of the fifth.

To set the number of rejections needed to the number where the quorum cannot be met, set **-num_rejections** to **-1**. Using the above example of seven reviewers with a quorum of three, the **-1** value sets the required number of rejections to five. When five rejections are recorded, the task is demoted.

Note:

This handler takes precedence if success and failure paths exist.

SYNTAX

EPM-demote-on-reject [**-num_rejections**=*number-of-rejections*]

ARGUMENTS

-num_rejections

Number of rejections required to demote the task.

Specifying **-1** reads the approval quorum value and demotes the task when the number of rejections recorded makes it no longer possible to meet the quorum.

This argument is optional.

PLACEMENT

Place on the **Perform** action of the **perform-signoffs** subtask of a **Review** task.

RESTRICTIONS

This handler assumes that all target objects, reference objects, and status types are attached to the root task.

EXAMPLES

- This example demotes a process when the number of rejections exceed the quorum limit:
EPM-demote-on-reject
- This example demotes a process when the second rejection is received:


Argument	Values
-num_rejections	2

- This example demotes a process when the number of rejections recorded prevents the quorum from being met. For example:
 - If there are two reviewers and a quorum of one, both reviewers would have to reject the signoff.
 - If there are three reviewers and a quorum of two, two reviewers would have to reject the signoff.
 - If there are four reviewers and a quorum of two, three reviewers would have to reject the signoff.

Argument	Values
-num_rejections	-1

EPM-display-form

DESCRIPTION

Displays specified forms attached to a specified *custom* task , which is an instance of the **EPMTaskTemplate**. By default, all attachments of the **FormType** object attached to the current task are displayed.

The custom task template is used to define custom forms and other site-specific tasks for the user to complete and is designed to accept customization. This template contains no innate customized interface behavior.

Note:

Do not use this handler on other task templates, such as **Do**, **Review**, and **Route**. Other task templates have their own user interface that overrides any attached forms. The task templates either are not meant to display a customized interface (such as the **Add Status** task template) or already have customized interface behavior assigned (such as the **Review** and **Route** task templates).

For example, the **Do** task template already has customized interface behavior assigned. While form handlers can be added to the **Do** task template, the template's original interface behavior is displayed, not the forms. If the default display required is a customized form, use an instance of the custom task template.

The default **Perform** action for any template can be overridden using the **.properties** file. It is more effective, however, to use the task template when the required default **Perform** action is the display of forms.

Configuring a task to display forms using EPM-display-form, EPM-hold, and EPM-create-form

To configure a task to display a form when a user performs a specified action, use the **EPM-hold** handler. This handler pauses the task, requiring the user to perform an action on the task before the task can complete. If this handler is not used, a task completes automatically once started.

To create an instance of a specified form and attach the form to the specified task, use the **EPM-create-form** handler.

The **EPM-create-form** handler creates the form when the **Start** action is initiated, the **EPM-display-form** handler displays the form when the **Perform** action is initiated, and the **EPM-hold** handler prevents the task from automatically completing, allowing the form to be completed by the user.

Variations on the above example may be required for a more sophisticated interaction when it is required that the task not complete until required fields are entered in the form. This type of configuration requires the creation of customized rule handlers.

SYNTAX

EPM-display-form **-type**=*form-type* [**-source_task**=*task-name.attachment-type*]

ARGUMENTS

-type

Valid **FormType** object.

-source_task

Form to be displayed. The default values for this optional argument are reference attachments of the **FormType** attached to the current **task_name**.

attachment-type

Accepts one of the following reserved keywords:

- **\$REFERENCE**
Reference attachments
- **\$TARGET**
Target object attachments
- **\$SIGNOFF**
Signoff attachments
- **\$RELEASE_STATUS**
Release status attachments

PLACEMENT

Requires no specific placement. Typically placed on the **Perform** action of a task. If this task has no other perform user interface, the form is used as its **Perform** action user interface.

RESTRICTIONS

None.

EXAMPLES

This example lists handler definitions to be entered on a task template to display customized forms:

- On the **Start** action: **EPM-create-form**

Argument	Values
-type	ItemRevision Master
-name	MyForm
-target_task	\$ROOT.\$REFERENCE

- On the **Perform** action: **EPM-display-form**

Argument	Values
-type	ItemRevision Master
-source_task	\$ROOT.\$REFERENCE

- On the **Complete** action: **EPM-hold**

Argument	Values
true	

EPM-execute-follow-up

DESCRIPTION

Runs a specified ITK program. During the ITK execution the parameter internally passed to the executable is **-zo=object**, where *object* is the tag of the workflow process in string format.

You can use the process tag in the ITK program by retrieving the **-zo** argument as shown in the sample program below. You can then use the POM tag to obtain process attachments, references, signoffs, and so on, using ITK functions.

Note:

The ITK executable must be placed in the *TC_ROOT/bin* folder of the Teamcenter installation.

By default, this handler is placed on the **Complete** action of the **Review** task. If left unset, no action is taken.

Note:

The user is already authenticated in the instance of the same Teamcenter server. For this reason, the code does not perform the login process again and auto login flags are not checked.

SYNTAX

EPM-execute-follow-up **-command=argument**

ARGUMENTS

-command

A valid ITK program name.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

The ITK executable must be placed in the *TC_ROOT/bin* folder of the Teamcenter installation.

EXAMPLES

This sample code converts the argument output **-zo=process_tag** from a string to a POM tag. Use the POM tag to obtain process attachments, references, signoffs, and so on, using ITK functions.

```

/* Sample code; file: test_itk_main.c */
#include tc.h
#include pom.h
int ITK_user_main(
    int argc,          /* I number of command line arguments */
    char* argv[]       /* I list of command line arguments */
)
/*
 * Description: This program is a follow-up action.
 */
{
    int ifail = ITK_ok;
    tag_t job_tag = NULLTAG;
    char* job_tag_string = 0;
    ITK_initialize_text_services (ITK_BATCH_TEXT_MODE);
    if ( (ifail = ITK_auto_login ()) != ITK_ok)
    {
        printf ("ERROR: login failed - error code = %d\n",ifail);
        return ( ifail );
    }
    printf("Get process tag string ...\n"); fflush(stdout);
    job_tag_string = ITK_ask_cli_argument("-zo=");
    if (!job_tag_string)
    {
        printf ("ERROR: no process tag string passed\n");
        ITK_exit_module(TRUE);
        return 1;
    }
    printf("process tag string = %s\n", job_tag_string);
    fflush(stdout);
    printf("Convert process tag string to process tag ...\n");
    fflush(stdout);
    if ( (ifail = POM_string_to_tag(job_tag_string, &job_tag))
        != ITK_ok)
    {
        printf ("ERROR: POM_string_to_tag failed - error code
            = %d\n",ifail);
        return ( ifail );
    }
    /* start required code here */
    /* Use the process tag to get attachments, references,
       signoffs etc */
    /* ... */
    /* end required code here */
}

```

EPM-fill-in-reviewers

DESCRIPTION

Automatically assigns signoff reviewers that meet specified user, group, or role criteria for the specified **Review** task. This criteria populates the signoff profiles.

This handler compares the assigned user with the profile definition in the corresponding **select-signoff-team** task. If the assigned user does not match the profile definition, automatic assignment does not occur and the **select-signoff-team** task must be performed manually.

If the **-required** argument is specified; the signoffs will be added as required signoffs which cannot be altered by users.

If the **-condition_name** argument is specified; the handler will add the reviewers only if the condition is met.

Note:

A user is added to **select-signoff-team** task as a reviewer only once. If the same user participates in multiple signoff profiles, use the value **resourcepool:group::role** with the **-assignee** argument.

SYNTAX

EPM-fill-in-reviewers

```
-assignee= [user:user | person:person | addresslist:list
| resourcepool:group::role | allmembers:group::role
| user:PROP::property_name
| resourcepool:PROP::property_name
| allmembers:PROP::property_name
| $PROPOSED_RESPONSIBLE_PARTY | $PROPOSED_REVIEWERS | $USER
| $PROCESS_OWNER | $TARGET_OWNER [type]
| $PROJECT_ADMINISTRATOR
| $PROJECT_TEAM_ADMINISTRATOR
| $PROJECT_AUTHOR | $PROJECT_MEMBER[group::role]
| $REQUESTOR | $ANALYST
| $CHANGE_SPECIALIST1 | $CHANGE_SPECIALIST2 | $CHANGE_SPECIALIST3
| $CHANGE_REVIEW_BOARD | $CHANGE_IMPLEMENTATION_BOARD]
[-from_include_type=object-type1[,object-type2,...]]
[-from_exclude_type=object-type1[,object-type2,...]]
[-from_attach= target | reference | schedule_task]
[-from_relation=relation-type]
[-from_include_related_type=object-type1[,object-type2,...]] |
[-from_exclude_related_type=object-type1[,object-type2,...]]
[-add_excess_as_adhoc]
[-target_task=review-task-name | multilevel-task-path]
[-required]
```

```
[-project_scope=all | owning_project]
[-check_first_object_only=true | false]
[-condition_name=condition1]
[-condition_scope=all | any | none]
```

ARGUMENTS

-assignee

Assigns the specified users, role members, group members, and/or resource pool members to the signoff team.

- **user:user**
Adds the user specified to the signoff member list for the task to which it is attached. Accepts a valid Teamcenter user ID.
- **person:person**
Adds the user whose name is specified to the signoff member list for the task to which it is attached. Accepts a valid Teamcenter person name.

Note:

If the person's name includes a comma, you must include an escape character (\) to add the correct person. For example, to use **wayne, joan**:

```
-assignee=person:wayne\, joan
```

- **addresslist:list**
Adds all members of the address list specified to the signoff member list.
- **resourcepool:group::role**
Results in a single assignment which can be performed by any single member of this group/role. You can define resource pools in the form of *group::*, *group::role*, or *role*.

Note:

When a resource pool task is performed by a user it is automatically claimed by that user. If that task is a **Review** task and it is started again, the task is assigned to the user who performed it in the previous iteration, rather than the resource pool.

Accepts valid Teamcenter resource pool names and these keywords:

- **\$GROUP**
Current user's current group.

- **\$ROLE**
Current user's current role.
- **\$TARGET_GROUP[type]**
Owning group of the first target object of the specified type. The *type* value is optional. If not specified, the first target is used.
- **\$PROCESS_GROUP**
Owning group of the workflow process.

Note:

The **\$ROLE_IN_GROUP** keyword (formerly **\$ROLEINGROUP**) cannot be used. Use **resourcepool:\$GROUP::\$ROLE** instead.

- **allmembers:group::role**
Adds all members of a group/role combination to the signoff member list. You can define role in groups in the form of *group::*, *group::role*, or *role*. Accepts valid Teamcenter resource pool names and these keywords:
- **\$GROUP**
Current user's current group.
- **\$ROLE**
Current user's current role.
- **\$TARGET_GROUP[type]**
Owning group of the first target object of the specified type. The *type* value is optional. If not specified, the first target is used.
- **\$PROCESS_GROUP**
Owning group of the workflow process.
- **user:PROP::property_name**
Adds the user specified by the property name to the signoff member list for the task to which it is attached.
If the property is a multi-value property, only the first value is used when only a single user is assigned in the workflow. When more than one user is assigned, all property values are used.
- **resourcepool:PROP::property_name**
Adds the resource pool specified by the property name to the signoff member list for the task to which it is attached.
If the property is a multi-value property, only the first value is used when only a single user is assigned in the workflow. When more than one user is assigned, all property values are used.
- **allmembers:PROP::property_name**

Adds all members of a group/role combination that is specified by the property name to the signoff member list.

If the property is a multi-value property, only the first value is used when only a single user is assigned in the workflow. When more than one user is assigned, all property values are used.

- **\$PROPOSED_RESPONSIBLE_PARTY**

Affects assignments based on the user assigned as the responsible party for the first target object.

- **\$PROPOSED_REVIEWERS**

Affects assignments based on members assigned as reviewers for the first target object.

- **\$USER**

Adds the current user to the signoff member list.

If **\$USER** is used, and the current user belongs to several groups and roles, the behavior of the **\$USER** keyword depends on the value of the **SIGNOFF_fill_in_reviewers** preference, as follows:

- **1**

Attempts to match the current user's group/role values with the profile first, default values second, then any other groups/roles of which the current user is a member. This is the default setting.

- **2**

Attempts to match the current user's group/role values first, default values of which the current user is a member second.

- **3**

Attempts to match the current user's group/role values.

- **\$PROCESS_OWNER**

Adds the workflow process owner to the signoff member list.

- **\$TARGET_OWNER [type]**

Adds the owner of the first target of specified type to the signoff member list. The *type* value is optional. If not specified, the first target is used.

- **\$PROJECT_ADMINISTRATOR, \$PROJECT_TEAM_ADMINISTRATOR, \$PROJECT_AUTHOR, \$PROJECT_MEMBER[group::role]**

Dynamically adds the project team members belonging to the role specified in the argument value. The project team is determined by the project team associated with the first target object. If the **\$PROJECT_MEMBER[group::role]** argument is specified, only the project members of the qualifying projects which belong to the specified group and role are selected for assignment. If the group and role are not specified, all the project members from qualifying projects are selected.

You can specify a sub-group with the syntax *group++sub-group::role*.

- **\$REQUESTOR, \$ANALYST, \$CHANGE_SPECIALIST1, \$CHANGE_SPECIALIST2, \$CHANGE_SPECIALIST3, \$CHANGE_REVIEW_BOARD, \$CHANGE_IMPLEMENTATION_BOARD**

Dynamically resolves to the user or resource pool associated with the first Change target object in the process. The particular user or resource pool is determined by the role specified in the argument value.

Note:

Change-related keywords apply only to change objects. If the process does not contain a change object as a target, the argument resolves to null.

Change Manager does not need to be enabled before these keywords take effect, but during installation, **Change Management** must be selected under **Extensions**→**Enterprise Knowledge Foundation** in Teamcenter Environment Manager.

-from_include_type=object-type1[,object-type2,...]

(Optional) Specifies the object types to be used to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**).

-from_exclude_type=object-type1[,object-type2,...]

(Optional) Specifies the object types to be excluded when getting the property value when it is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**).

-from_attach= target | reference | schedule_task

(Optional) Specifies which type of attachment (**target**, **reference**, or **schedule_task**) to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). If this argument is not specified, the default is **target**.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**).

-from_relation

(Optional) Specifies the relation of the objects to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). It must be a valid relation.

- For manifestations, use **IMAN_manifestation**.
- For specifications, use **IMAN_specification**.

- For requirements, use **IMAN_requirement**.
- For references, use **IMAN_reference**.
- For BOM views, use **PSBOMViewRevision**.

This argument must be used with the **-from_attach** argument. A derived object is identified by starting with objects of the specified attachment type indicated by the **-from_attach** argument and then locating the first secondary object with the specified relation indicated by the **-relation** argument.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**).

-from_include_related_type=object-type1[,object-type2]

(Optional) Specifies the related object types to be used to get the property value from when a property is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**) and you use the **-from_relation** argument.

This argument should not be used with the **-from_exclude_related_type** argument.

-from_exclude_related_type=object-type1[,object-type2]

(Optional) Specifies related object types to be excluded when getting the property value when it is specified in the **-assignee** argument (for example, **-assignee=user:PROP::property_name**). They must be valid object types.

You can use this argument only when you get the assignee from a property on an object (**user:PROP::** or **resourcepool:PROP::**) and you use the **-from_relation** argument.

This argument should not be used with the **-from_include_related_type** argument.

-add_excess_as_adhoc

(Optional.) Adds the rest of the assignees as ad hoc users if the profile is satisfied.

-target_task

(Optional) Specifies either the single **Review** task name or multilevel task path to which the reviewers are added. The path is from the root task to the **select-signoff-team** subtask with the path levels separated with colons (:). For example: **Change Request Review:QA Review:select-signoff-team**

-required

(Optional) If specified, all signoffs added through this handler instance are marked as mandatory.

-project_scope

(Optional) Specifies which projects are used to resolve project-based assignments. The **all** value specifies all projects in the list of projects. The **owning_project** value specifies the owning project only.

If this argument is not specified, the default value is the first project in the project list.

-check_first_object_only

(Optional) The **true** value specifies that only the first object is checked. If the value is **false**, all objects are checked. If this argument is not specified, or if it is specified without a value, only the first object is checked.

If the **-include_type**, **-exclude_type**, **-include_related_type**, or **-exclude_related_type** arguments are specified, they determine the types of objects that are checked.

-condition_name

(Optional) The name of the condition to evaluate against the objects identified for assigning reviewers from. The condition signature should accept a **WorkspaceObject & UserSession**. The handler assigns the reviewers only if the condition results are successful, based on the **-condition_scope** argument.

-condition_scope

(Optional) The criteria for evaluating condition results against workflow objects. Values are the following:

all	All objects should meet the condition. This is the default behavior if this argument is not supplied with the -condition_name argument.
any	Any object should meet the condition.
none	No object should meet the condition.

PLACEMENT

Place either on the **Start** action of the relevant **select-signoff-team** task or on the root task with the **-review_task_name** argument.

RESTRICTIONS

Use only with the **select-signoff-team** task or on the root task.

EXAMPLES

- This example designates the user **tom** and all members of the **engineering** group as reviewers for the **Review** task called **Review Task 1**.

Argument	Values
-assignee	user:tom, allmembers:engineering::
-target_task	\$ROOT.Review Task 1

- This example shows the current user added as a reviewer.

Argument	Values
-assignee	user:\$USER
-target_task	Review Task 1

- This example designates members assigned as reviewers for the first target object as reviewers for the **Review** task called **Review Task 1**.

Argument	Values
-assignee	\$PROPOSED_REVIEWERS
-target_task	Review Task 1

- This example designates user **tom**, all the members of the **Engineering** group, and the **REQUESTOR** associated with the first change target object as reviewers for the **Review** task named **Review Task 1**.

Argument	Values
-assignee	user:tom, allmembers:engineering::\$REQUESTOR
-target_task	Review Task 1

If the handler with these arguments is specified on the **Notify** task under the **Route** task, the signoff attachments are added to the **Notify** task and used for sending notifications.

- This example assigns all members of the **Engineering** group and **Designer** role of the first project team associated with the first target found by the system to the signoff team as optional signoffs.

Argument	Values
-assignee	\$PROJECT_MEMBER[Engineering::Designer]

- This example assigns all members of the **Engineering** group and **Designer** role of the owning project team associated with the first target found by the system to the signoff team as optional signoffs.

Argument	Values
-assignee	\$PROJECT_MEMBER[Engineering::Designer]
-project_scope	owning_project
-check_first_object_only	

- This example assigns all members of the **Engineering** group and **Designer** role of all project teams associated with the first target found by the system to the signoff team as required signoffs.

Argument	Values
-assignee	\$PROJECT_MEMBER[Engineering::Designer]
-project_scope	all
-check_first_object_only	true
-required	

- This example assigns all members of the **Engineering** group and **Designer** role of the first project team associated with each target found by the system to the signoff team as optional signoffs.

Argument	Values
-assignee	\$PROJECT_MEMBER[Engineering::Designer]
-check_first_object_only	false

EPM-inherit

DESCRIPTION

Inherits specified attachment types from a specified task.

SYNTAX

EPM-inherit -task=\$PREVIOUS | \$CALLER | \$ROOT
-attachment=target | reference | signoffs

ARGUMENTS

-task

Task that contains the attachments to be inherited. Choices are the **\$PREVIOUS** task, the parent task (**\$CALLER**) or the **\$ROOT** task. You can use multiple values by separating them with commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference.

-attachment

Attachment types that are inherited from the tasks specified in the **-task** argument. Choices are **target**, **reference**, or **signoffs**. You can use multiple values by separating them with commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

EXAMPLES

- This example copies the reference attachments from the parent task to the current task.

Argument	Values
-task	\$CALLER
-attachment	reference

- This example copies the signoffs from the previous task and the targets from the root task to the current task. The handler is placed on the **perform-signoffs** subtask of the second **Review** task.

Argument	Values
-task	\$PREVIOUS, \$ROOT
-attachment	signoffs, target

EPM-invoke-system-action

DESCRIPTION

Runs an external command (specified with the **-command** argument) such as Perl scripts, shell scripts, or external ITK programs, then continues or halts the workflow process based on the return code of the external command.

Use this handler for increased control of the workflow process. For example, to synchronize NX attributes and structure with Teamcenter, or to generate JT tessellation from CAD files.

This handler writes workflow process-related information to an XML file. The file is passed to the external script/program as **-f XML-file-name**. APIs are provided (in the form of Perl modules) to read the XML file and perform functions on its data objects. The APIs are located in the **Workflow.pm** file in the **TC_ROOT/bin/tc** directory.

Write Perl scripts (for example, **TC_ROOT/bin/tc_check_renderings.pl** for background tessellation of CAD data) using the provided APIs to read the XML file and perform required functions on its data objects. Then use the Perl script as the value of the **-command** argument (for example, **-command=perl-script-name**) in the workflow process template.

Note:

Siemens Digital Industries Software recommends you place the Perl scripts in the **TC_ROOT/bin** folder.

Alternatively, you can place the script in an alternate location and provide an absolute path to the location (for example, **c:\temp\test.bat**). However, using an absolute path requires that you update the template if there are any changes. In the previous example, **c:\temp\test.bat** is a path on a Windows platform. If you were to change to a Linux platform, the template would need to be updated. This second method is not recommended.

The handler returns a code that is mapped to:

- **ITK_ok** when the external script returns **0** and no other errors are returned
- **CR_error_in_handler** in all other cases

SYNTAX

```
EPM-invoke-system-action -command=name-of-the-external-program
[-trigger_on_go= [TASK:]ACTION] [-trigger_on_nogo= [TASK:]ACTION]
[-trigger_on_undecided= [TASK:]ACTION] [-skip_unreadable_objs]
[-change_status_on_go=[[old-status-name]:[new-status-name]]]
[-change_status_on_nogo=[[old-status-name]:[new-status-name]]]
[-change_status_on_undecided=[[old-status-name]:[new-status-name]]]
[-add_occurrence_notes] [-comment=comment]
```



```
[-responsible_party= User:responsible-party[; Task:task-name]]
[-reviewer=User:user-id] [; Group:group] [; Role:role] [; Level:level]]
[-send_mail=user-ids] [-initiate_process]
[-where_used=itemrevtype] [-expand=itemrevtype]
[-list_sibling_processes=wildcarded-procname]
[-depth=maximum-recursion-depth] [-debug]
```

ARGUMENTS

-command=*name-of-the-external-program*

Name of the external executable. This executable can be an external Perl script that reads and modifies the XML file written by this handler, or an ITK program to perform specific functionality.

This argument is required.

-trigger_on_go= [TASK:]ACTION

Triggers an action in the same workflow process when **EPM_go** is returned.

Trigger an action in another task by specifying an action and task name. If another task name is unspecified, the specified action in the current task is triggered.

The system supports the following actions:

ASSIGN, START, PERFORM, COMPLETE, SUSPEND, RESUME, SKIP, ABORT, REFUSE, UNDO, REJECT, APPROVE, PROMOTE, DEMOTE.

Action names are not case sensitive.

Task names cannot contain a colon or a period. If the task name is ambiguous (for example, **select-signoff-team**), hierarchical notation is required.

This argument is optional.

-trigger_on_nogo= [TASK:]ACTION

Triggers an action in the same workflow process when **EPM_nogo** is returned.

Trigger an action in another task by specifying an action and task name. If another task name is unspecified, the specified action in the current task is triggered.

The system supports the following actions:

ASSIGN, START, PERFORM, COMPLETE, SUSPEND, RESUME, SKIP, ABORT, REFUSE, UNDO, REJECT, APPROVE, PROMOTE, DEMOTE.

Action names are not case sensitive.

Task names cannot contain a color or period. If the task name is ambiguous (for example, **select-signoff-team**), hierarchical notation is required.

This argument is optional.

-trigger_on_undecided= [TASK:]ACTION

Triggers an action in the same workflow process when **EPM_undecided** is returned.

Trigger an action in another task by specifying an action and task name. If another task name is unspecified, the specified action in the current task is triggered.

The system supports the following actions:

ASSIGN, START, PERFORM, COMPLETE, SUSPEND, RESUME, SKIP, ABORT, REFUSE, UNDO, REJECT, APPROVE, PROMOTE, DEMOTE.

Action names are not case sensitive.

Task names cannot contain a color or period. If the task name is ambiguous (for example, **select-signoff-team**), hierarchical notation is required.

This argument is optional.

-skip_unreadable_objs

Unreadable objects are not processed. The handler does not attempt to write information about unreadable objects into the XML file; the objects are skipped.

If this argument is not specified, the handler displays an error when a failure occurs when there is no read access.

-change_status_on_go=[[old-status-name]:[new-status-name]]

Adds, removes or changes the status of attachments when **EPM_go** is returned.

Both the old and new status names are optional.

- If both status names are specified, the new status name replaces the old status name.
- If only the new status name is specified, the corresponding status is added.
- If only the old status name is specified, the corresponding status name is removed.
- If neither status name is specified, no action is taken.

If a value is not provided for this argument, the value set by the external Perl script is read.

-change_status_on_nogo=[[old-status-name]:[new-status-name]]

Adds, removes, or changes the status of attachments when **EPM_nogo** is returned.

Both the old and new status names are optional.

- If both status names are specified, the new status name replaces the old status name.
- If only the new status name is specified, the corresponding status is added.
- If only the old status name is specified, the corresponding status name is removed.
- If neither status name is specified, no action is taken.

If a value is not provided for this argument, the value set by the external Perl script is read.

-change_status_on_undecided=[[*old-status-name*]:[*new-status-name*]]

Adds, removes or changes the status of attachments when **EPM_undecided** is returned.

Both the old and new status names are optional.

- If both status names are specified, the new status name replaces the old status name.
- If only the new status name is specified, the corresponding status is added.
- If only the old status name is specified, the corresponding status name is removed.
- If neither status name is specified, no action is taken.

If a value is not provided for this argument, the value set by the external Perl script is read.

-add_occurrence_notes

Sets occurrence notes of target assemblies. Can be used in combination with the **-expand** argument to set **OccurrenceNotes** for components of assembly structures.

This argument is optional.

-comment=*comment*

The signoff decision is set depending on the return code of the external program:

- 0=Approve
- 1=Reject
- 2=No Decision

If a value is not provided for this argument, the value set by the external Perl script is read.

This argument is optional.

-responsible_party= **User**:*responsible-party*[; **Task**:*task-name*]

Assigns a responsible party. If no user ID is specified for this argument, the value set by the external Perl script is read.

This argument is optional.

-reviewer=[User:user-id] [; Group:group] [; Role:role] [; Level:level]

Assigns a reviewer for a release level. If no reviewer is specified for this argument, the value set by the external Perl script is read.

This argument is optional.

-send_mail=user-id[,user-id,...]

Sends target, reference, or sibling objects through the program mail. If one or more user IDs are defined for this argument, the workflow process is sent to the specified users through the program mail.

Separate multiple user IDs with a space, a comma, or the character specified by the **EPM_ARG_target_user_group_list_separator** preference.

If no user IDs are defined for this argument, the recipients and the contents of the envelope set by the external Perl script are read.

This argument is optional.

-initiate_process

Initiates a workflow process for another object. Target objects are defined by the values set by the external Perl script.

This argument is optional.

-where_used=itemrevtype

Reports the where-used of item and item revision target attachments by writing the hierarchy of all parent and grandparent assemblies of item and item revision target attachments into the XML file to allow the external Perl script to perform required functions.

If an item revision type is specified, the type argument is compared to the corresponding item revision type. For example, **ItemRevision** matches objects of the type **Item**.

If an item revision type is specified, the parent assemblies of only those target attachments that match this type are listed.

This argument is optional.

-expand=itemrevtype

Reports the assembly of item and item revision target attachments by writing the hierarchy of all child and grandchild components of item and item revision target attachments into the XML file to allow the external Perl script to perform required functions.

If an item revision type is specified, the type argument is compared to the corresponding item revision type. For example, **ItemRevision** matches objects of the type **Item**. The assembly structure is expanded for all item revisions of all matching item target attachments.

If an item revision is specified, the child components of only those target attachments are listed that match this type.

This argument is optional.

-list_sibling_processes=wildcarded-procname

Writes information regarding processes that belong to the same change item into the XML file to allow the external Perl script to perform required functions. The information concerns processes sharing the same change item as reference attachment.

If a process template name is specified in the procedure definition, only the processes that match the procedure name are included.

This argument is optional.

-depth=maximum-recursion-depth

Increases the maximum incursion depth. The **-trigger_on_go** or **-initiate_process** arguments could cause the triggered action to use the same handler in a deeper level of recursion. If this is what you intend, you must set the maximum level of recursion to the desired number. If necessary, it can be disabled by setting it to **0**. The default is set to **1**, to avoid infinite loops.

This argument is optional.

-debug

Enables debugging. Each occurrence of this argument increases the debug level by one. Debug messages are written to the Teamcenter error stack for display in the rich client user interface, as well as written to the **syslog** file.

This argument is optional.

PLACEMENT

Place on the **Start** or **Complete** action of any task. If this handler is configured to set the signoff decisions on a **perform-signoffs** task (for example, if the **-comment** argument is specified), then place on the **Complete** action of the **perform-signoffs** task.

RESTRICTIONS

- Do not add to a workflow process containing *any* handler using resource pools.
- You cannot use the **-trigger_on_go** argument to start a task if any of the tasks previous to it in the workflow process are not complete.

EXAMPLES

- This example shows how to run the **tc_check_renderings_pl** script using the **-command** argument. Do not list the file extension in the value. This value runs either the **tc_check_renderings_pl.bat** (Windows) or **tc_check_renderings_pl** (Linux) script, depending on which platform the server is running.

Note:

The script should be placed in the *TC_ROOT/bin* directory.

Argument	Values
-command	tc_check_renderings_pl

- This example shows how to run the **test_action.bat** script in a Windows system. The script is the following:

```
set rc=2
echo %rc% >> c:\temp\test.log
exit 0
```

It is used in the following workflow process:



Create one signoff profile for the **Review** task and place the **EPM-invoke-system-action** handler on the **Complete** action of the **Review** task with the following arguments:

Argument	Values
-command	c:\temp\test_action.bat
-expand	
-debug	

- This example shows how to run the **test_action** script in a Linux system. The script is the following:

```
#!/bin/sh
rc=2
export rc
```

```
echo $rc > /tmp/test.log
exit $rc
```

It is used in the following workflow process:



Create one signoff profile for the **Review** task and place the **EPM-invoke-system-action** handler on the **Complete** action of the **Review** task with the following arguments:

Argument	Values
-command	/tmp/test_action
-expand	
-debug	

- This example, placed on the **Complete** action of the **perform-signoffs** task, runs the **tc_check_install_assembly_pl** script using the **-command** argument. The script looks at a vehicle structure and checks to ensure each component has:
 - A valid release status for the structure development stage and not **In Process**.
 - All occurrences are precise and have an occurrence note indicating its usage at this stage.
 - Every target attachment is a component of only one multilevel product item.

If the target of the original workflow process is a component of only one multilevel product item, the **-initiate_process** argument starts the **Initiate VPPS** workflow process specified in the Perl script and attaches the vehicle as a target and its work orders as references.

Note:

The script is in the **sample\task_handlers** directory and should be placed in the **TC_ROOT/bin** directory.

Argument	Values
-command	tc_check_install_assembly_pl
-initiate_process	

EPM-late-notification

DESCRIPTION

Serves as an initializer to store the specified members of the default recipient's list. Notification of a late task is triggered when the **Task Manager** daemon identifies the late task in a worklist. An email is then sent to the task's specified recipients, notifying the recipients that the task is late. The **Task Manager** daemon must have been installed using Teamcenter Environment Manager.

SYNTAX

EPM-late-notification

```
-recipient= | user | group
| $OWNER
| $REVIEWERS | $PROPOSED_REVIEWERS
| $RESPONSIBLE_PARTY | $PROPOSED_RESPONSIBLE_PARTY
| $UNDECIDED
| $PROJECT_ADMINISTRATOR
| $PROJECT_TEAM_ADMINISTRATOR
| $PROJECT_AUTHOR | $PROJECT_MEMBER
| $TARGET_OWNER | $PROCESS_OWNER
| $RESOURCE_POOL_ALL | $RESOURCE_POOL_NONE
| $RESOURCE_POOL_SUBSCRIBED
| $REQUESTOR
| $ANALYST
| $CHANGE_SPECIALIST1
| $CHANGE_SPECIALIST2
| $CHANGE_SPECIALIST3
| $CHANGE_REVIEW_BOARD
| $CHANGE_IMPLEMENTATION_BOARD | distribution-list
```

ARGUMENTS

-recipient

- *user*
Specifies a specific user. It must be the name of a valid Teamcenter user.
- *group*
Specifies a specific group. It must be the name of a valid Teamcenter group.
- **\$OWNER**
Specifies the task owner.
- **\$REVIEWERS**
Specifies all users who are reviewers in the same task level as the current reviewer.

- **\$PROPOSED_REVIEWERS**
Sends email to all members assigned as the proposed reviewers of the first target object in the workflow process.
- **\$RESPONSIBLE_PARTY**
Specifies the responsible party of the task.
- **\$PROPOSED_RESPONSIBLE_PARTY**
Sends email to the member assigned as the proposed responsible party of the first target object in the workflow process.
- **\$UNDECIDED**
Specifies the users who have not set the decision for the task.
- **\$PROJECT_ADMINISTRATOR**
\$PROJECT_TEAM_ADMINISTRATOR
\$PROJECT_AUTHOR
\$PROJECT_MEMBER

These values dynamically evaluate project team members belonging to the role specified in the argument value and send notifications to those members. The project team is determined by the project team associated with the first target object.

- **\$TARGET_OWNER**
Sends email to the target owner of the first target of the specified type.
The type value is optional. If it is not specified, the first target is used.
- **\$PROCESS_OWNER**
Sends email to the workflow process owner.
- **\$RESOURCE_POOL_ALL**
Specifies all the members of the resource pool.
This argument has an effect only when it is used along with **\$REVIEWERS**, **\$UNDECIDED**, or **\$RESPONSIBLE_PARTY**.
When this argument is used along with **\$REVIEWERS**, and if a resource pool is assigned as a reviewer, then email is sent to all the members of that resource pool.
When this argument is used along with **\$UNDECIDED**, and if a resource pool is assigned as a reviewer, and no signoff decision has been made for this resource pool assignment, then all members of that resource pool are notified.
When this argument is used along with **\$RESPONSIBLE_PARTY**, and if a resource pool is assigned as responsible party, then the email is sent to all members of that resource pool.
- **\$RESOURCE_POOL_NONE**
This argument has an effect only when it is used along with **\$REVIEWERS**, **\$UNDECIDED**, or **\$RESPONSIBLE_PARTY**.
When this argument is used along with **\$REVIEWERS** or **\$UNDECIDED**, and if a resource pool is assigned as a reviewer, then the email is not sent to members or subscribers of the resource pool.

When this argument is used along with **\$RESPONSIBLE_PARTY**, and if a resource pool is assigned as a responsible party, then the email is not sent to members or subscribers of resource pool.

- **\$RESOURCE_POOL_SUBSCRIBED**

Specifies the users who have subscribed to resource pool.

This argument has an effect only when it is used along with **\$REVIEWERS**, **\$UNDECIDED**, or **\$RESPONSIBLE_PARTY**.

When this argument is used along with **\$REVIEWERS**, and if a resource pool is assigned as a reviewer, then the email is sent to users are subscribed to the resource pool.

When this argument is used along with **\$UNDECIDED**, and if a resource pool is assigned as a reviewer and no signoff decision has been made for this resource pool assignment, then email is sent to users who are subscribed to the resource pool.

When this argument is used along with **\$RESPONSIBLE_PARTY**, and if a resource pool is assigned as a responsible party, then, the email is sent to users who are subscribed to the resource pool.

- **\$REQUESTOR, \$ANALYST, \$CHANGE_SPECIALIST1, \$CHANGE_SPECIALIST2, \$CHANGE_SPECIALIST3, \$CHANGE_REVIEW_BOARD, \$CHANGE_IMPLEMENTATION_BOARD**

Dynamically resolves to the user or resource pool associated with the first Change target object in the process. The particular user or resource pool is determined by the role specified in the argument value.

Note:

Change-related keywords apply only to change objects. If the process does not contain a change object as a target, the argument resolves to null.

Change Manager does not need to be enabled before these keywords take effect, but during installation, **Change Management** must be selected under **Extensions**→**Enterprise Knowledge Foundation** in Teamcenter Environment Manager.

- *distribution-list*

Specifies all members of the specified distribution list. This entry can either be the name of a valid address list, or any one of several keywords that represent a distribution list.

PLACEMENT

Place on the **Start** action.

When **\$REVIEWERS** or **\$UNDECIDED** is used as the key word, place on the **Start** action of the **perform-signoffs** task.

To add the **EPM-late-notification** handler to the task, select the task and the **Display the Task Attributes Panel**. Insert the duration and recipients.

RESTRICTIONS

None.

EXAMPLES

- This example builds a list of all users assigned as reviewers for the **perform-signoffs** task, along with the owner of the task, and sends email to them.

Argument	Values
-recipient	\$REVIEWERS, \$OWNER

- This example sends email to reviewers of the task who have not performed the signoff.

Argument	Values
-recipient	\$UNDECIDED

- This example sends email to user **Smith**, a distribution list (**VendorList**), and members of the **Purchase** group.

Argument	Values
-recipient	Smith, VendorList, Purchase

Note:

The **Task Attributes** shortcut menu in Workflow Designer populates the arguments to handler. However, you can insert the keywords argument using the **Task Handlers Panel**.

- This example represents a late notification email.

Subject:
Late Notification for <PROCESS_NAME/TASK_NAME>

Contents:
You have a late task in Teamcenter that requires attention. Details shared below:

Overview:
Process Name: <PROCESS_NAME>
Current Task: <TASK_NAME>
Due Date: <Due date for the task>
Instructions: <TASK_INSTRUCTIONS>

Select the preferred client to view the task:
<Link to Rich Client>
<Link to Active Workspace>

This email was sent from Teamcenter.

EPM-move-attached-objects

DESCRIPTION

Changes or copies workflow attachments from one attachment type to another. If the handler requires attaching replica objects as workflow targets, the handler attaches them as **Replica Proposed Targets**.

SYNTAX

EPM-move-attached-objects **-from_attach=attachment-type** **-to_attach=attachment-type**

[-include_type=comma-separated-type-list | -exclude_type=comma-separated-type-list]

[-copy]

ARGUMENTS

-from_attach

Specify one of the following attachment types from which the attached objects should be selected. This is a mandatory argument.

- **target**
- **reference**
- **problem_item**
- **solution_item**
- **impacted_item**

-to_attach

Specifies one of the following new attachment types for the attached objects. This is a mandatory argument.

- **target**
- **reference**
- **problem_item**
- **solution_item**
- **impacted_item**

-include_type

(Optional) Specifies the object types whose attachment type is to be changed. The handler changes the attachment type defined in the **-from_attach** argument of objects that are the types or their subtypes specified in this argument. Do not use this argument with the **-exclude_type** argument.

Separate multiple types with commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference.

-exclude_type

(Optional) Ignores the object types specified by this argument. Attachments to these objects are not changed by this handler. Do not use this argument with the **-include_type** argument.

Separate multiple types with commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference.

-copy

(Optional) Adds the attachments with the new relation defined by the **-to_attach** argument and leaves the attachments with the original relation. If this argument is not specified, the objects are removed from the attachment type specified by the **-from_attach** argument.

PLACEMENT

Place on the **Start** or **Complete** action of any task. Do not place on the **Perform** action.

RESTRICTIONS

None.

EPM-notify

DESCRIPTION

Informs users of a task's status through an email notification.

The **EPM-notify** handler can send notifications to users through Teamcenter mail and **OS** mail only if the **Mail_internal_mail_activated** preference is set to **True**.

The **-report** argument on the **EPM-notify-report** handler differentiates the **EPM-notify-report** handler from the **EPM-notify** handler. In the email notification, the **-report** argument appends a report describing the signoff data associated with the **perform-signoffs** task. Therefore, you should use the **EPM-notify-report** handler on the **perform-signoffs** task, whereas the **EPM-notify** handler is more generic and can be used on any type of task.

If you place the **EPM-notify** handler on the **Perform** action (**EPM_perform_action**), an email notification is sent each time a **Perform** sub-action is triggered. These multiple notifications can cause unnecessary processing.

For example, a handler on the **Perform** action is executed three times by the **Add Attachment** sub-action (**EPM_add_attachment_action**). If the handler is **EPM-notify**, reviewers receive the same notification at three different intervals.

In addition to **Add Attachment**, the **Perform** action can include the following sub-actions:

- **Remove Attachment** (**EPM_remove_attachment_action**)
- **Approve** (**EPM_approve_action**)
- **Reject** (**EPM_reject_action**)
- **Promote** (**EPM_promote_action**)
- **Demote** (**EPM_demote_action**)
- **Assign Approver** (**EPM_assign_approver_action**)

Use the **Mail_OS_from_address** preference to specify the **From** address displayed in the notification email. The preference value must be a valid email address.

When placed on the **Start** action of **perform-signoffs** task, the **EPM-notify** or **EPM-notify-report** handlers are automatically re-executed when a signoff is delegated.

Note:

Use caution when entering special characters into argument fields of notification handlers. Depending on your configuration and email client, using special characters and character entities in argument values may not display correctly in email notifications. These characters can interfere with the mail notification utility **tc_mail_smtp**, and should be tested before deployment.

SYNTAX**EPM-notify****-recipient=**

{OS:}*user-name*

| **user:***user*

| **person:***person* | **addresslist:***value*

| **resourcepool:***group::role*

| **allmembers:***group::role*

| \$USER

| \$REVIEWERS | \$PROPOSED_REVIEWERS

| \$RESPONSIBLE_PARTY

| \$PROPOSED_RESPONSIBLE_PARTY

| \$UNDECIDED

| \$PROJECT_ADMINISTRATOR |

| \$PROJECT_TEAM_ADMINISTRATOR

| \$PROJECT_AUTHOR | \$PROJECT_MEMBER[*group::role*]

| \$TARGET_OWNER | \$PROCESS_OWNER

| \$RESOURCE_POOL_ALL | \$RESOURCE_POOL_NONE

| \$RESOURCE_POOL_SUBSCRIBED

| \$REQUESTOR

| \$ANALYST

| \$CHANGE_SPECIALIST1

| \$CHANGE_SPECIALIST2

| \$CHANGE_SPECIALIST3

| \$CHANGE_REVIEW_BOARD

| \$CHANGE_IMPLEMENTATION_BOARD

[-subject=

string | \$TARGET | *string* \$TARGET *string* |

string | \$STATE | *string* \$STATE *string* |

\$PROCESS | *string* \$PROCESS *string* |

\$TASK | *string* \$TASK *string* |]

[-comment=*string*]

[-url = {rich | activeworkspace | none}]

[-attachment={target | process | reference}]

ARGUMENTS

Adds an attachment to Teamcenter mail and adds attachment information for operating system email. The value can be any of the following:

-recipient

Specifies the task reviewers receiving notification. Any surrogates for the specified users are also notified. Accepts one of the following values:

- **OS**
Sends a notification to the OS user name specified.
user-name is a single valid user name.
- **user**
Sends notification to the user specified.
user is a single valid Teamcenter user ID.
- **person**
Sends a notification to user whose name is specified.
person is a single valid Teamcenter person.

Note:

If the person's name includes a comma, you must include an escape character (\) to add the correct person. For example, to use **wayne, joan**:

-recipient=person:wayne\, joan

- **addresslist**
Sends a notification to all members of the address list.
value is a valid Teamcenter address list.
- **resourcepool**
Sends notification to members of a group/role combination. Notification is sent to all members, subscribed members, or none based on the **EPM_resource_pool_recipients** preference. The preference value can be overridden with:

\$RESOURCE_POOL_ALL
\$RESOURCE_POOL_SUBSCRIBED
\$RESOURCE_POOL_NONE

You can define role in groups in the form of **group::**, **group::role** or **role**.
value is a valid Teamcenter resource pool and these keywords:

\$GROUP	Current user's current group.
\$ROLE	Current user's current role.
\$TARGET_GROUP [type]	Owning group of the first target object of the specified type. The type value is optional. If not specified, the first target is used.
\$PROCESS_GROUP	Owning group of the workflow process.

- **allmembers**

Sends notification to all members of a group/role combination.

value is all members of a Teamcenter group and role.

You can define role in groups in the form of **group::**, **group::role** or **role**.

Accepts valid Teamcenter resource pool names and these keywords: **\$GROUP**, **\$ROLE**, **\$TARGET_GROUP** and **\$PROCESS_GROUP**.

Note:

The **\$ROLE_IN_GROUP** keyword (formerly **\$ROLEINGROUP**) cannot be used. Use **allmembers:\$GROUP::\$ROLE** instead.

- **\$USER**

Sends email to the current user.

- **\$REVIEWERS**

Builds a list of all users who are reviewers in the same task level as the current reviewer and sends email to all of them.

- **\$PROPOSED_REVIEWERS**

Sends email to all members assigned as the proposed reviewers of the first target object in the workflow process.

- **\$RESPONSIBLE_PARTY**

Sends email to the designated responsible party for the task.

If you use **\$RESPONSIBLE_PARTY**, add the handler to the **Start** action of the task, not the **Assign** action.

- **\$PROPOSED_RESPONSIBLE_PARTY**

Sends email to the member assigned as the proposed responsible party of the first target object in the workflow process.

- **\$PROCESS_OWNER**

Sends email to the workflow process owner.

- **\$TARGET_OWNER** [type]

Sends email to the target owner of the first target of the specified type. The *type* value is optional. If it is not specified, the first target is used.

- **\$UNDECIDED**

Sends email to the users who have not set the decision for the task.

- **\$PROJECT_ADMINISTRATOR**
\$PROJECT_TEAM_ADMINISTRATOR
\$PROJECT_AUTHOR
\$PROJECT_MEMBER[*group::role*]

These values dynamically evaluate project team members belonging to the role specified in the argument value and send a notification to them. The project team is determined by the project team associated with the first target object.

If the **\$PROJECT_MEMBER[*group::role*]** argument is specified, only the project members of the qualifying projects which belong to the specified group and role are selected as recipients. If the group and role are not specified, all the project members from qualifying projects are selected.

- **\$REQUESTOR, \$ANALYST, \$CHANGE_SPECIALIST1, \$CHANGE_SPECIALIST2,**
\$CHANGE_SPECIALIST3
\$CHANGE_REVIEW_BOARD, \$CHANGE_IMPLEMENTATION_BOARD

Dynamically resolves to the user or resource pool associated with the first Change target object in the process. The particular user or resource pool is determined by the role specified in the argument value.

If custom participants are defined by the customer, those participants can be used as recipients.

Note:

Change-related keywords apply only to change objects. If the process does not contain a change object as a target, the argument resolves to null.

Change Manager does not need to be enabled before these keywords take effect, but during installation, **Change Management** must be selected under **Extensions→Enterprise Knowledge Foundation** in Teamcenter Environment Manager.

- **\$RESOURCE_POOL_ALL**

Identifies all members of the resource pool.

This argument has an effect only when it is used along with **\$REVIEWERS, \$UNDECIDED, \$RESPONSIBLE_PARTY** or any Dynamic participant, such as **\$CHANGE_IMPLEMENTATION_BOARD**, which point to a resource pool.

When this argument is used along with **\$REVIEWERS**, and if a resource pool is assigned as a reviewer, email is sent to all the members of that resource pool.

When this argument is used along with **\$UNDECIDED**, and if a resource pool is assigned as a reviewer, and no signoff decision has been made for this resource pool assignment, all members of that resource pool are notified.

When this argument is used along with **\$RESPONSIBLE_PARTY**, and if a resource pool is assigned as responsible party, the email is sent to all members of that resource pool.

- **\$RESOURCE_POOL_NONE**

Identifies all members of the resource pool.

This argument has an effect only when it is used along with **\$REVIEWERS, \$UNDECIDED, or \$RESPONSIBLE_PARTY**.

When this argument is used along with **\$REVIEWERS** or **\$UNDECIDED**, and if a resource pool is assigned as a reviewer, email is not sent to members or subscribers of the resource pool.
 When this argument is used along with **\$RESPONSIBLE_PARTY**, and if a resource pool is assigned as responsible party, the email is not sent to members or subscribers of resource pool.

- **\$RESOURCE_POOL_SUBSCRIBED**

Identifies the users who have subscribed to resource pool.

This argument has an effect only when it is used along with **\$REVIEWERS**, **\$UNDECIDED**, or **\$RESPONSIBLE_PARTY**.

When this argument is used along with **\$REVIEWERS**, and if a resource pool is assigned as a reviewer, the email is sent to users who have subscribed to the resource pool.

When this argument is used along with **\$UNDECIDED**, and if a resource pool is assigned as a reviewer and no signoff decision has been made for this resource pool assignment, email is sent to users who have subscribed to the resource pool.

When this argument is used along with **\$RESPONSIBLE_PARTY**, and if a resource pool is assigned as a responsible party, the email is sent to users who have subscribed to the resource pool.

Note:

If the **\$RESOURCE_POOL_XXXXX** argument is not defined and the **\$REVIEWERS**, **\$UNDECIDED**, or **\$RESPONSIBLE_PARTY** arguments are used for a case where assignments are made to resource pools, the email is sent using the **EPM_resource_pool_recipients** preference.

EPM_resource_pool_recipients can take one of the following values:

- **all**

Sends mail to all members of resource pool.

- **none**

Does not send a mail to members or subscribers of resource pool.

- **subscribed**

Sends mail to Teamcenter users who have subscribed to resource pool.

If the **\$RESOURCE_POOL_XXXXX** argument is defined, the argument takes precedence over preference value.

If this argument is not defined and the **EPM_resource_pool_recipients** preference is not set, **subscribed** is considered the default value.

-subject

Displays the string identified by this argument in the subject line of the OS email. The **-subject** argument supplies value options, such as "**-subject=\$TARGET**." Variants of the **-subject** argument values allow for a prefix or suffix string to the target name.

Note:

If the “-subject\$TARGET” produces zero targets then the default subject line is used.

When no subject argument is provided, the default subject line for OS email is **"Process_name (Task_name)" is being <upcoming state>**.

- **\$STATE**
Appends action to the notification.
- **\$PROCESS**
Appends process name to the notification.
- **\$TASK**
Appends task name to the notification.

-comment

Embeds user-defined comments in the body of the email.

-url

Insert links to the workflow process into the notification email, based on values for **-url**. If no value is specified for **-url**, the rich client and Active Workspace links are added into the notification email.

If the **-url** argument is not defined, the notification email contains links depending on the values set in the **EPM_notify_url_format** preference.

If the **-url** argument is not defined and the **EPM_notify_url_format** preference is not set in the preference file, rich client and Active Workspace links are added to the notification email by default.

The **-url** argument accepts multiple comma-separated values separated. For example, enter *rich, activeworkspace*.

This argument and the **EPM_notify_url_format** preference can take the following values:

- **rich**
Inserts a rich client link to the workflow process into the notification email.

Note:

Rich client URL functionality must be enabled for links to rich client workflow processes to launch the rich client.

- **activeworkspace**
Inserts an Active Workspace link to the workflow process into the notification email.

Note:

One of the two following preferences must be defined:

- **ActiveWorkspaceHosting.URL**
- **ActiveWorkspaceHosting.WorkflowEmail.URL**

- **none**
No links are inserted into the notification email.

-attachment

Adds an attachment to Teamcenter mail and adds table(s) containing information on the specified attachments to the **OS** mail. Accept a comma separated or single value from the following options.

Warning:

Hide target names from users without read access rights by using the **-url** argument.

- **target**
The workflow target attachments are included in the email.
- **process**
The workflow process is included in the email.
- **reference**
The task attachments reference list is included in the email.

PLACEMENT

There are no specific restrictions on placement for this handler except the following:

- When **\$REVIEWERS** or **\$UNDECIDED** is used as the keyword, place on the **Start** or **Complete** action of the **perform-signoffs** task.
- When **\$RESPONSIBLE_PARTY** is used as the keyword, place on the **Start** action of the task, not the **Assign** action.

RESTRICTIONS

None.

EXAMPLES

- This example sends an email with the subject **Lower Right Subassembly Review** to all users on the **design** and **qualityControl** address lists. The comment described in the example appears in the body

of the email text. In addition to the email, the recipients also receive a Teamcenter mail that contains both the workflow target attachments and the current workflow process.

Argument	Values
-subject	Lower Right Subassembly Review
-recipient	addresslist:design, addresslist:qualityControl
-comment	Please review new subassembly and report any concerns directly to the Product Manager
-attachment	target, process

- This example sends an email and Teamcenter mail to the designated responsible party for the task. If the responsible party is a resource pool, no email is sent.

Argument	Values
-recipient	\$RESPONSIBLE_PARTY, \$RESOURCE_POOL_NONE

- This example designates OS users **peters** and **john**, user **Smith**, members of the group **manufacturing**, and members of the address list **purchasing** as recipients of an email with the subject **Manufacturing Release Procedure Completed**.

Argument	Values
-subject	Manufacturing Release Procedure Completed
-recipient	OS:peters, OS:john, User:smith, Group:manufacturing, Role:manager, addresslist:purchasing

- This example designates OS users **peters** and **john**, user **Smith**, all members of the group **manufacturing**, and members of the **CHANGE_REVIEW_BOARD** of the first change target object as recipients of an email with the subject **Manufacturing Release Procedure Completed**.

Argument	Values
-subject	Manufacturing Release Procedure Completed
-recipient	OS:peters, OS:john, User:smith, allmembers:manufacturing::, \$CHANGE_REVIEW_BOARD

- This example designates the recipient **PROCESS_OWNER** of an email with the subject **"Process Notification for Design_item"** when **Design_item** is the first target object of the workflow process.

Argument	Values
-subject	Process Notification for \$TARGET
-recipient	\$PROCESS_OWNER

- This example appends arguments to the subject line to include the **\$STATE**, **\$PROCESS**, and **\$TASK** arguments. This example provides a notification with a subject line showing the process with the task and the current state of the task.

Argument	Values
-subject	Performing signoffs notification for \$PROCESS: (\$TASK), \$STATE
-recipient	\$PROCESS_OWNER

EPM-notify-report

DESCRIPTION

Sends a report through the operating system (OS) email to all task reviewers. **EPM-notify-report** does not notify users through Teamcenter email. If you want to send the report using Teamcenter email, use the **EPM-notify** handler.

The **-report** argument differentiates **EPM-notify-report** handler from the **EPM-notify** handler. In notification email, the **-report** argument appends a report describing the signoff data associated with the **perform-signoffs** task. **EPM-notify-report** is designated for use on the **perform-signoffs** task. The **EPM-notify** handler is used on any type of task.

Note:

- Use the **Mail_OS_from_address** preference to specify the **From** address displayed in the notification email. The preference value must be a valid email address.
- When placed on the **Start** action of **perform-signoffs** task, the **EPM-notify** or **EPM-notify-report** handlers are automatically re-executed when a signoff is delegated.

SYNTAX

EPM-notify-report

-report={review|rejection|progress|level}

[-recipient=
{OS:user-name| user:user| person:person| addresslist:value

| resourcepool:group::role

| allmembers:group::role

| \$USER | \$REVIEWERS | \$PROPOSED_REVIEWERS

| \$RESPONSIBLE_PARTY| \$PROPOSED_RESPONSIBLE_PARTY

| \$PROCESS_OWNER | \$TARGET_OWNER [type]

| \$UNDECIDED | \$RESOURCE_POOL_ALL

| \$RESOURCE_POOL_NONE | \$RESOURCE_POOL_SUBSCRIBED

| \$PROJECT_ADMINISTRATOR | \$PROJECT_MEMBER

| \$PROJECT_TEAM_ADMINISTRATOR

| \$PROJECT_AUTHOR}

| \$REQUESTOR | \$ANALYST

| \$CHANGE_SPECIALIST1 | \$CHANGE_SPECIALIST2 | \$CHANGE_SPECIALIST3

| \$CHANGE_REVIEW_BOARD | \$CHANGE_IMPLEMENTATION_BOARD}]

[-subject=

string | \$TARGET | string \$TARGET string |

string | \$STATE | string \$STATE string |

\$PROCESS | string \$PROCESS string |

\$TASK | string \$TASK string |]

[-comment=string]

[-url={rich | activeworkspace|none}]

[-attachment= {target | process | reference }]

ARGUMENTS

-report

Indicates the report type sent to recipients. Accepts one of these values:

- **review**
Notifies all recipients when they must review target objects. The report lists target and reference object IDs and types.
- **rejection**
Notifies recipients that the **Review** task has been rejected. The report lists target and reference object IDs, as well as the **Review** task reviewers, decisions, dates, and comments for each **Review** task. Do not use this value unless you want the workflow process to always send a rejection notice.
- **progress**
Notifies recipients of the current state of the workflow process. The report lists the target and reference object names, object IDs (if applicable for the object), as well as the **Review** task reviewers, decisions, dates, and comments for each **Review** task.
- **level**
Notifies recipients when the **Review** task completes. The report lists the target and reference object IDs, as well as the current **Review** task reviewers, decisions, dates, and comments.

-recipient

(Optional) Specifies the task reviewers to receive notification. Any surrogates for the specified users are also notified. Accepts one of these values:

- **OS:user-name**
Sends a notification to the OS user name specified.

user-name is a single valid OS user name.

- **user:***user*
Sends notification to the user specified.
user is a single valid Teamcenter user ID.
- **person:***person*
Sends a notification to user whose name is specified.
person is a single valid Teamcenter person.

Note:

If the person's name includes a comma, you must include an escape character (\) to add the correct person. For example, to use **wayne, joan**:

-recipient=person:waynel, joan

- **addresslist:***list*
Adds all members of the address list specified to the signoff member list. Sends notification to all members of a group/role combination.
list is a valid Teamcenter address list.
- **resourcepool:***group::role*
Sends notification to members of a group/role combination. Notification is sent to all members, subscribed members, or none based on the **EPM_resource_pool_recipients** preference. The preference value can be overridden with:
 - **\$RESOURCE_POOL_ALL**
 - **\$RESOURCE_POOL_SUBSCRIBED**
 - **\$RESOURCE_POOL_NONE**

You can define role in groups in the form of *group::*, *group::role*, or *role*.
Accepts valid Teamcenter resource pool names and these keywords:

- **\$GROUP**
The current user's current group.
- **\$ROLE**
The current user's current role.
- **\$TARGET_GROUP** [*type*]
The owning group of the first target object of the specified type. The *type* value is optional. If not specified, the first target is used.
- **\$PROCESS_GROUP**

The owning group of the workflow process.

- **allmembers:group::role**
Sends notification to all members of a group/role combination.
You can define role in groups in the form of *group::*, *group::role*, or *role*.
Accepts valid Teamcenter group and role names and these keywords:
- **\$GROUP**
The current user's current group.
- **\$ROLE**
The current user's current role.
- **\$TARGET_GROUP [type]**
The owning group of the first target object of the specified type. The *type* value is optional. If not specified, the first target is used.
- **\$PROCESS_GROUP**
The owning group of the workflow process.

Note:

The **\$ROLE_IN_GROUP** keyword (formerly **\$ROLEINGROUP**) cannot be used. Use **allmembers:\$GROUP::\$ROLE** instead.

- **\$USER**
Send notification to the current user.
- **\$REVIEWERS**
Builds a list of all users who are reviewers in the same task level as the current reviewer, and sends email to them all.
- **\$PROPOSED_REVIEWERS**
Builds a list of all users who are reviewers in the same task level as the current reviewer, and sends notification to all of them.
- **\$RESPONSIBLE_PARTY**
Sends the notification to the designated responsible party for the task.
- **\$PROPOSED_RESPONSIBLE_PARTY**
Sends the notification to the designated responsible party for the task.
- **\$PROCESS_OWNER**
Sends notification to the workflow process owner.
- **\$TARGET_OWNER [type]**

Adds the owner of the first target of specified type to the signoff member list. The *type* value is optional. If not specified, the first target is used.

- **\$UNDECIDED**

Sends notification to the users who have not set the decision for the task.

- **\$RESOURCE_POOL_ALL**

Identifies all members of the resource pool.

This argument has an affect only when it is used along with **resourcepool**, **\$REVIEWERS**, **\$PROPOSED_REVIEWERS**, **\$UNDECIDED**, **\$RESPONSIBLE_PARTY**, **\$PROPOSED_RESPONSIBLE_PARTY**, or any Dynamic participant, such as **\$CHANGE_IMPLEMENTATION_BOARD**, which point to a resource pool.

If custom participants are defined by the customer, those participants can be used as recipients. When this argument is used along with **resourcepool**>, email is sent to all the members of the resource pool.

When this argument is used along with **\$REVIEWERS** or **\$PROPOSED_REVIEWERS**, and if a resource pool is assigned as a reviewer, email is sent to all the members of that resource pool.

When this argument is used with **\$UNDECIDED**, and if a resource pool is assigned as a reviewer, and no signoff decision has been made for this resource pool assignment, all members of that resource pool are notified.

When this argument is used along with **\$RESPONSIBLE_PARTY** or **\$PROPOSED_RESPONSIBLE_PARTY**, and if a resource pool is assigned as responsible party, email is sent to all members of that resource pool.

- **\$RESOURCE_POOL_NONE**

This argument has an effect only when it is used along with **resourcepool**, **\$REVIEWERS**, **\$PROPOSED_REVIEWERS**, **\$UNDECIDED**, **\$RESPONSIBLE_PARTY**, or **\$PROPOSED_RESPONSIBLE_PARTY**.

When this is used along with **resourcepool**, email is not sent to members of the resource pool. (This combination is allowed, but of no value.)

When this argument is used along with **\$REVIEWERS**, **\$PROPOSED_REVIEWERS**, or **\$UNDECIDED**, and if a resource pool is assigned as a reviewer, email is not sent to members or subscribers of the resource pool.

When this argument is used along with **\$RESPONSIBLE_PARTY** or **\$PROPOSED_RESPONSIBLE_PARTY**, and if a resource pool is assigned as a responsible party, email is not sent to members or subscribers of resource pool.

- **\$RESOURCE_POOL_SUBSCRIBED**

Identifies the users who have subscribed to resource pool.

This argument has an effect only when it is used along with **resourcepool**, **\$REVIEWERS**, **\$PROPOSED_REVIEWERS**, **\$UNDECIDED**, **\$RESPONSIBLE_PARTY**, or **\$PROPOSED_RESPONSIBLE_PARTY**.

When this is used along with **resourcepool**, email is sent to users who are subscribed to the resource pool.

When this argument is used with **\$REVIEWERS** or **\$PROPOSED_REVIEWERS**, and if a resource pool is assigned as a reviewer, email is sent to users who are subscribed to the resource pool.

When this argument is used with **\$UNDECIDED**, and if a resource pool is assigned as a reviewer and no signoff decision has been made for this resource pool assignment, email is sent to users who subscribed to the resource pool.

When this argument is used with **\$RESPONSIBLE_PARTY** or **\$PROPOSED_RESPONSIBLE_PARTY**, and if a resource pool is assigned as a responsible party, email is sent to users who subscribed to the resource pool.

- **\$PROJECT_ADMINISTRATOR**

\$PROJECT_MEMBER

\$PROJECT_TEAM_ADMINISTRATOR

\$PROJECT_AUTHOR

Dynamically evaluates project team members belonging to the role specified in the argument value and sends notification to them. The project team is determined by the project team associated with the target object.

- **\$REQUESTOR**

\$ANALYST

\$CHANGE_SPECIALIST1

\$CHANGE_SPECIALIST2

\$CHANGE_SPECIALIST3

\$CHANGE_REVIEW_BOARD

\$CHANGE_IMPLEMENTATION_BOARD

Dynamically resolves to the user or resource pool associated with the first change target object in the process. The particular user or resource pool is determined by the role specified in the argument value.

Note:

Change-related keywords apply only to change objects. If the process does not contain a change object as a target, the argument resolves to null.

Change Manager does not need to be enabled before these keywords take effect, but during installation, **Change Management** must be selected under **Extensions→Enterprise Knowledge Foundation** in Teamcenter Environment Manager.

Note:

If the **\$RESOURCE_POOL_XXXXX** argument is not defined and the **\$REVIEWERS**, **\$UNDECIDED**, or **\$RESPONSIBLE_PARTY** arguments are used for a case where assignments are made to resource pools, the email is sent using the **EPM_resource_pool_recipients** preference.

The **EPM_resource_pool_recipients** preference can have one of the following values:

- **all**

Sends email to all members of resource pool.

- **none**

Does not send an email to members or subscribers of resource pool.

- **subscribed**

Sends email to Teamcenter users who have subscribed to resource pool.

If the **\$RESOURCE_POOL_XXXXX** argument is defined, the argument takes precedence over the preference value. If this argument is not defined and the **EPM_resource_pool_recipients** preference is not set, then **subscribed** is the default preference.

The **-recipient** argument can have multiple values by using a delimiter specified by the **EPM_ARG_target_user_group_list_separator** preference. The default value for this preference is a comma.

-subject

Displays the string identified by this argument in the subject line of the OS email. The **-subject** argument supplies value options, such as **"-subject=\$TARGET"**. Variants of the **-subject** argument values allow for a prefix or suffix string to the target name.

Note:

If the **"-subject\$TARGET"** produces zero targets then the default subject line is used.

Reports are formatted by type and e-mailed with a default subject line.

- The progress report (**report=progress**) default subject line is: **Review of "Process_name (Task_name)" is in progress.**
- The level report (**report=level**) default subject line is: **"Process_name (Task_name)" is being <upcoming state>.**
- The rejection report (**report=rejection**) default subject line is: **"Process_name (Task_name)" is in rejected.**
- **\$STATE**
Appends action to the notification.
- **\$PROCESS**
Appends process name to the notification.
- **\$TASK**
Appends task name to the notification.

-comment

(Optional.) Inserts the specified string in the body of the email.

-url

(Optional.) Inserts a link to the workflow process into the notification email, based on the value for **-url**. If no value is specified for **-url**, the rich client and Active Workspace links are added into the notification email.

If the **-url** argument is not defined, the notification email contains links depending on the values set in the **EPM_notify_url_format** preference.

If the **-url** argument is not defined and the **EPM_notify_url_format** preference is not set in the preference file, rich client and Active Workspace links are added to the notification email by default.

The **-url** argument accepts multiple comma-separated values separated. For example, enter `rich, activeworkspace`.

This argument and the **EPM_notify_url_format** preference can take the following values:

- **rich**

Inserts a rich client link to the workflow process into the notification email.

Note:

Rich client URL functionality must be enabled for links to rich client workflow processes to launch the rich client.

- **activeworkspace**

Inserts an Active Workspace link to the workflow process into the notification email.

Note:

One of the two following preferences must be defined:

- **ActiveWorkspaceHosting.URL**
- **ActiveWorkspaceHosting.WorkflowEmail.URL**

- **none**

No links are inserted into the notification email.

-attachment

Adds an attachment and adds table(s) containing information on the specified attachments to the OS email.

Accept a comma separated or single value from the following options.

Warning:

Hide target names from users without read access rights by using the **-url** argument.

- **target**
The workflow target attachments are included in the email.
- **process**
The workflow process is included in the email.
- **reference**
The task attachments reference list is included in the email.

PLACEMENT

review

Place on the **Start** action of the **perform-signoffs** task when using this argument.

rejection

Place on the **Perform** or **Undo** actions of the **perform-signoffs** task when using this argument.

When placed on a **Perform** action, an email is sent on a **Reject** action.

Only place on an **Undo** action when the next task is a **Review** task, and the design of the workflow process requires that the task is demoted on a **Reject** action. This is achieved by placing the **EPM-demote-on-reject** handler on the **Perform** action of the **perform-signoffs** task. A **Reject** action causes a demotion to the previous task, which invokes the **Undo** action, and the **EPM-notify-report** handler sends out the required notification.

progress

The recommended placement when using this argument is attached to the **Start**, **Perform**, or **Complete** actions of a **perform-signoffs** task.

level

The recommended placement when using this argument is attached to the **Complete** action of a **perform-signoffs** task.

RESTRICTIONS

Use only on the **perform-signoffs** task.

EXAMPLES

- This example designates the user **smith**, members of the **manufacturing** group, the OS users **peters** and **john**, users with the **manager** role, members of the **VendorList** address list, and project

members as recipients of a progress report with the subject **Manufacturing Release Process Completed**.

The **EPM-notify-report** handler should be placed on **Complete** action of **perform-signoffs** task.

Argument	Values
-report	progress
-subject	Manufacturing Release Process Completed
-recipient	user:smith, os:peters, os:john, allmembers:manufacturing, allmembers:::manager, addresslist:VendorList, \$PROJECT_MEMBER

- This example designates the workflow process owner as the recipient of a progress report with the subject **Manufacturing Release Process Completed**.
The **EPM-notify-report** handler should be placed on **Complete** action of **perform-signoffs** task.

Argument	Values
-report	progress
-subject	Manufacturing Release Process Completed
-recipient	\$PROCESS_OWNER

- This example builds a list of all users assigned as reviewers for the **perform-signoffs** task.
The **EPM-notify-report** handler should be placed on **Start** action of **perform-signoffs** task.

Argument	Values
-report	progress
-recipient	\$PROPOSED_REVIEWERS

- This example designates the task owner and task reviewers as recipients of a review report with the subject **TASK REVIEW NOTIFICATION**.
If any resource pool is assigned as a reviewer, then all users who have subscribed to that resource pool receive notification email.
Place the **EPM-notify-report** handler on the **Start** action of the **perform-signoffs** task.

Argument	Values
-report	review
-subject	TASK REVIEW NOTIFICATION

Argument	Values
-comment	Please review the task
-recipient	\$PROCESS_OWNER, \$PROPOSED_REVIEWERS, \$RESOURCE_POOL_SUBSCRIBED

- This example illustrates creating a workflow process template with a **Review** task. Add the **EPM-notify-report** handler in the **Undo** action of the **perform-signoffs** task. Place an **EPM-demote-on-reject** handler on the **Perform** action of the **perform-signoffs** task. The notification is sent to task owner, responsible party, and reviewers. If any resource pool is assigned as a responsible party and/or as a reviewer, then notification is sent to all group members of that resource pool.

Argument	Values
-report	rejection
-subject	TASK REJECTION & DEMOTE NOTIFICATION
-recipient	\$RESOURCE_POOL_ALL, \$PROCESS_OWNER, \$PROPOSED_RESPONSIBLE_PARTY, \$PROPOSED_REVIEWERS

- This example designates the **REQUESTOR** of the first change target object the recipient of a progress report with the subject **Manufacturing Release Process Completed**. Place the **EPM-notify-report** handler on the **Complete** action of the **perform-signoffs** task.

Argument	Values
-report	Progress
-subject	Manufacturing Release Process Completed
-recipient	\$REQUESTOR

- This example builds a list of all users in the current task level where the handler has been placed and sends email to all of them.

Argument	Values
-report	Progress

- This example appends arguments to the subject line to include the **\$STATE**, **\$PROCESS**, and **\$TASK** arguments. This example provides a notification with a subject line showing the process with the task and the current state of the task.

Argument	Values
-subject	Performing signoffs notification for \$PROCESS: (\$TASK), \$STATE
-recipient	\$PROCESS_OWNER

EPM-notify-signoffs

DESCRIPTION

Notifies users of a **Route** task's status through Teamcenter email and **OS** email. Any surrogates for the specified users are also notified. If the **-attachment** argument is included in the definition of the **EPM-notify-signoffs** handler, the recipients also receive program email. The recipients list is filled dynamically when running the **Review** task with the **Route** task. Links to the workflow process in the rich client, and Active Workspace are added based on the value of the **EPM_notify_url_format** preference.

Note:

Use the **Mail_OS_from_address** preference to specify the **From** address displayed in the notification email. The preference value must be a valid email address.

SYNTAX

EPM-notify-signoffs

```
[-subject=
string | $TARGET | string $TARGET string |
string | $STATE | string $STATE string |
$PROCESS | string $PROCESS string | $TASK | string $TASK string ]
[-comment=string]
[-url={rich | activeworkspace|none}]

[-attachment= {target | process | reference }]
[-log]
```

ARGUMENTS

-subject

Displays the string identified by this argument in the subject line of the Teamcenter email and **OS** email. The **-subject** argument supplies value options, such as "**-subject=\$TARGET**." Variants of the **-subject** argument values allow for a prefix or suffix string to the target name.

Note:

If the "**-subject\$TARGET**" produces zero targets then the default subject line is used.

When no subject argument is provided, the default subject line for **OS** email is **Review of "<Process_name (Parent Task_name)>" is in progress.**

- **\$STATE**
Appends action to the notification.
- **\$PROCESS**
Appends process name to the notification.
- **\$TASK**
Appends task name to the notification.

-comment

User-defined comment that is embedded in the body of the email.

-url

Inserts URLs into the notification email that links to the workflow process in either the rich client (**rich**), Active Workspace (**activeworkspace**), or all (no value). Rich client URL functionality must be enabled for links to rich client workflow processes to launch the rich client.

The **-url** argument accepts multiple comma-separated values separated. For example, enter `rich, activeworkspace`.

- If the argument is specified with no value, rich client, and Active Workspace links are added to the notification email.
- If the argument is not specified, the notification email contains links depending on the value of the **EPM_notify_url_format** preference, which can be one or more of the following:
 - **rich**
 - **activeworkspace**

Note:

One of the two following preferences must be defined:

- **ActiveWorkspaceHosting.URL**
- **ActiveWorkspaceHosting.WorkflowEmail.URL**

- **none**
No links are inserted into the notification email.
- If the argument is not specified and the **EPM_notify_url_format** preference is not set, rich client, and Active Workspace are added.

-attachment

Adds an attachment to Teamcenter mail and adds table(s) containing information on the specified attachments to the **OS** email. Accept a comma separated or single value from following:

- **target**
Attaches the target to the program email.
- **process**
Attaches the workflow process to the program email.
- **reference**
The task attachments reference list is included in the email.

-log

Records notification activity in the workflow audit file.

PLACEMENT

Place on the **Complete** action of the **Notify** task.

RESTRICTIONS

None.

EPM-remove-objects

DESCRIPTION

Removes the specified target or reference objects from the workflow process. This handler can use either a set of arguments to define which objects to remove or keep, or a list of values (LOV) to define a list of object types to remove.

The **-include_replica** argument keeps or removes the **Replica Proposed Targets** along with the targets specified by the **-keep_targets** or **-remove_targets** argument.

This handler can be used effectively with the **EPM-attach-related-objects** handler. For example, consider a task where users can manually add objects to any target revisions, such as new datasets through a specification relation. Users can also attach objects directly as targets to the workflow process. To ensure only allowable objects are attached as targets on approval, remove all objects except for the revisions using the **EPM-remove-objects** handler with the **-keep_targets=(ItemRevision)** argument. Then re-add the revision's attachments using the **EPM-attach-related-objects** handler.

Note:

Enable debugging functionality for this handler with the **TC_HANDLERS_DEBUG** environment variable.

For more information about implementing this environment variable, see the *Environment Variables Reference*.

Several arguments in this handler documentation show the following format for their values:

```
[[(Class)!(Type1)[((Class2)),(Type1)[...]]]]| (Type1)[((Type2))[...]
```

The following explanation helps describe how to interpret this format. The explanation uses the **-remove_targets** argument in its examples, but the same value configurations shown in the examples can be applied to other arguments as well. Additional examples are shown in the **EXAMPLES** section.

The argument values in this handler indicate what objects are affected by configuring either an object class or an object type or a combination of both.

One approach is to specify a class. Surrounding a name in parenthesis indicates that it is a class. For example, if the **-remove_targets** argument is configured with the Dataset class, then all Datasets regardless of their type would be removed from the targets list. The configuration for this example would look like this:

```
-remove_targets=(Dataset)
```

A type can also be specified. The absence of parenthesis indicate that it is a type. For example, to remove only Datasets of type Text and leave all other Dataset types on the targets list, the **-remove_targets** argument would be configured like this:

-remove_targets=Text

It is also possible to indicate the type(s) that should not be affected. This is done by making use of the NOT (!) operator. When using the NOT operator, the syntax is to combine the class name and the type name separated by the NOT operator. For example, to remove all Dataset targets except those of type Text, the **-remove_targets** argument would be configured like this:

-remove_targets=(Dataset)!Text

Additional information can be found in [Differentiating between classes and types](#).

SYNTAX

```
EPM-remove-objects [{-remove_targets=types | -keep_targets=types}]
[{-remove_refs=types | -keep_refs=types}] | -lov=lov-name}
[-include_replica]
```

ARGUMENTS

-remove_targets

Defines the classes and/or types of target objects to remove from the workflow process.

Accepts a comma-separated list of classes and/or types in the format:

```
[(Class)[!Type1][,(Class2)[,Type1[,...]]]]| Type1[,Type2][,...]
```

For example, to specify datasets and forms:

(Dataset),(Form)

For an overview and examples of multilevel object paths in handlers, see [Defining multilevel object paths](#).

Note:

The **-keep_targets** and **-remove_targets** arguments are mutually exclusive.

-keep_targets

Defines the classes and/or types of target objects to be kept. All other target objects are removed from the workflow process.

Accepts a comma-separated list of classes and/or types in the format:

```
[(Class)[!Type1][,(Class2)[,Type1[,...]]]]| Type1[,Type2][,...]
```

For example, to specify datasets and forms:

(Dataset),(Form)

For an overview of using multilevel object paths in handlers, see [Defining multilevel object paths](#).

Note:

The **-keep_targets** and **-remove_targets** arguments are mutually exclusive.

The **keep_targets** argument removes all targets of types that do not match the types specified by the **keep_targets** argument.

-remove_refs

Defines the classes and/or types of reference objects to remove from the workflow process.

Accepts a comma-separated list of classes and/or types in the format:

[(Class)[!Type1][,(Class2)[,Type1[,...]]]]| Type1[,Type2][,...]

For example, to specify datasets and forms:

(Dataset),(Form)

For an overview of using multilevel object paths in handlers, see [Defining multilevel object paths](#).

Note:

The **-keep_refs** and **-remove_refs** arguments are mutually exclusive.

-keep_refs

Defines the classes and/or types of reference objects to be kept in the workflow process.

Accepts a comma-separated list of classes and/or types in the format:

[(Class)[!Type1][,(Class2)[,Type1[,...]]]]| Type1[,Type2][,...]

For example, to specify datasets and forms:

(Dataset),(Form)

For an overview of using multilevel object paths in handlers, see [Defining multilevel object paths](#).

Note:

The **-keep_refs** and **-remove_refs** arguments are mutually exclusive.

The **keep_refs** argument removes all reference objects of types that do not match the types specified by the **keep_refs** argument.

-lov

Specifies a LOV to use to define which objects to remove. This argument is mutually exclusive of all other arguments.

For an overview of using LOVs in handlers, see *Lists of values as argument values*. See the LOV row, next, for required LOV format.

-include_replica

(Optional) Keeps or removes the **Replica Proposed Targets** as well as the target objects specified by the **-keep_targets** or **-remove_targets** argument.

LOV

{\$TARGET|\$REFERENCE}.types

{\$TARGET|\$REFERENCE}.types

...

{\$TARGET|\$REFERENCE}

Specifies whether to remove targets, or to remove references.

Accepts a comma-separated list of classes and/or types in the format:

[(Class)[!Type1][,(Class2)[,Type1[,...]]]]| Type1[,Type2][,...]

For example, to specify datasets and forms:

(Dataset),(Form)

For an overview of using multilevel object paths in handlers, see *Defining multilevel object paths*.

PLACEMENT

Place on the **Start** or **Complete** action of any task.

To allow the removal of targets, ensure that the **EPM-disallow-removing-targets** handler is not placed on the root task of the respective workflow process template and the affected users have change access to the workflow target objects. You may use the **EPM-set-rule-based-protection** handler to ensure that

the required change access to target objects is asserted. See the topic Executing workflow handlers for more information.

RESTRICTIONS

When using a LOV, you can only define objects to be removed. You cannot define objects to be kept.

EXAMPLES

- This example removes any folders or items attached as targets:

Argument	Values
-remove_targets	(Folder), (Item)

Alternatively, you can use these LOV settings:

Argument	Values
-lov	SYS_EPM_remove_folders_items

where the **SYS_EPM_remove_folders_items** LOV contains the data:

\$TARGET.(Folder),(Item)

- This example retains only item revisions, removing all other targets:

Argument	Values
-keep_targets	(ItemRevision)

- This example retains item revisions, document revisions, and PDF datasets, and removes all other targets:

Argument	Values
-keep_targets	(ItemRevision)(DocumentRevision),PDF

- This example removes MS ExcelX datasets and MS WordX datasets, and retains all other targets:

Argument	Values
-remove_targets	MSEXcelX,MSWordX

- This example removes BOMView revisions and datasets other than UGPARTs, and retains all other targets:

Argument	Values
-remove_targets	BOMView Revision,(Dataset)!UGPART

EPM-request-PKI-authentication

DESCRIPTION

Displays a PKI authentication box in the **Perform** dialog box or panel of the task within which it has been placed. Users must type their PKI PIN in the box before the task can be completed.

Note:

This handler requires an environment configured with PKI enabled Teamcenter client communication system (TCCS) security services to use the PKI serial number as **userid**, with the value of the **WRKFLW_PKI_user_validation_fieldname** preference set to **SERIALNUMBER**.

SYNTAX

EPM-request-PKI-authentication

ARGUMENTS

None.

PLACEMENT

Place either on the **Perform** action of the **perform-signoffs** task or the **Complete** action of the following tasks:

- **Do task**
- **Condition task**
- **select-signoff-team** task

On a **Route** task, place on the **Complete** action of the **select-signoff-team** subtask of the **Review** task.

RESTRICTIONS

None.

EPM-require-authentication

DESCRIPTION

Displays a password box in the **Perform** dialog box or panel of the task within which it has been placed. Users must type their logon password in the password box. The **password** and **username** are authenticated before the task can be completed.

SYNTAX

EPM-require-authentication

ARGUMENTS

None.

PLACEMENT

Place on the **Perform** action of the following tasks:

- **Do task**
- **perform-signoffs** task
- **Condition** task

When working with a **Route** task, place on the **Perform** action of the **perform-signoffs** subtask of either the **Review** or **Acknowledge** tasks.

RESTRICTIONS

- Place on the **Perform** action of these tasks.
- Do not use this handler when the user logs on with PKI authentication. Use the **EPM-request-PKI-authentication** handler to prompt for the PKI PIN.

EPM-run-external-command

DESCRIPTION

Runs external system commands. The external command can be sent a variety of information that includes configurable arguments, a configuration file, a list of data and a list of target and attachment details. If dataset details are required there is also an optional export feature to export specified files from the specified datasets to a specified export directory. All options are configured using a list of values (LOV), hence there is only one argument. Nearly all options can be specified in the LOV using specially formatted lines to extract object properties.

Note:

Enable **debugging** functionality for this handler with the **TC_HANDLERS_DEBUG** environment variable.

SYNTAX

EPM-run-external-command
[-lov=lov-name]

[-auto_login]

ARGUMENTS

-lov

Specifies the List of Values (LOV) used to configure all options.

-auto_login

This argument is optional.

LOV

For an overview of using LOVs in handlers, see [Lists of values as argument values](#).

lov-name can contain several lines in the following format:

```
<KEYWORD>~<OPTION>=<Value>
<KEYWORD>~<OPTION>=<%formatted string%>
<KEYWORD>~<%formatted string%>
```

- **KEYWORD**

Specifies a keyword to indicate the type of information to extract and send to the external command. Keywords are described below:

- **INPUT**

Specifies options to configure the handler.

INPUT~OPTION=Value

OPTION can contain any of the following values:

- **Target**

Indicates the main workflow process objects to extract data. The following example sets all item revision targets of the workflow process as the main objects:

```
INPUT~Target=$TARGET.(ItemRevision)
```

The following example uses references of the workflow process. These objects the main objects that *%property%* fields relate to in *%formatted strings%*.

```
INPUT~Target=$REF.(ItemRevision)
```

- **Application**

Indicates the system application to run.

```
INPUT~Application=${TC_ROOT}\local\tools\run_ext_app
```

- **CallPerTarget**

Controls the application execution, once or per target found from **INPUT~Target**.

INPUT~CallPerTarget=YES | NO

YES calls the application separately for each target from **INPUT~Target**. This is the default behavior if this option is not provided. If one of the applications detects an error, processing terminates.

NO calls the application once and sends its data about all targets found from **INPUT~Target**.

- **ErrorMsg1**

Custom error message to be displayed to the user upon a fail code being returned from the external application. A return status of zero, (0), indicates the application terminated successfully; any other value indicates a failure.

In scripts, this is typically achieved using an exit command, for example, **exit 0** for success, **exit 1** for failure.

A *%formatted string%* can be used with this option, including the *\$SYSTEM_ERROR* variable to display the error code returned by the application. For example:

```
INPUT~ErrorMsg1=BOM checks failed on target
    %object_string% with error %$SYSTEM_ERROR%
```

You can use this error message to reflect the type of application, or external checking, that was being performed. If not provided then a default, non-localized, message is returned.

■ ErrorMessage2

Optional custom error message to be displayed to the user upon a fail code being returned from the external application. You can use this message to provide the user a help message, that is, where to look for more information on the problem. For example:

```
INPUT~ErrorMessage2=Please see your e-mail for details.
```

Note:

Because error messages are displayed in reverse order this message appear before **ErrorMessage1**.

■ ExportPath

Defines a directory to export files in datasets. The presence of this option enables the export feature. If the option is not provided, then no files are exported. This option works with the **DATA~DATASETS[=options]** described below which creates a data file listing all required datasets. The *options* argument describe the relations, dataset types, and named references required. If **ExportPath** is also defined, then the files from the required name references are exported. For example:

```
INPUT~ExportPath=${TC_TMP_DIR}\WF\Exports
```

The handler does not remove any remaining files from the export path when the external application has terminated. It is the responsibility of the application to remove any remaining files from this directory. If any files being exported already exist in the export directory, then the export fails and the existing file is not overwritten. If this occurs, an error is written to the syslog but not displayed to the user and the handler continues.

■ ExportOrigFile

Exports files with original file name. If this option is not defined, the handler exports files with the name stored in the volume. This option controls the name used for any exported files from datasets when **ExportPath** and **DATA~DATASETS** are defined. This option requires a **YES** value. For example:

```
INPUT~ExportOrigFile=YES
```

■ DataPath

Defines a directory to write data files. This option defines where the configuration file, defined using the **CFG** keyword, and the data files, defined using the **DATA** keyword, are written. For example:

```
INPUT~DataPath=${TC_TMP_DIR}\WF\Data
```

• CFG

Specifies information to be written to an optional configuration file that can be passed to the external command as an argument. The format is:

CFG~%formatted string%

This file name can be extracted in a *%formatted strings%* using the **\$CONFIG_FILE** variable. For example:

```
CFG~JobTag=%$PROCESS.TAG%
CFG~JobName=%$PROCESS .object_name%
CFG~RevID=%$TARGET.item_revision_id%
CFG~ItemID=%$TARGET.item.item_id%
CFG~Project=%$TARGET.IMAN_master_form.project_id%
CFG~OwningUser=%$TARGET.owning_user%
CFG~OwningGroup=%$TARGET.owning_group%
```

The following example writes the following string:

```
JobTag=QmBJ0uKNh9KRfCAAAAAAAAAAAAAA
```

to the configuration file for **000001/A** the workflow process with the **000001/A** target revision owned by **tim** and **Designers** group:

```
JobName=000001/A RevID=A ItemID=000001 Project=Project X
OwningUser=Tim (tim) OwningGroup=Designers
```

- **ARG**

Specifies optional arguments to be sent to the external command. The format is:

ARG~%formatted string%

For example:

```
ARG~-cfg=%$CONFIG_FILE%
ARG~-files=%$DATASET_FILE%
ARG~-data=%$DATA_FILE%
```

- **DATA**

Specifies information to be extracted from targets, references, and their related objects. The possible formats are:

- **DATASETS**

DATA~DATASETS[=options]

writes a fixed format data file containing information about attached datasets that can optionally be exported with **INPUT ExportPath**.

This option is used to extract details about datasets attached to the objects specified by **INPUT~Target**. If **INPUT~ExportPath** is defined, then the required files are exported from the required datasets to the export path specified. The properties extracted from the datasets are written to a file with the name **process_tag_datasets.txt** in the current directory or in the

directory specified using **INPUT~DataPath**. This file name can be extracted in a *%formatted strings%* using **\$DATASET_FILE**.

Optional filters for relation types, dataset types, and reference types can be supplied. For each filter, an asterisk (*) can be supplied as a wild card to indicate any type. If dataset types are supplied and no reference types, then all references are listed in the data file. If no filters are supplied, then all datasets in all relations and all of their references are listed. Any reference files that are exported have their absolute file path listed in the data file. This provides the ability for the external application to perform operations on these files. For example, running checks, printing, converting or to get information about **UGPART** references in **UGMASTER** and **UGPART** datasets in the **IMAN_specification** relation.

```
DATA~DATASETS=IMAN_specification~UGMASTER,UGPART~UGPART
```

The datasets data file is written in a fixed format as follows:

```
item_id~rev_id~relation type~dataset type~dataset
name~dataset_tag~reference type~file name
```

■ LOV

For an overview of using LOVs in handlers, see [Lists of values as argument values](#).

DATA~LOV=lov-name

writes a data file containing information about the targets, references and their related objects.

A second **LOV** is used to define all of the objects and properties to extract.

Specifies a separate **LOV** containing a list of alternating lines containing either:

```
OBJECT:multi-level.object.path
```

or

```
PROP:%formatted string%
```

The lines beginning with **OBJECT:** are used to find objects using multilevel object paths; lines beginning with **PROP:** specify the properties to extract from these objects and write out to the data file.

The first line in the LOV can be a **PROP:** line, for example, without a preceding **OBJECT:** line, in which case properties are extracted from the main objects found from **INPUT~Target**.

For example:

```
INPUT~LOV=SYS_EXT_CMD_object_data
```

where **LOV SYS_EXT_CMD_object_data** can contain:

```
PROP:%item.item_id%~%item_revision_id%~%object_name%~%object_type%
OBJECT:*.IMAN_reference
PROP:REF~%object_string%~%object_type%
OBJECT:*.IMAN_specification.
    UGMASTER,UGPART PROP:UG-HDR~Name~Material
```

```
PROP:UG~%object_string%~%*.
UGPART-ATTR.material%
```

This example begins by extracting properties from the main objects, then from reference objects attached to the main objects, and finally from the **UGMASTER** and **UGPART** datasets. Notice that there are two **PROP:** lines for the **UGMASTER** and **UGPART** datasets, the first line just has fixed text acting like a header line and the second defines the properties to extract (which includes the material attribute from the **UGPART-ATTR** named reference form).

In the **OBJECT:** lines, a type is required at the start of the multilevel object path to provide more flexibility. An asterisk indicates any type or an asterisk is automatically added within any *%formatted string%* for convenience when starting with a \$keyword such as **\$TARGET**, otherwise an asterisk, or type, is still required, as in the example for the ***.UGPART-ATTR.material**. The output from this example:

```
000001~A~000001~ItemRevision REF~000003/A~ItemRevision
UG-HDR~Name~Material UG~UGMASTER-000001/A~Steel
```

- **OPTION**

Some keywords have options which can be defined.

- **Value**

You can use any text as a value. However, it is possible to extract values from environment variables within the text using the format:

```
text$ { ENV_VAR } text$ { ENV_VAR } text
```

- **%formatted string%**

A *%formatted string%* is a string containing alternating fixed text, and object properties defined within a pair of percent characters (%), similar to a batch file statement containing environment variables.

The format is:

```
text%property%text%property%text
```

where each *property* is defined within two percent characters (%) with fixed text between each property.

A *property* to extract relates to a previously defined object, to the workflow process targets or to the current workflow process, depending on the current context where the formatted string is being used and some optional variables. The *property* can be specified as a single Teamcenter property, for an already specified object, or a multilevel object path and property to extract information from another object related to the already defined object target or workflow process.

If a multilevel object path is used within a property field and returns more than one object, then a comma-separated list of the values for the property from each object is given.

A special keyword tag can be used instead of a property name to extract a string representation of an object **PUID**.

- If the defined object is an item revision, then the following example extracts **ItemID/RevID**.

```
%item.item_id%/%item_revision_id%
```

where **%item.item_id%** extracts the **item_id** from the revision's item. The **/** is the fixed text and **%item_revision_id%** extracts the revision's id.

- The following example writes the project ID from a target revision's master form as a line in the configuration file.

```
CFG~Project=%$TARGET.IMAN_master_form.project_id%
```

If the project is **Project X**, the configuration file contains the following line:

```
Project=Project X
```

This example uses the **\$TARGET** variable to specify which object the multilevel path starts.

VARIABLES

Values from environment variables can also be extracted within a *%formatted string%* using the same format as described for *Value*. The **\${ENV_VAR}** does not have to be included within the pair of **%** characters.

There are also some internal variables which can be specified with some options. These are indicated with a **\$** character, but without the curly brackets used for environment variables. Also, unlike the environment variables, these must be defined within a pair of percent **%** characters. For example:

```
ARG~-cfg_file=%$CONFIG_FILE%
```

This example specifies an argument to be sent to the external command. It specifies a *%formatted string%* of **cfg_file=%\$CONFIG_FILE%**, so the fixed text is **cfg_file=**, and **%\$CONFIG_FILE%** (between two **%** signs) extract the name of the configuration file generated by the handler. This option is explained in full detail below under the section for **ARG**, along with other variable.

The following handler variables are available:

\$TARGET

Specifies that a multi level object path should start searching for objects from the current target, as specified with **INPUT~Target=target.path**.

In the main LOV, this is taken as default and so does not have to be specified (except when using **DATA~LOV**), so

```
%$TARGET.item.item_id%
```

is the same as

%item.item_id%

\$PROCESS

Specifies that a multilevel object path should start searching for objects from the current workflow process.

For example:

%%\$PROCESS.object_name%

extracts the workflow process's name.

This option also provides a path to extract details about objects attached to the workflow process as targets or references.

For example:

%%\$PROCESS.\$REF.object_string%

returns a comma-separated list of the **object_string** property from all references attached to the workflow process, and:

%%\$PROCESS.\$TARGET.object_string%

returns a list of all targets.

\$USER

Can be used to extract information about the current logged in user.

Used on its own will give the full user format person (**user_id**).

Or a path can be used to get other user, person, or group information.

For example:

```
CFG~Person=%%$USER.person%
CFG~UserID=%%$USER.userid%
CFG~LoginGroup=%%$USER.login_group%
CFG~Group=%%$USER.group.name%
CFG~Email=%%$USER.Person.PA9%
```

\$CONFIG_FILE

Gets the name of the configuration file generated by the handler. The format of the name is:

DataPath\process_tag_config.txt

or, if **CallPerTarget** is set to **YES**:

DataPath\process_tag_x_config.txt

x is an incrementing number per target.

\$DATA_FILE

Gets the name of the data file generated by the handler for **DATA~LOV**. The format of the name is:

DataPath\process_tag_data.txt

or, if **CallPerTarget** is set to **YES**

DataPath\process_tag_x_data.txt

Where x is an incrementing number per target.

\$DATASET_FILE

Gets the name of the datasets information file generated by the handler for **DATA~DATASETS**. The format of the name is:

DataPath\process_tag_datasets.txt

or, if **CallPerTarget** is set to **YES**

DataPath\process_tag_x_datasets.txt

Where x is an incrementing number per target.

\$SYSTEM_ERROR

Gets the error code number returned by the external application. Can be used in the **ErrorMsg1** and **ErrorMsg2** error messages.

PLACEMENT

Requires no specific placement, however, do not place on the **Perform** action of the root task.

RESTRICTIONS

This handler does not extract data in PLM XML format. The format of the extracted data is defined completely in the LOV using percent (%) formatted strings, except for the file listing the export dataset, which is in a fixed format.

This handler does not have an import feature; however, dataset tags are written to the exported datasets data file and so could be used by a standalone ITK program to import files. Do not use this handler to run an external application that takes a long time to run. It may appear that Teamcenter is unresponsive. If the success or failure of the application is required for process control, it is necessary to

wait for the application. In this case, ensure that the workings of the application is visible in a new window to show the user some feedback. Any files exported by the handler are not deleted by the handler after the external application finishes. It is the responsibility of the external application to clean up the export directory.

EXAMPLES

• Example 1

The following example calls an application, specified by an environment variable, to perform checks on CAD files. This application requires a configuration file to define various parameters. One of these is the an e-mail address so that it can send the user a report. The name of the configuration file is sent to the application as an argument, as is the file name of the data file containing information about the exported dataset files.

Argument	Values
-lov	SYS_EPM_run_cad_checks

The **SYS_EPM_run_cad_checks** LOV contains the following data:

LOV usage

Value	Description
INPUT~Target=\$TARGET.(ItemRevision)	Specifies that the main objects from which data is to be extracted is the job targets which is of class ItemRevision . If multiple targets are found then the application will either be called separately for each target or once with all of the data from all targets, depending on the setting CallPerTarget which is defined just below.
INPUT~ErrorMsg1=Cad checks errors (Error % \$SYSTEM_ERROR%)	Defines an error message which is displayed to the user if the application returns an error status.
INPUT~ErrorMsg2=Please see your e-mail for details	Defines an optional second error message which is displayed to the user as well as ErrorMsg1 .
INPUT~Application= \${CUST_CAD_CHECK_APPLICATION}	Defines the external application which is to be run. This application is defined by a system environment variable, which in this example is CUST_CAD_CHECK_APPLICATION .
INPUT~CallPerTarget=YES	Calls the application for each target.

Value	Description
INPUT~DataPath=C:\WF\Data	Sets a path for data files.
INPUT~ExportPath=C:\WF\Exports	Sets a path for exported dataset files
CFG~JobTag=%\$PROCESS.object_tag%	Writes the process tag (PUIID) to the configuration file as JobTag=Job Tag .
CFG~JobName=%\$PROCESS .object_name%	Writes the workflow process name to the configuration file as JobName=Job Name .
CFG~RevID=%\$TARGET.item_revision_id%	Writes the target object revision ID to the configuration file as RevID=RevID .
CFG~ItemID=%\$TARGET.item.item_id%	Writes the target object item ID to the configuration file as ItemID=ItemID .
CFG~Project= % \$TARGET.IMAN_master_form.project_id%	Writes the target object Project ID, from the revision master form, to the configuration file as Project=ProjectID .
CFG~CadProc=\${CUST_CAD_CHECK_PROC}	Writes the environment variable value to the configuration file as CadProc=cad_proc .
CFG~OwningUser=%\$TARGET.owning_user%	Writes the target object owning user to the configuration file as OwningUser=user .
CFG~OwningGroup=%\$TARGET.owning_group%	Writes the target object owning group to the configuration file as OwningGroup=group .
CFG~Email=%\$USER.E_Mail%	Writes the current user's e-mail to the configuration file, where E_Mail is the label from the person form.
CFG~SMTPServer= \${CUST_RELEASE_SMTP_SERVER}	Writes the environment variable value to the configuration file.
CFG~FunctionsFile= \${CUST_RELEASE_FUNC_FILE}	Writes the environment variable value to the configuration file.
CFG~SysAdminEmail= \${CUST_RELEASE_SA_MAIL}	Writes the environment variable value to the configuration file.
CFG~AppsArray=Apps1	Writes the value AppsArray=Apps1 to the configuration file.
CFG~WarningDir= \$ {CUSTOMER_RELEASE_WARNING_DIR}	Writes the environment variable value to the configuration file.
CFG~UPG=\${UPG}	Writes the environment variable value to the configuration file.

Value	Description
CFG~Desc=%\$TARGET.object_desc%	Writes the target object description to the configuration file.
DATA~DATASETS= IMAN_specification~UGMASTER~UGPART	Extracts information about UGPART references in UGMASTER datasets attached to the target revision.
ARG~cfg=%\$CONFIG_FILE%	Sends the configuration file name as an argument.
ARG~files=%\$DATASET_FILE%	Sends the dataset data file name as an argument.

• Example 2

The following example shows the use of **DATA~LOV=lov-name** to extract various details.

Argument	Values
-lov	SYS_EPM_send_ecr_relation_data

when the **SYS_EPM_send_ecr_relation_data** LOV contains the following data:

DATA~LOV=lov-name

Value	Description
INPUT~Target=(ItemRevision)	Specifies that the main object from which data is to be extracted is the job target which is of the ItemRevision class.
INPUT~Application= \${CUST_ECR_EXT_APPLICATION}	Defines the external application that is run. This application is defined by a system environment variable.
ARG~-item=%\$TARGET.item.item_id %	Sends the target object's item ID as an argument to the application.
ARG~-rev=%\$TARGET.item_revision_id %	Send the target object's revision ID as an argument to the application.
ARG~-dest=\${CUST_RELEASE_DEST}	Send the environment variable's value as an argument to the application.
ARG~-type=ECR	Sends the value as an argument to the application.

Value	Description
ARG~data= %%\$DATA_FILE%	Sends the name of the data file, to be produced by DATA~LOV , as an argument to the application.
DATA~LOV= <i>lov-name</i>	Specifies an LOV containing a list of alternating lines starting with OBJECT: , to specify an object, and then PROP: , to specify the properties to extract from the object to write out to a data file.
DATA~LOV=SYS_EPM_get_ecr_relation_data	<p>This LOV extracts details from the affected item revisions attached to the Mini, Minor, and Major relations in an ECR revision target.</p> <p>The objects are specified using multiple level paths and start from the target objects. The property strings use the %formatting% notation.</p>

- Output in the data file, if the target has two minor relations and one major relation:

```

item-00001~A~Mini
item-00002~B~Mini
item-00005~A~Major

```

LOV SYS_EPM_get_ecr_relation_data

Value	Description
PROP: %%item.id%%~ECR Started~ %%creation_date%%~%%owning_user% ~%%IMAN_master_form.ecr_prty%	Extract properties from the target revision.
OBJECT: (ItemRevision).Mini.(ItemRevision)!Buy Revision! Customer Revision!RawMaterial Revision	From any ItemRevision targets, find any ItemRevision objects attached to the Mini relation, except for specific types, for example, Buy Revision .
PROP: %%item.item_id%%~%%item_revision_id%%~Mini	Extract properties from any Mini relation revisions.
OBJECT: (ItemRevision).Major.(ItemRevision)!Buy Revision! Customer Revision!RawMaterial Revision	From any ItemRevision targets, find any ItemRevision objects attached to the Major relation, except for specific types, for example, Buy Revision .
PROP: %% item.item_id %%~%% item_revision_id %%~Major	Extract properties from any Major relation revisions.
OBJECT: (ItemRevision).Minor.(ItemRevision)!Buy Revision! Customer Revision!RawMaterial Revision	From any ItemRevision targets, find any ItemRevision objects attached to the Minor relation, except for specific types, for example, Buy Revision .
PROP: %% item.item_id %%~%% item_revision_id %%~Minor	Extract properties from any Minor relation revisions.

EPM-set-condition

DESCRIPTION

Condition tasks have a result attribute that you can set to one of these values: **True**, **False**, or **Unset**. The initial setting of the **Condition** task is **Unset**, until it is either automatically or manually set to **True** or **False**. Successor tasks require the **Condition** task to be set to either **True** or **False** before they can start.

This handler is used to set a **Condition** task result automatically, without user interaction. Using Business Modeler IDE conditions, the task can evaluate the condition criteria against target objects and user session information.

When queries are used for condition evaluation with this handler, one of the following queries is performed:

- Target query
Performed on workflow process attachments.
- Task query
Performed on the task to which this handler is added.
- Subprocesses query
Performed on the subprocesses that the **Condition** task depends on.

Use **All | Any | None** to determine whether all, any, or none of the target attachments or subprocesses must meet the query criteria to set the result to **True**; these values apply only to target and subprocess queries.

The **-include_replica** argument queries the **Replica Proposed Targets** along with the targets if the **-query_type** argument is **target**.

SYNTAX

EPM-set-condition

```
{-condition_name=condition-name | { -query=query-name
[-query_type=task | target | sub_process] [-log] }}
[-check_targets=all | any | none] [-log] [-reference][-include_replica]
```

ARGUMENTS

-condition_name

Defines the BMIDE condition to be evaluated against target objects. The condition signature accepts a **WorkspaceObject** and **UserSession** in that sequence. The BMIDE condition in the handler argument is evaluated against the target objects based on the value of the **check_targets**

argument. The handler decides the true or false path based on the evaluation result of BMIDE condition.

Note:

The **-condition_name** and **-query** arguments are mutually exclusive.

-query

Defines the query to be run.

Note:

The **-condition_name** and **-query** arguments are mutually exclusive.

-query_type

Determines the type of query run.

- **task**
Performs a query on the task to which this handler is added.
- **target**
Performs a query on the workflow process attachments.
- **sub_process**
Performs a query on the subprocesses that the **Condition** task depends on.

-check_targets

This argument determines the target objects against which to evaluate the BMIDE condition or query.

It determines whether **all**, **any**, or **none** of the target attachments or subprocesses must meet the query criteria to set the result to **True**. This argument applies only to **Target** and **Sub-Processes** queries for the **-query** argument.

When used in conjunction with **-condition_name** argument, the BMIDE condition is evaluated against targets to determine whether **all**, **any** or **none** of the targets meet the condition.

If this argument is not specified and used in conjunction with **-condition_name** argument, the value for this is considered as **all** by default.

-log

If a **Condition** task fails, it creates a log file reporting which objects caused the task's query to fail. The header in the log file contains:

- Task name
- Query name

- Date/time stamp

The log file is saved as a dataset and added to the workflow process as a reference attachment. The dataset is stored in the task attachments references folder.

If the **Condition** task does not fail, no log file is created.

-reference

Moves target objects not satisfying a **Condition** task's query criteria or BMIDE condition to the task attachments references list.

-include_replica

(Optional) Queries the **Replica Proposed Targets** as well as the target objects if the **-query_type** is set to **target**.

PLACEMENT

- If the **-query_type** argument is set to **task** or **target**, place on the **Start** action.
- If the **-query_type** argument is set to **sub_process**, place on the **Complete** action.

RESTRICTIONS

Typically used for **Condition** tasks only. This handler can also be used with a custom task.

Note:

This handler exists as part of the workflow conditional branching functionality. This handler is automatically added to a **Condition** task while creating the workflow process template in Workflow Designer by using the **Query** tab in the **Task Properties** dialog box. Siemens Digital Industries Software recommends that you use this method to configure a **Condition** task, rather than manually configuring and adding this handler to the task using the **Handler** dialog box.

No user interface support is provided to add this handler while using BMIDE conditions with the **-condition_name** argument. The handler must be added manually from the **Handler** dialog box.

Note:

Workflow Designer provides a number of prepackaged task templates, such as the **Review** task, **Route** task, and **Acknowledge** task templates. Adding subtasks below any of these specific tasks for the purpose of implementing a branching condition is not recommended, as this may jeopardize the integrity of the task's structure, and doing so may result in unpredictable behavior.

EXAMPLES

- In this example, a query is performed on the workflow process attachments. If any of the workflow process attachments meet the criteria defined by the **CM II CN Type** query, the task result on the **Condition** task is set to **True**.

Argument	Values
-query	CM II CN Type
-query_type	target
-check_targets	any

- In this example, an **EPMTask** query, **BM - Has Multiple Targets**, uses the run-time property **num_targets** to count the workflow target objects. If the query result is more than one, the result on the **Condition** task is set to **True**.

Note:

The **BM - Has Multiple Targets** query is created using the search class **EPMTask** and is not included in the Teamcenter install.

Argument	Values
-query	BM - Has Multiple Targets
-query_type	task

- In this example, the BMIDE **Fnd0DocRevSubTypes** condition is evaluated against all target attachments one-by-one. The condition evaluation returns **TRUE** if any of the target attachments is a subtype of **Document Revision**, and the workflow takes the **TRUE** path.

Argument	Values
-condition_name	Fnd0DocRevSubTypes
-check_targets	any

Note:

The condition used in the handler example above:

```
Fnd0DocRevSubTypes (WorkspaceObject o ,
UserSession u) = ((o != null) AND
```



```
u.fnd0ConditionHelper.fnd0isSubTypeOf  
(o, "DocumentRevision"))
```

EPM-set-duration

DESCRIPTION

Defines time dependence during process design. The handler is triggered when the task is started. The five handler arguments are the number of years, weeks, days, hours, and minutes of the duration. These arguments are used at execution time to initialize the tasks' duration value and generate the due date when the task is created. The addition of all five arguments determine the total duration time.

Due date calculations based on the duration setting in this handler consider the user's calendar and the value of the **Default_Base_Calendar_Preference** preference.

SYNTAX

EPM-set-duration *-year=year-value -week=week-value -day=day-value
-hour=hour-value -minute=minute-value*

ARGUMENTS

-year

Defines the number of years of the duration.

-week

Defines the number of weeks of the duration.

-day

Defines the number of days of the duration.

-hour

Defines the number of hours of the duration.

-minute

Defines the number of minutes of the duration.

PLACEMENT

Place on the **Start** action.

RESTRICTIONS

Argument values are limited to positive integers. The **Task Manager** daemon must be running or the application shuts down.

The **EPM-set-duration** handler, along with the following calendars and preferences, all work together, and are dependent on each other to define and control time parameters.

- The working time setting in the organization calendar.
- **SiteTimeZone**
- **Default_Base_Calendar_Preference**
- **Schedule Manager preferences: SM_Hours_Per_Day_Preference, SM_Hours_Per_Week_Preference, and SM_Hours_Per_Year_Preference**

Example:

The end date is calculated as the sum of duration of the user input multiplied by the preference value.

To calculate time: Year (SM_Hours_Per_Year_Preference) + Week (SM_Hours_Per_Week_Preference) + Day (SM_Hours_Per_Day_Preference) + Hours + Minutes.

For example, the preference settings for a 24-hour duration calendar schedule are:

Year

SM_Hours_Per_Year_Preference=8760 (365 days x 24 hours)

Week

SM_Hours_Per_Week_Preference=168 (7 days x 24 hours)

Day

SM_Hours_Per_Day_Preference=24

EXAMPLES

- This example sets the task to be due 5 years, 4 weeks, 3 days, 2 hours, and 1 minute after it is started:

Argument	Values
-year	5
-week	4
-day	3
-hour	2
-minute	1

ERP-set-form-value-AH

DESCRIPTION

Sets a particular field to a given value for all forms of the given type attached as targets of the process, and saves the forms. Use this handler to set a value that depends on the workflow process being used to transfer the data to ERP (for example, for a preproduction transfer process, the BOM usage may be set to **1 = Engineering/Design** and for a production transfer process, it would be set to **2 = Production**).

Note:

- This handler overwrites any existing value.
- The user performing the signoff must have write access to the forms whose value is being set.

SYNTAX

ERP-set-form-value-AH **-form_type** = *type_name*, **-field_name**=*field_name*, **-field_value**=*value*

ARGUMENTS

-form_type

Updates any forms of this type attached as targets.

-field_name

Specifies the name of the field to be set.

-field_value

Specifies the value to which to set the field.

Note:

These values are all case sensitive. Update the values if the mapping schema changes (for example, new form types or attributes created). The **-field_value** argument should use the whole string defined for the LOV in the mapping file (for example, **1 = Engineering/Design**, **2 = Production**).

PLACEMENT

Place on the **Perform Signoff** task.

RESTRICTIONS

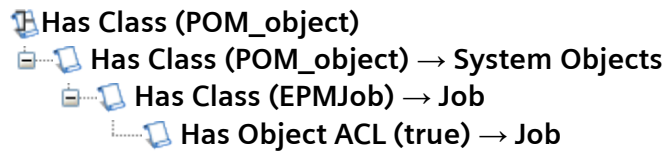
None.

EPM-set-job-protection

DESCRIPTION

Denies the **world:delete** and **world:write** process object protections, allowing an object ACL to be applied to an instance of an **EPMJob** object. This protection prevents the workflow process from being deleted when it completes.

To implement, add the **Has Object ACL (true)→Job** rule under **Has Class (EPMJob)→Job** in Access Manager. For example, the rules needed for this handler should look like the following (for clarity, the other rules are not shown).



SYNTAX

EPM-set-job-protection

ARGUMENTS

None.

PLACEMENT

Place on the **Complete** action of a task.

RESTRICTIONS

None.

EPM-set-owning-project-to-task

DESCRIPTION

This handler takes the owning project (or program) from the first target object of the workflow and sets it for all Workflow objects (for example, **EPMTask**, and **EPMJob**). The system can restrict access to workflow objects properly since the project is set at the workflow object level. The Access Manager rule tree is also modified to deny general access, but can grant access based on project teams for the workflow (**EPMTask**) objects by adding a new named ACL for tasks (**EPMTask**) in projects. Once the workflow processes are created with these changes, the users from the owning project team of the first target object can access the workflow tasks, whereas other users cannot access them. The process initiator, responsible parties, and reviewers of the workflow are required to be members of the owning project to proceed with the workflow tasks.

SYNTAX

EPM-set-owning-project-to-task

ARGUMENTS

None.

PLACEMENT

Place on the Start action of a root task.

RESTRICTIONS

Uses only the owning project of first target to set it on workflow objects. It does not consider other assigned projects or the owning project of other targets. If the owning project is not set on first target object, this handler fails to operate.

EPM-set-parent-result

DESCRIPTION

Sets the Boolean condition of its parent task. It is only used when complex compound subtasks are collectively needed to set the parent tasks. This allows for compound/complex combinations of **Condition** tasks.

SYNTAX

EPM-set-parent-result -value= true | false

ARGUMENTS

-value

Set to **true** or **false**.

PLACEMENT

Place on the **Start** or **Complete** action.

RESTRICTIONS

None.

Note:

Placing this handler in a location other than the subtask of a **Condition** task may result in unpredictable behavior.

EPM-set-property

DESCRIPTION

Accepts a list of properties and a list of associated values, and uses those values to set the properties on the specified objects. The properties to be updated are listed in the **-property** argument, and the values are listed in the **-value** argument. There should be a one-to-one correspondence between the properties on the **-property** list and the values on the **-value** list. The value types must be compatible with their associated property types. You can specify the values or obtain them from attachment objects or derived objects.

Note:

- This handler overwrites the existing property values with the specified values. For example, in the case of array properties, all existing values are removed from the array and only the new values are added to the property.
- Workflow handlers such as **EPM-set-property** cannot recognize run-time or compound properties. These handlers only set properties that have a persistent attribute on some object, and they cannot influence the setting of run-time or compound properties.

SYNTAX

EPM-set-property **-property**=*list-of-properties* **-value**=*[comma-separated-value-list]* **[[****-to_attach**=*attachment-type* **]** **[-to_relation**=*relation-type* **]]** **|** **-to_lov**=*lov-name* **]]** **[[****-from_attach**=*attachment-type* **]** **[-from_relation**=*relation-type* **]]** **|** **-from_lov**=*lov-name* **]]** **[-include_type**=*comma-separated-type-list* **|** **-exclude_type**=*comma-separated-type-list* **]** **-bypass**

ARGUMENTS

-property

Specifies one or more properties to be updated on the specified objects. Arguments with a **to_** prefix are used to determine the objects to be updated. There should be a one-to-one correspondence between the properties indicated on the **-property** argument and the values indicated on the **-value** argument. The value types should be compatible with the property types. If a property listed on the **-property** argument does not exist for a specified update object, the update for the property is skipped.

Separate multiple properties with commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference.

-value

Specifies zero or more values to be used to set the associated properties in the **-property** list. You can specify the values, or they may be configured as a property name with a preceding **PROP::** qualifier. If a property name appears on the list, the value is read from an attachment object or a derived object. Arguments with a **from_** prefix are used to identify attachment objects and derived

objects. Property types updated using specified values can be integer, Boolean, string, or date types (the date type supports the **\$CURRENT_DATE** keyword, which dynamically obtains the current date). Other property types, such as a tag or tag list, can be updated only if the updating value is obtained from a compatible property type on an attachment object or a derived object.

To reset a property value, set an empty value in the handler for the property.

For more information about using empty values, see the *Examples* section.

Acceptable date values are:

- A date in the following format: **yyyy-mm-dd**.
- **\$CURRENT_DATE** keyword, which sets the property value to the current date at the time that the handler is run.

Separate multiple values with commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference.

-to_attach

When used by itself, this argument specifies the attachment type objects to be updated. When used in conjunction with the **-to_relation** argument, this argument specifies the attachment type objects to be used as a starting point when locating derived objects to be updated; only the derived objects are updated.

Value	-to_att_type is used by itself	-to_att_type is used with -to_relation
TARGET	Updates target attachments.	Uses target attachments as a starting point when searching for derived objects. Updates only the derived objects.
REFERENCE	Updates reference attachments.	Uses reference attachments as a starting point when searching for derived objects. Updates only the derived objects.
BOTH	Updates both target and reference attachments.	Uses both target attachments and reference attachments as a starting point when searching for derived objects. Updates only the derived objects.

Note:

Lower case values are also valid.

To update properties on both attachment objects and derived objects, you must configure two instances of the **EPM-set-property** handler. Configure one instance to update attachments and configure a second instance to update derived objects.

If a handler instance is configured to update attachment objects and multiple attachment objects exist, all attachment objects are updated. If a handler instance is configured to update derived objects and the handler locates multiple objects, all objects found for all specified attachment objects are updated.

-to_relation

Updates objects with the specified relation to the identified attachment type objects.

- For manifestations, use **IMAN_manifestation**.
- For specifications, use **IMAN_specification**.
- For requirements, use **IMAN_requirement**.
- For references, use **IMAN_reference**.
- For BOM views, use **PSBOMViewRevision**.

This argument must be used with the **-to_attach** argument, which identifies attachment types.

-to_attach value	-to_relation behavior
TARGET	Updates objects with the specified relation to the target attachments.
REFERENCE	Updates objects with the specified relation to the reference attachments.
BOTH	Updates objects with the specified relation to both the target and reference attachments.

-to_lov

Specifies an LOV to define which objects are to be updated.

For an overview of using LOVs in handlers, see [Lists of values as argument values](#).

-from_attach

When used by itself, this argument specifies the attachment object used to obtain property values. These values are used to perform updates on the specified update objects (identified by the **-to_attach** and optionally the **-to_relation** arguments). When used in conjunction with the **-from_relation** argument, this argument specifies the attachment objects to be used as a starting point when locating derived objects (the **-from_relation** argument specifies the relationship used to identify derived objects). Property values are obtained from the derived object properties. Only a single object is used to obtain property values. If more than one object is identified, only the first object found is used.

Value	-from_attach is used by itself	-from_attach is used with -from_relation
TARGET	Reads property values from the first target attachment object.	Locates the first object with the specified relation to a target attachment object and reads property values from the related object.
REFERENCE	Reads property values from the first reference attachment object.	Locates the first object with the specified relation to a reference attachment object and reads property values from the related object.
BOTH	Reads property values from the first target attachment object. If target attachments do not exist, then reads property values from the first reference attachment object if reference attachments exist.	Locates the first object with the specified relation to a target attachment object and reads property values from the related object. If target attachments do not exist or if no object with the specified relation is found, it locates the first object with the specified relation to a reference attachment object and reads property values from the related object.

Note:

Lower case values are also valid.

-from_relation

Specifies the relation used to locate a derived object. The identified derived object is used to obtain property values, which are then used to perform the update.

- For manifestations, use **IMAN_manifestation**.
- For specifications, use **IMAN_specification**.
- For requirements, use **IMAN_requirement**.
- For references, use **IMAN_reference**.
- For BOM views, use **PSBOMViewRevision**.

This argument must be used with the **-from_attach** argument. A derived object is identified by starting with objects of the specified attachment type indicated by the **-from_attach** argument and then locating the first secondary object with the specified relation indicated by the **-relation** argument.

-from_lov

Specifies an LOV to obtain an object. Values are read from this object and used to set the properties on the **-property** list.

For an overview of using LOVs in handlers, see [Lists of values as argument values](#).

-include_type

Updates specified objects only if their type matches one of the types on the list. Do not use this argument with the **-exclude_type** argument.

-exclude_type

Updates all specified objects unless their type is one of the types that appears on the **-exclude_type** list. Do not use this argument with the **-include_type** argument.

-bypass

Specifies that the user has bypass privileges and allows the property to be set.

LOV

For an overview of using LOVs in handlers, see [Lists of values as argument values](#).

The LOV can contain multiple optional lines containing filter options followed by multiple lines containing multilevel object paths.

Note:

For an overview and examples of multilevel object paths in handlers, see [Defining multilevel object paths](#).

Each multilevel object path line can optionally have a filter option added as a second field after a tilde (~).

OPTION=value

{\$TARGET|\$REFERENCE}.multi.level.object.path[~ OPTION=value]

OPTION=value

Defines a configurable option to filter object selection.

If you supply an option on an LOV line on its own, it applies to all subsequent lines containing multilevel object paths. The option does not affect any multilevel object paths listed before the option.

If you supply an option on the same line as a multiple level object path, as a second field after a tilde (~) character, it only applies to that line.

Valid values are:

- **RULE={LATEST|Rule}**

Specifies the revision rule used to select the revision attached to the workflow process if initiated on an item. Use the keyword **LATEST** to select only the latest revision.

- **INCLUDE PARENTS=YES**

Specifies that all objects found by traversing a multilevel path are attached to the workflow process, not just the last set of objects in a path. For example, when a multilevel path is used to first find items in a workflow process, then find revisions in the item, and then find datasets in the revisions, it is only the datasets that are attached by default. Setting this argument to **YES** causes both the revisions and the datasets to be attached.

This argument reduces the number of lines required in the LOV and improves performance.

\$TARGET|\$REFERENCE

Defines the starting point from which to look for objects. Valid values are:

- **\$TARGET**

Defines the starting point as the workflow process target attachments.

- **\$REFERENCE**

Defines the starting point as the workflow process reference attachments.

multi.level.object.path

Defines a multilevel object path to traverse to find the required objects to attach to the workflow process. For an overview of using multilevel object paths in handlers, see *Defining multilevel object paths*.

(ItemRevision).IMAN_specification.(Dataset)

Attaches any datasets attached to the specification relation to any revisions found.

For more examples, see the Examples section.

PLACEMENT

Requires no specific placement. Proper placement depends on the desired behavior of the workflow process and may require coordination with the placement of other handlers, especially in cases where other handlers depend on the results of **EPM-set-property**. Typical placement might be on the **Start** action or **Complete** action.

RESTRICTIONS

- The **-to_relation** argument must be used in conjunction with the **-to_attach** handler.
- The **-from_relation** argument must be used in conjunction with the **-from_attach** handler.
- The **-to_lov** argument is mutually exclusive of the **-to_attach** and **-to_relation** arguments. For an overview of using LOVs in handlers, see *Lists of values as argument values*.

- The **-from_low** argument is mutually exclusive of the **-from_attach** and **-from_relation** arguments.
- Do not use the **-include_type** argument and the **-exclude_type** argument together.
- A single instance of this handler cannot update both attachment objects and derived objects. Separate handler instances must be used, where one handler instance updates attachments, and a second instance updates derived objects.
- Due to a potential conflict of interest, you may not want to use this handler with other handlers that also set the same property.

EXAMPLES

- Sets the target object's **object_desc** string property to a value of **Component Template**.

Argument	Values
-property	object_desc
-value	Component Template
-to_attach	TARGET
-bypass	

- Sets the target object's **backup_date** date property to a value of **2009-03-01**.

Argument	Values
-property	backup_date
-value	2009-03-01
-to_attach	TARGET
-bypass	

- Sets the target object's **archive_date** date property, **archive_info** string property, and **has_variant_module** Boolean property to the values specified in the example.

Argument	Values
-property	archive_date,archive_info,has_variant_module
-value	\$CURRENT_DATE,Archiving completed process,False
-to_attach	TARGET
-bypass	

- Uses values from an object with a specifications relation to the reference attachment to set the target objects' properties.

Argument	Values
-property	object_desc
-value	PROP::object_desc
-from_attach	REFERENCE
-from_relation	IMAN_specification
-to_attach	TARGET
-bypass	

- Uses values from an object with a specifications relation to the reference attachment to set properties on objects with a specifications relation to the target attachment.

Argument	Values
-property	object_desc
-value	PROP::object_desc
-from_attach	REFERENCE
-from_relation	IMAN_specification
-to_attach	TARGET
-to_relation	IMAN_specification
-bypass	

- Uses values from an object with a specifications relation to the reference attachment to set properties on **UGMASTER** type objects with a manifestation relation to the target attachments.

Argument	Values
-property	object_desc
-value	PROP::object_desc
-from_attach	REFERENCE
-from_relation	IMAN_specification
-to_attach	TARGET
-to_relation	IMAN_manifestation

Argument	Values
-include_type	UGMASTER
-bypass	

- Uses values from an object with a specifications relation to the reference attachment to set properties on both objects with a specifications relation to the target attachments and objects with a specifications relation to the reference attachments.

Argument	Values
-property	object_desc
-value	PROP::object_desc
-from_attach	REFERENCE
-from_relation	IMAN_specification
-to_attach	BOTH
-to_relation	IMAN_specification
-include_type	UGMASTER
-bypass	

- Uses an LOV to obtain values that are used to update target property values.

Argument	Values
-property	object_desc
-value	PROP::object_desc
-from_lov	SYS_EPM_main_objects
-to_attach	TARGET
-bypass	

- Uses an empty string to reset a property on a **TARGET** object. In this example, the **object_desc** property is reset to "".

Argument	Values
-property	object_desc
-value	

Argument	Values
-to_attach	TARGET
-bypass	

- Uses an empty string to reset a property on a **TARGET** object and also sets another property value. In this example, the **object_desc** property is reset to "" and the **sequence_limit** property is set to **6**.

Argument	Values
-property	object_desc,sequence_limit
-value	,6
-to_attach	TARGET
-bypass	

- Uses empty strings to reset three properties on a **TARGET** object. In this example, the **object_desc** property is reset to "", the **sequence_limit** property is reset to **0**, and the **CUST_text_field** property is reset to "".

Argument	Values
-property	object_desc,sequence_limit,CUST_text_field
-value	""
-to_attach	TARGET
-bypass	

- Adds a property from a target item business object to a target form that is attached to the item revision with a specification relation. To do this, you must omit the **-bypass** argument. This example maps the **item_id** item property to the **prop_soln** CMII CR form property. Both objects have been added to the process as **TARGET** objects.

Argument	Values
-property	prop_soln
-value	PROP::item_id
-from_attach	TARGET
-to_attach	TARGET

Argument	Values
-include_type	CMII CR Form
-to_relation	IMAN_specification

EPM-set-rule-based-protection

DESCRIPTION

Passes information to Access Manager to determine which named ACL to use while the associated task handler is current or started. "Started" indicates that the start action is completed.

The ACL is applied to the task and all subsequent tasks in the workflow process unless it is changed by another instance of the **EPM-set-rule-based-protection** handler or the process completes. See [Executing workflow handlers](#) for more information on how **EPM-set-rule-based-protection** works to accommodate AM functionality.

You can also set workflow ACLs by editing the Named ACL attribute, which automatically updates this handler.

Note:

- This handler affects the behavior of the tasks as well the targets. For example, the ACL can grant permission to promote or demote the tasks.
- Accessors, such as approvers or the responsible party, are retrieved from the currently active tasks. So even if the named ACL is the same for two separate tasks, the actual user who gets access for each task could be different. For example, **waynej** is the responsible party for task 1, **bjorn** is the responsible party for task 2, and the ACL grants write access to the responsible party for both tasks. In this case, **waynej** gets write access for duration of task 1 and **bjorn** gets write access for duration of task 2.
- If you have multiple workflow processes in effect at the same time for the same target object, and each process sets its own ACL, a user gets access if any of the ACLs grants that access. To deny access in that situation, all ACLs must deny that access.

Select **Show Task in Process Stage List** to enable the template staging functionality.

- The named ACL defined in this handler becomes the **ACL Name** value in the **Task Attributes Panel** for the task.
- When this handler is applied to a task, the **Show Task in Process Stage List** property on the **Tasks Attributes Panel** is automatically selected. The **Show Task in Process Stage List** displays the task in the **Process Stage List** property for the target object. Tasks in the **Process Stage List** determine the ACL for target objects.

SYNTAX

EPM-set-rule-based-protection -acl=*named-ACL*

ARGUMENTS

-acl

The name of an existing named ACL to be used when the task becomes the current task.

PLACEMENT

Place on the **Start** action of any task.

RESTRICTIONS

None.

EXAMPLES

- This example tells Access Manager to use the **engineering_release_start0** ACL.

Argument	Values
-acl	engineering_release_start0

- This example tells Access Manager to give write access to the responsible party only for the second task in a four-task workflow. The other three tasks are read-only.



- Task 1**—read-only access for all users.
The **Vault** ACL gives read and copy access to users, but not write access.

Argument	Values
-acl	Vault

- Task 2**—write access for the responsible party.
The **Grant-Write-to-RP** ACL gives write access only to the responsible party.

Argument	Values
-acl	Grant-Write-to-RP

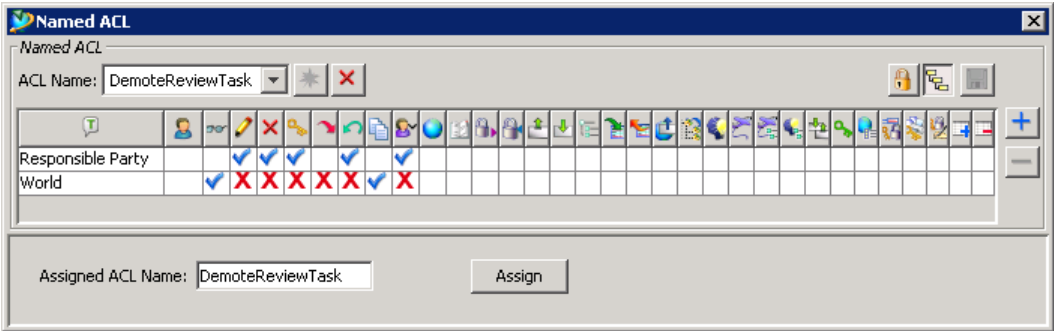
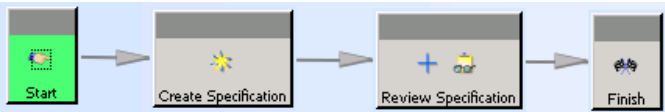
- Task 3**—read-only access for all users.

The **Vault** ACL revokes write access starting with this task.

Argument	Values
-acl	Vault

- **Task 4**—read-only access for all users.
No handler is needed because the ACL in **Task 3** still applies.

- This example, when placed on the **Review Specification** task, tells Access Manager to give demote access to only the task's responsible party. Promote access is denied to everybody, including the responsible party.



Argument	Values
-acl	DemoteReviewTask

EPM-set-status

DESCRIPTION

Applies the appropriate release status to the workflow process targets. This handler gets the release status type that the **EPM-create-status** handler attaches to the root task.

Note:

The **EPM-set-status** workflow handler is designed to work on release status effectivity, which is commonly used to express effectivity for item revisions used in a BOMView revision in Structure Manager.

Release status effectivity is not applicable for Product Configurator or 4th Generation Design objects. However, you can use the **CONFMGMT-cut-back-effectivity** workflow handler to propagate the release status effectivity of an engineering change object to configurator and 4GD objects that are attached to the change object as solution items. This translates the release status effectivity to the effectivity model used in Product Configurator and 4th Generation Design.

Note:

The **EPM_skip_dataset_purge** preference determines if dataset versions are purged when the **EPM-set-status** workflow handler adds a status.

Note:

Configure the **WRKFLW_change_target_lmu** preference to indicate if the **last_mod_user** attribute of a workflow target is changed when the status is applied. Set the preference value to **TRUE** to indicate the attribute value is changed to the user who completes the task, or set the preference value to **FALSE** indicating the attribute value is not changed.

SYNTAX

EPM-set-status -action=append | rename | replace | delete

[-status=name]

[-new_status=new_name]

[-retain_release_date]

[-set_effectivity]

[-status_not_shared]

ARGUMENTS

-action

- **append**

Attaches the root-task release status to the targets. Any previous statuses for the same targets are not affected.

- **rename**

Renames the release status from *name* to *new_name*.

If the *name* release status is not found, the handler renames the last status attached to the targets.

- **replace**

Removes all release statuses attached to the targets, and attaches the root task release status to the targets.

Note:

If more than one status object exists on the root task, apply the **-status** argument variable `=status_name`. If the **-status** argument is not specified then replacement status is not guaranteed.

- **delete**

Removes the release status specified by the **-status** argument from the targets.

- If the **-status** argument is not used, all release statuses are removed from the targets.
- This handler does not remove root-task release statuses that were created in the same workflow as the root task.

This value can also be used to remove release statuses that were applied in other workflows.

-status

Specifies the name of the release status. When used with the **-action** argument, offers additional options to define the status.

Note:

Enter the name as defined in the Business Modeler IDE, not the display name.

-action argument value

-status argument result

append

If the specified release status is not attached to the root task, the handler:

- Creates a new status with the specified name.
- Attaches the new status to the root task.

rename

The handler renames the release status to the value specified in **-new_status**.

replace

If the specified release status is not attached to the root task, the handler:

-action argument value**-status argument result****delete**

- Creates a new status with the specified name.
 - Attaches the new status to the root task.
- The handler removes the release status from the targets, but does not remove the status from the root task.

-new_status

Specifies the new name for the release status. Use this argument only if you use the **-action** argument's **rename** value.

Enter the name as defined in the Business Modeler IDE, not the display name.

Caution:

If the release status type is not defined, effectivity and configuration may be unavailable for the release status.

-retain_release_date

Retains the original release date on the target if it had previously been released. Not valid for **replace**.

-set_effectivity

If used, the handler creates the open-ended date effectivity with release date as start date.

-status_not_shared

Places on each target an individual copy of the root-task release status. By default, all targets share a reference to the release status.

PLACEMENT

Place on any action. Typically attached to the **Complete** action.

RESTRICTIONS

- By default, the **-action** argument and its **append** value are assumed if no argument is specified, or if an argument other than those specified is supplied to the handler.
- If the root task bears two or more statuses, and if the **-action** argument value is **replace**, the latest status on the root task replaces the status on the targets.

EXAMPLES

- This example adds the status object of the root task to the target object:

Argument	Values
-action	append

- This example adds the status object of the root task to the target object and retains the original released date of the target object:

Argument	Values
-action	append
-retain_release_date	

- This example replaces all existing status objects with the status object of the root task:

Argument	Values
-action	replace

- This example replaces existing status objects with the status object of the root task. It also sets an open-ended effectivity with release date as the start date on the new status object:

Argument	Values
-action	replace
-set_effectivity	

- This example renames all the status objects named **pre-released** to the name of the new status object, **released**:

Argument	Values
-action	rename
-status	pre-released
-new_status	released

- This example deletes all status objects from the target object but does not delete it from the root task:

Argument	Values
-action	delete

- This example deletes a status called **released** from the target object, but does not delete it from the root task:

Argument	Values
-action	delete
-status	released

- This example attaches a release status named **released** to the root task:

Argument	Values
-action	append
-status	released

- This example places on each target an individual copy of the root-task release status.

Argument	Values
-action	append
-status_not_shared	

- This example creates a new release status named **released**, attaches that status to the root task, and places an individual copy on each target.

Argument	Values
-action	append
-status_not_shared	
-status	released

EPM-set-task-result-to-property

DESCRIPTION

Reads the specified property from the identified task or target object, and uses that property value to set the result string attribute of the task where this handler is located or on the task specified by the **-target_task** argument. A common use for this handler is to control **Condition** task branching instead of using a more involved scheme that requires a custom handler. Using this handler to set a **Condition** task's result attribute allows the workflow process to branch based on a property of the identified task or target source object.

SYNTAX

```
EPM-set-task-result-to-property -source=task | target [-source_task=task-name] [-include_type=target-object-type] [-target_task= $ROOT_TASK | $DEPENDENT_TASK] -property=property-name
```

ARGUMENTS

-source

Indicates from which source object (**task** or **target**) the identified property should be read. The property is identified by the **-property** argument.

- **task**
Indicates the property should be read from a task. The **-task_name** argument specifies the task to use.
- **target**
Indicates the property should be read from a target object. The **-include_type** argument specifies the target object type to use.

-source_task

Identifies the name of a task from which to read the specified property (the **-property** argument specifies the property). This argument is valid only if **-source=task**. If a valid **-source_task** argument is absent, the property is read from the task where the handler is located.

-include_type

Identifies the target type from which to read the specified property (the **-property** argument specifies the property). This argument is valid only if **-source=target**. If there are more than one target objects of the given type, the first target on the list is used. If a valid **-include_type** argument is absent, the property is read from the first target on the list.

-target_task

Identifies where the result string attribute is set.

This is an optional argument. If **-target_task** is not specified, then the task **result** attribute will be set for the task containing the **EPM-set-task-result-to-property** handler.

- **\$ROOT_TASK**
Sets the result string attribute on the root task of the process.
- **\$DEPENDENT_TASK**
Sets the result string attribute on the parent process task which is dependent on this subprocess. The parent process task should be a **Condition** task.

-property

Specifies the property to be read from the identified source object (**task** or **target**).

PLACEMENT

Typically placed on the **Start** action of the specified **Condition** task.

However, this handler can be placed on any task but can set the result only on either the root task or a **Condition** task. The **Condition** task can be the task where the handler is placed or a parent task that is dependent on the task where the handler is placed.

RESTRICTIONS

- Do not place this handler on the **Perform** action.
- Do not use this handler in conjunction with other handlers that also set the **result** attribute, such as **EPM-set-condition**, **EPM-set-parent-result**, or a custom handler.
- You can use this handler on the **Complete** action only if a change occurred on the **Perform** action.
- This handler allows you to set the **result** attribute on the root task or any other **Condition** task.

EXAMPLES

- This example branches a **Condition** task based on the item revision's revision if a workflow process has an item revision as a target object. The handler is placed on the **Task01 Condition** task.

Argument	Values
-source	target
-include_type	ItemRevision
-property	item_revision_id

You then draw paths from the **Condition** task and assign custom flow path values by right-clicking the path and choosing **Custom**.

- This example branches a **Condition** task based on a task's responsible party. The handler is placed on the **Task02 Condition** task, and the responsible party is read from the **Task01** task.

Argument	Values
-source	task
-source_task	Task01
-property	resp_party

- This example branches a **Condition** task based on a task's responsible party. The handler is placed on the **Task02 Condition** task, but it is not configured with the **-source_task** argument and therefore defaults to reading the responsible party attribute from the **Task02 Condition** task.

Argument	Values
-source	task
-property	resp_party

EPM-suspend-on-reject

DESCRIPTION

Suspends the task when the approval quorum cannot be met.

SYNTAX

EPM-suspend-on-reject

ARGUMENTS

None.

PLACEMENT

Place on the **Perform** action of the **perform-signoffs** task.

RESTRICTIONS

Place only on the **perform-signoffs** task.

EPM-system

DESCRIPTION

Runs the first operating system argument passed to it.

The **EPM-system** handler cannot handle run-time command line arguments. For information about addressing such issues, see the **EPM-execute-follow-up** action handler. The **EPM-system** handler does not accept return values.

SYNTAX

EPM-system -command= *argument*

ARGUMENTS

-command

Operating system command to be run. Define with a standalone program or command. The length is determined by your local system's command line length settings.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

EXAMPLES

- This example sends an e-mail to **smith** with a body from the **/tmp/approval_note.txt** file and the subject **Notification: Task has been approved**:

Argument	Values
-command	mailx -s "Notification: Task has been approved" smith /tmp/approval_note.txt

EPM-trigger-action

DESCRIPTION

Triggers the specified action on the task to which this handler is attached.

SYNTAX

EPM-trigger-action -action=*action* -comment=*comment*

ARGUMENTS

-action

Performs the designated task. Accepts one of these task actions:

- **EPM_assign_action**
- **EPM_start_action**
- **EPM_complete_action**
- **EPM_skip_action**
- **EPM_suspend_action**
- **EPM_resume_action**
- **EPM_undo_action**
- **EPM_abort_action**
- **EPM_perform_action**

-comment

Associates comment with the task action when the action is logged in the workflow audit log file.

PLACEMENT

Requires no specific placement.

Note:

Infinite loops can occur when **EPM_trigger_action** handler with the task action **EPM_complete_action** is placed on the **Assign**, **Start**, or **Complete** of a task.

RESTRICTIONS

None.

EXAMPLES

This example performs the **Complete** action, displaying the text **Triggering the Complete action from the EPM-trigger-action handler** when the **Complete** action is logged in the workflow audit log file.

Argument	Values
-action	EPM_complete_action
-comment	Triggering the Complete action from the EPM-trigger-action handler

EPM-trigger-action-on-related-process-task

DESCRIPTION

Triggers an action on a task within a related workflow process.

Workflow processes can be related and/or coupled using reference attachments. Triggered workflow processes can be coupled with the triggering workflow process by:

- Adding triggering workflow process target attachments as reference attachments to the triggered workflow process. For example, the triggering workflow process could be the workflow process for a change object. Each workflow process for the affected item, the problem item, and so on, are then triggered workflow processes. Pasting the change object as a reference attachment to each workflow process for the affected item, the problem item, and so on, establishes a coupling. The change object process can now trigger task actions (such as **Suspend** and **Resume**) in each triggered workflow process.
- Adding triggered workflow process target objects as reference attachments to the triggering workflow process. This example is similar to the previous example. It also uses a coupling, but in the opposite direction: the triggering workflow process could be a review process for a part that is affected by a change. The change object process is then the triggered workflow process. Pasting the change object as a reference attachment to each workflow process for the affected item, the problem item, and so on, establishes a coupling. The part review process can now trigger task actions (such as **Suspend** and **Resume**) in the change object process.
- Adding the triggering workflow process object as a reference to the triggered workflow process. This example uses a coupling achieved by pasting the workflow process object itself, not a target or reference attachment. The triggering workflow process could be the process for a change object. Each process for the affected item, the problem item, and so on, are then triggered processes. Pasting the change process object as a reference attachment to each process for the affected item, the problem item, and so on, establishes a coupling. The change object process can now trigger task actions (such as **Suspend** and **Resume**) in each triggered process.

This handler helps to identify sibling workflow processes (processes that have reference to a higher-level process) and to trigger an action on a task within those processes. For example, you can control the appearance of workflow processes in your inbox by suspending and resuming the workflow processes depending on the reference workflow processes they have.

SYNTAX

EPM-trigger-action-on-related-process-task

-task=task-name

-action=action-name

[-active=ACTION]

[-active=OTHER-ACTION]]

[-comment=comment]

```
[-process_type=Processes_Referencing_Target_Objects | Processes_Referencing_This_Process
| Reference_Object_Processes]
```

```
[-template=process-template-name]
[-depth=level/]
[-debug]
```

ARGUMENTS

-task

Name of the task in which the given action needs to be triggered. If the task name is ambiguous (such as **perform-signoffs**), Siemens Digital Industries Software recommends that the task name is qualified with its parent task name (for example, **level2.perform-signoffs** or **conditional branch 2.level2.perform-signoffs**).

-action

Name of the action that needs to be triggered. The following are valid action names: **ASSIGN**, **START**, **PERFORM**, **COMPLETE**, **SUSPEND**, **RESUME**, **SKIP**, **ABORT**, and **UNDO**.

Note:

The action cannot succeed if the task is not in the correct state when the action is triggered. For example, the **COMPLETE** action cannot succeed if a **Condition** task result is something other than **Unset**. Therefore, you must set the value before triggering the action. To set the value, write a custom handler that is triggered before this action.

-active

Name of the action for which this handler is valid.

If this argument is used, and the handler is called as part of a trigger to a nonlisted action, the handler silently returns immediately. For more information about valid action names, see the **-action** argument.

This argument can be useful when the handler is used in **Perform** actions. The following actions also automatically run the **Perform** action handlers, raising the potential for infinite loops or unnecessary processing:

- **EPM_add_attachment_action**
- **EPM_remove_attachment_action**
- **EPM_approve_action**
- **EPM_reject_action**

- **EPM_promote_action**
- **EPM_demote_action**
- **EPM_refuse_action**
- **EPM_assign_approver_action**
- **EPM_notify_action**

This argument is optional.

-comment

The comment to be incorporated when the action is triggered.

If this argument is not specified, it defaults to the name of this handler: **EPM-trigger-action-on-related-process-task**.

This argument is optional.

-process_type

The workflow processes to find. It can have one of the following values:

- **Processes_Referencing_Target_Objects**
Finds workflow processes that reference one or more of the target attachments belonging to the current workflow process. The action is initiated for each matching attachment found. For example, if a workflow process references two target attachments belonging to the current workflow process, the action is initiated twice.
This is the default value for this argument
- **Reference_Object_Processes**
Finds workflow processes with target attachments that match reference attachments belonging to the current workflow processes. The action is initiated for each matching attachment found. For example, if the current workflow process reference two target objects of a workflow process, the action is initiated twice.
- **Processes_Referencing_This_Process**
Finds workflow processes that reference the current workflow process.

This argument is optional.

-template

The name of the workflow process template of the workflow process(es) to be triggered.

This argument is useful to save processing time and/or improve robustness. Use this argument to configure this handler to trigger actions on specific workflow processes of a particular workflow process template. This name may contain wildcard characters.

This argument is optional.

-depth

This argument controls the recursion depth.

This argument is useful when the triggering of an action results in another action being triggered (due to the configuration of the **EPM-trigger-action-on-related-process-task** handler, or any other handler placed in that action) and so on.

The recursion depth defaults to 1. If the recursion depth is required, set the depth carefully to avoid infinite loops. If set to zero, make sure that the algorithm converges to a definite end of the recursion.

-debug

This argument writes debug messages to the log file.

This argument is optional.

PLACEMENT

Requires no specific placement. Depending on the purpose, may be placed at various tasks and actions. If placed on the **Start** action of the root task, controls whether or not a workflow process can be initiated.

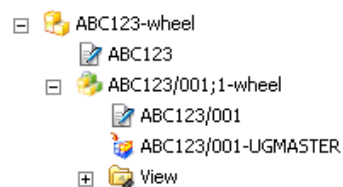
RESTRICTIONS

Do not use this handler in a subprocess.

EXAMPLES

The following example has two workflow process templates: **Initiate Item Revision** and **Initiate Dataset**. The **EPM-trigger-action-on-related-process-task** handler in the **Initiate Item Revision** process triggers the **Complete** action on the **ApproveDesignWork** task in the **Initiate Dataset** process.

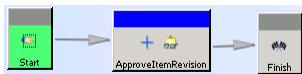
This example uses the following item revision with a **UGMASTER** dataset:



Process Template

	Tasks	Steps to follow
Initiate Item Revision	Start →	In the root task in the Start action, add the EPM-trigger-action-on-

Process Template



Tasks

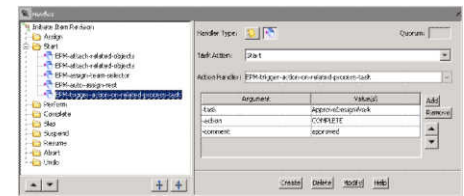
ApproveItemRevision (Review related-task)→

Finish

Steps to follow

process-task handler with the following arguments:

- **-task=ApproveDesignWork**
- **-action=COMPLETE**
- **-comment=approved**



Initiate Dataset



Start→

CreateDesignWork (Review task)→

ApproveDesignWork (Do task)→

Finish

Create an **Initiate Dataset** workflow process for the **ABC123/001-UGMASTER** dataset and paste the **ABC123/001** item revision as the reference attachment.

Sign off the **CreateDesignWork** task, which starts the **ApproveDesignWork** task.

To perform the Do task, select **Task View** then select the **Complete** option.

Note:

Do *not* click **Apply**.

Then, create an **Initiate Item Revision** workflow process for the **ABC123/001** item revision.

Note:

Before the **EPM-trigger-action-on-related-process-task** handler is triggered, the **ApproveDesignWork Do** task is in the **Started** state. After the handler executes, the task is in the **Completed** state.

Since **-process_type=Processes_Referencing_Target_Objects** is the default setting, and the **ABC123/001** item revision is a reference attachment of the **Initiate Dataset** process, the **Complete** action of the **ApproveDesignWork** task is triggered.

Note that the **Complete** action is successful only if all conditions for the completing a **Review** task are already met.

ERP-att-logfile-as-dataset-RH

DESCRIPTION

Creates the **ERP_Log_Dataset** text dataset and attaches it as a reference to the process. Through the lifetime of the process, this dataset logs the progress of the ERP-related parts of the process. On completion of the process, the log file is exported to the directory specified by the **Tc_ERP_rellog_file_path** preference.

SYNTAX

ERP-att-logfile-as-dataset-RH

ARGUMENTS

None.

PLACEMENT

Place on the **Review** task. Call this handler before any other ERP handler, as other handlers work on the assumption that the ERP logfile dataset exists.

Note:

Although not a rule handler, this was made a rule handler that can be placed and run before any other handler.

RESTRICTIONS

None.

ERP-attach-targets-AH

DESCRIPTION

Attaches all ERP forms as targets of the process and then creates a transfer folder (of type **ERP_transfer_folder_type**) for each target item revision, which is attached as references to the process. All ERP forms with the relations specified in the **reln_names** argument are pasted into the corresponding transfer folder.

ERP forms are those that are defined in the mapping schema.

SYNTAX

ERP-attach-targets-AH -reln_names = *reln1,reln2,...*

ARGUMENTS

-reln_names

A list of the relation types used to relate ERP forms to item revisions.

Separate multiple types with commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference.

Note:

Relation names are case sensitive and should be named, for example, **tc_specification** not **TC_Specification**.

ERP_Data is the special relation supplied for attaching ERP forms, if these are to be distinguished from other relations. The semantics are as for manifestation:

- The advantage is that ERP forms can be added later in the life cycle without forcing a new revision of the item.
- The disadvantage is that the ERP data is less secure and the forms can be removed or replaced.

Access to the forms is controlled using access rules.

PLACEMENT

Place on the **Review** task.

RESTRICTIONS

None.

ERP-delete-log-dataset-AH

DESCRIPTION

Cleans up the database by deleting the ERP logfile once the process has successfully completed.

SYNTAX

ERP-delete-log-dataset-AH

ARGUMENTS

None.

PLACEMENT

Place this handler on the **Complete** action of the root task.

RESTRICTIONS

None.

ERP-download-AH

DESCRIPTION

Extracts attribute values from the Teamcenter database and writes these out to an operating system transfer file. The transfer file is placed in the directory specified by the **Send_file_format** global setting with the name defined by the **Send_file_name** global setting.

The behavior of this handler depends on the **Send_file_format** global setting.

The format of the transfer file can be configured by the mapping file. This is a key feature of the Teamcenter/ERP Connect Toolkit.

This handler also writes the names of the **Send** file and **Response** file paths to the **Description** box of the **ERP_Logfile** dataset, which are required.

SYNTAX

ERP-download-AH

ARGUMENTS

None.

PLACEMENT

Place on the **Perform Signoff** task.

RESTRICTIONS

None.

ERP-post-upload-AH

DESCRIPTION

Runs after the upload and reads the contents of the ERP logfile dataset. The handler looks in the directory defined in the **Response_file_path** global setting for the **Response** file, with the name defined in the **Description** box of the **ERP_Logfile** dataset. It imports the **Response** file into the latest version of the ERP logfile dataset.

The handler parses the ERP logfile according to the **Send_file_format** global setting as follows:

- If the status is **CREATED** or **CHANGED** and the **set_transfer** argument is set to **YES**, set the **Sent to ERP** box of the respective forms to *user_idlupload_date*.
- At the end of the logfile, there is a single **UPLOAD_STATUS** parameter. If set to **FAILURE**, the handler returns an error code other than **ITK_ok**, which displays an error message and stalls the process. If set to **SUCCESS**, the handler:
 - Removes transfer folders from the process and delete them.
 - Returns **ITK_ok**, indicating the process/review level is complete.
- The handler parses the ERP logfile for the single overall status of the upload according to the success/error message defined in the **Error_success_message** global setting.

SYNTAX

ERP-post-upload-AH -set_transfer={YES|NO}

ARGUMENTS

-set_transfer

Value must be **YES** or **NO** (case insensitive). If **YES**, the **Sent_to_ERP** fields are set upon successful transfer.

Note:

Siemens Digital Industries Software recommends you set the value to **YES**, so it is clear the data is uploaded. If this is only working data, the you can remove the value in the **set_transfer** field to allow data to be resent.

PLACEMENT

Place this rule after the **SAP-upload-AH** handler on the **perform-signoff** task.

RESTRICTIONS

None.

ERP-set-pathnames-in-logds-AH

DESCRIPTION

Reads the configuration file and sets the path names of the transfer file and response file (listed in the configuration file), in a log dataset property.

SYNTAX

ERP-set-pathnames-in-logds-AH

ARGUMENTS

None.

PLACEMENT

Place on the **Complete** action of any task. Apply after the **EPM-set-pathnames-in-logds-AH** handler.

RESTRICTIONS

None.

ERP-transform-AI-contents-AH

DESCRIPTION

Reads the PLM XML contents of an AI object attached as reference to the process. It then applies the XSLT transform specified in an input parameter and writes the resulting **.xml** file to the to the export directory.

SYNTAX

ERP-transform-AI-contents-AH

ARGUMENTS

None.

PLACEMENT

Place on the **Complete** action of any task. Apply after the **AI-export-AH** handler.

RESTRICTIONS

None.

GMIMAN-invoke-subscription-event-on-item

DESCRIPTION

Notifies the subscribed user about an event by checking the release status of the item revision with the specified argument.

SYNTAX

GMIMAN-invoke-subscription-event-on-item **-event**=*event-type-release-status*

ARGUMENTS

-event

Valid event-type release status.

PLACEMENT

Add this handler after the **EPM-set-status** handler in the **Complete** action of the release workflow.

RESTRICTIONS

This handler can only be used when the GM Overlay is installed. The valid event-type release statuses are limited to the event types that are installed for the Subscription Administration.

HRN-revise

DESCRIPTION

Use the **HRN-revise** handler to revise Teamcenter designs and the corresponding Capital designs in a workflow process. When used in a workflow template, the **HRN-revise** handler collects the Capital designs for the target Teamcenter design through Capital webservices and then revises both the Teamcenter and corresponding Capital designs.

SYNTAX

HRN-revise

`[-capital_pwd_file = capital_password_file_path]`

`[-capital_user = capital user]`

`[-change_releaselevel_to_draft = true|false]`

`[-ignore_lock = true|false]`

`[-include_children = true|false]`

`[-populate_children = true|false]`

`[-revise_children = true|false]`

`[-include_resolved_comments = true|false]`

`[-include_unresolved_comments = true|false]`

`[-include_pending_checklists = true|false]`

`[-include_completed_checklists = true|false]`

`[-include_notes = true|false]`

`[-include_watchlist = true|false]`

`[-include_links = true|false]`

`[-revise_desc = new revision short description]`

ARGUMENTS

`-capital_user`

The Capital user name used to log on and invoke the Capital webservices.

-capital_pwd_file

The absolute path of the password file used to log on to the Capital webservices.

The password file can be generated through the Teamcenter install utility.

-change_releaselevel_to_draft

If the value is **true**, the release level of the newly created revision is reset to **Draft**.

If the value is **false**, the release level is copied from the source design to the revised design.

Default value is **true**.

-ignore_lock

If the value is **true**, a revision is created even if the design is locked in another session.

If **false**, the system prohibits creating a revision if the design is locked.

Default value is **true**.

-include_children

All child designs are included with the composite revision. Their inclusion is dependent on the **-revise_children** and **-populate_children** arguments.

If **false**, none of the child designs are included in the composite design revision.

Default value is **false**.

-revise_children

Applicable only if **-include_children** argument is **true**.

If set to **true**, a new revision of each child design is created and included with the new composite revision.

If set to **false**, all child designs are included with the composite revision, but a revision is not created for any of the child designs. Instead, the current child revision is associated with the new composite revision for each child design. It revises the composite but maintains a link to the same child designs as in the original composite.

Default value is **false**.

-populate_children

Applicable only if **-include_children** and **-revise_children** arguments are **true**.

If set to **true**, a diagram is created for the revised child design.

If set to **false**, a diagram is not created for the revised child design.

Default value is **false**.

-include_resolved_comments (optional)

Designers and reviewers working on a project can add comments related to the design, diagram, or objects available for the diagram.

If set to **true**, the resolved comments are copied from the source design to the revised design.

If not specified, the Capital preference is honored.

Default value is **true**.

-include_unresolved_comments (optional)

Designers and reviewers working on a project can add comments related to the design, diagram, or objects available for the diagram.

If set to **true**, the unresolved comments are copied from the source design to the revised design.

If not specified, the Capital preference is honored

Default value is **true**.

-include_pending_checklists (optional)

Checklists capture tasks or design checks requiring completion.

If set to **true**, the pending checklists are copied from the source design to the revised design.

If not specified, the Capital preference is honored.

Default value is **true**.

-include_completed_checklists (optional)

Checklists capture tasks or design checks requiring completion.

If set to **true**, the completed checklists are copied from the source design to the revised design.

If not specified, the Capital preference is honored.

Default value is **true**.

-include_notes (optional)

Notes add additional information to a diagram.

If set to **true**, the notes are copied from the source design to the revised design.

If not specified, the Capital preference is honored.

Default value is **true**.

-include_watchlist (optional)

A *watchlist* lists users tagged within comments, notes, or a checklist, who receive an email notification, detailing the content they are associated with.

If set to **true**, the watchlist is copied from the source design to the revised design.

If not specified, the Capital preference is honored.

Default value is **true**.

-include_links (optional)

Links Capital objects to different entities (external or internal to Capital).

Example:

A Teamcenter requirement is associated to several Capital objects in various designs. These Capital objects are linked to Teamcenter requirements using links. The link object has a **name** and collection of associated objects. The **name** represents Teamcenter requirement name. Associated objects represent Capital objects associated to that Teamcenter requirement.

If set to **true**, the links are copied from the source design to the revised design.

If not specified, the Capital preference is honored.

Default value is **true**.

-revise_desc

This refers to the new short description for a revised design.

PLACEMENT

This is placed on an action, typically on the **Start** or **Perform** action of a **Do** task.

RESTRICTIONS

None.

EXAMPLES

This collects and revises all of the Capital designs for the corresponding target Teamcenter designs.

Arguments	Values
-capital_user	system
-capital_pwd_file	Absolute path of the generated password file.
-change_releaselevel_to_draft	true
-ignore_lock	true
-include_children	false
-populate_children	false
-include_resolved_comments	false
-include_unresolved_comments	false
-include_pending_checklist	false
-include_completed_checklist	false
-include_notes	false
-include_watchlist	false
-include_links	false
-revise_children	false
-revise_desc	

HRN-set-reject-state

DESCRIPTION

The **HRN-set-reject-state** handler provides status alignment between Teamcenter designs and **Electrical** designs in Capital.

When used in a Workflow template, the **HRN-set-reject-state** handler fetches all the Capital designs for the target Teamcenter design through Capital webservices. It then assigns the required **Reject** status to the Capital design.

Note:

Use this handler in the design approval Workflow process to assign the required status to the electrical design in the Capital tool when the Teamcenter design is rejected.

SYNTAX

HRN-set_reject_state

```
[-annotate = true|false]
[-capital_pwd_file = capital_password_file_path]
[-capital_status = capital reject status]
[-capital_user = capital user]
[-freeze_sharedobjects_used = {doNotFreeze | freeze | skipIfAllowed}]
[-run_drcs = {useCapitalPreference| forceRunDRC| skipIfAlreadyRun}]
[-treat_warnings_as_errors = true|false]
```

ARGUMENTS

-annotate

Annotates diagrams after the release of the design.

Valid values are **true** and **false**. The default value is **false**.

-capital_pwd_file

Determines the absolute path of the password file used to log on to the Capital webservices.

The password file can be generated through the Teamcenter install utility.

-capital_status

Defines the **Reject** status name applied on the Capital design.

Defines the release level name and the release transition path in Capital in order to apply the release level on the Capital designs.

-capital_user

Defines the Capital user name used to log on and invoke the Capital webservice.

-freeze_sharedobjects_used

Configures freezing shared objects for a release level in Capital preferences. The possible values are as follows:

- *doNotFreeze*
Does not freeze the objects on transitioning to the target release level. If it is configured to freeze shared objects for the target release level in Capital preferences, passing this value results in an error.
- *freeze*
Configures whether or not to freeze shared objects for the target release level in Capital preferences.
- *skipIfAllowed*
Skips freezing of shared objects only if it is not configured to freeze shared objects for the target release level in Capital preferences.

The default value is **doNotFreeze**.

-run_drcs

Defines how **Design Rule Checks** (DRCs) perform when the design in Capital is rejected.

- *useCapitalPreference*
Runs **Design Rule Checks** (DRCs) configured to run in Capital preferences for a design type and a target release level.
- *forceRunDRC*
Enforces **Design Rule Checks** (DRCs) even if they are not configured to run in Capital preferences for a design type and target release level.
- *skipIfAlreadyRun*
Skips running **Design Rule Checks** (DRCs) if they have already run.

Example:

If a design is already transitioned to a **Release** level of type **Release**, and the transition is happening at another **Release** level of the same type (**Release**), the user may choose to not run them again by passing this value.

The default value is **useCapitalPreference**.

-treat_warnings_as_errors

Changes warnings from **Design Rule Checks** (DRCs) to errors.

Valid values are **true** and **false**. The default value is **false**.

PLACEMENT

Place on any action. Typically, place on the **Start** or **Perform** action of a **Do** task.

RESTRICTIONS

None.

EXAMPLES

This fetches all electrical designs for Capital for the corresponding target Teamcenter designs. It applies **Draft** status to the Capital designs that use the Capital webservices.

Arguments	Values
-annotate	false
-capital_pwd_file	Absolute path of the generated password file
-capital_status	Draft
-capital_user	system
-freeze_sharedobjects_used	doNotFreeze
-run_drcs	useCapitalPreference
-treat_warnings_as_errors	false

HRN-set-release-state

DESCRIPTION

The **HRN-set-release-state** handler provides status alignment between Teamcenter designs and electrical designs in Capital.

When used in a Workflow template, the **HRN-set-release-state** handler fetches all the Capital designs for the target Teamcenter design through Capital webservice. It then assigns the required **Release** status to the Capital design.

Note:

Use this handler in the design approval Workflow process to assign the required status to the electrical design in the Capital tool when the Teamcenter design is released.

SYNTAX

HRN-set_release_state

```
[-annotate = true|false]
[-capital_pwd_file = capital_password_file_path]
[-capital_status = capital release status]
[-capital_user = capital user]
[-freeze_sharedobjects_used = {doNotFreeze | freeze | skipIfAllowed}]
[-run_drcs = {useCapitalPreference| forceRunDRC| skipIfAlreadyRun}]
[-treat_warnings_as_errors = true|false]
```

ARGUMENTS

-annotate

Annotates diagrams after the release of the design.

Valid values are **true** and **false**. The default value is **false**.

-capital_pwd_file

Determines the absolute path of the password file used to log on to the Capital webservice.

The password file can be generated through the Teamcenter install utility.

-capital_status

Defines the **Release** status name applied on the Capital design.

Define the release level name and the release transition path in Capital in order to apply the release level on the Capital designs.

-capital_user

Defines the Capital user name used to log on to and invoke Capital webservice.

-freeze_sharedobjects_used

Configures freezing shared objects for a release level in Capital preferences. The possible values are as follows:

- *doNotFreeze*
Does not freeze the objects on transitioning to the target release level. If it is configured to freeze shared objects for the target release level in Capital preferences, passing this value results in an error.
- *freeze*
Configures whether or not to freeze shared objects for a target release level in Capital preferences.
- *skipIfAllowed*
Skips freezing of shared objects only if it is not configured to freeze shared objects for the target release level in Capital preferences.

The default value is **doNotFreeze**.

-run_drcs

Defines how **Design Rule Checks** (DRCs) perform when the design in Capital is released.

- *useCapitalPreference*
Runs **Design Rule Checks** (DRCs) configured to run in Capital preferences for a design type and a target release level.
- *forceRunDRC*
Enforces **Design Rule Checks** (DRCs) even if they are not configured to run in Capital preferences for a design type and a target release level.
- *skipIfAlreadyRun*
Skips running **Design Rule Checks** (DRCs) if they have already run.

Example:

If a design is already transitioned to a **Release** level of type **Release**, and the transition is happening at another **Release** level of the same type (**Release**), the user may choose to not run them again by passing this value.

The default value is **useCapitalPreference**.

-treat_warnings_as_errors

Changes warnings from **Design Rule Checks** (DRCs) to errors.

Valid values are **true** and **false**. The default value is **false**.

PLACEMENT

Place on any action. Typically, place on the **Start** or **Perform** action of a **Do** task.

RESTRICTIONS

None.

EXAMPLES

This fetches all electrical designs for Capital for the corresponding target Teamcenter designs. It applies a **Released** status to the Capital designs that use the Capital webservices.

Arguments	Values
-annotate	false
-capital_pwd_file	Absolute path of the generated password file
-capital_status	Released
-capital_user	system
-freeze_sharedobjects_used	doNotFreeze
-run_drcs	useCapitalPreference
-treat_warnings_as_errors	false

ISSUEMGT-check-review-decision

DESCRIPTION

Checks issue review records for a target issue report revision when the specified review decision is made. If no issue review record is found for the issue report revision contained as a target of the workflow, the signoff decision is reset to **No Decision**. The user is prompted to choose **Tools→Review Issue** to review the issue and record a decision.

SYNTAX

ISSUEMGT-check-review-decision=*review-decision-type*

ARGUMENTS

review-decision-type

Specifies which type of signoff decision prompts the system to check the issue review record for the issue report revision. It accepts one of the following values:

- Approve** Issue review records are checked for a target issue report revision when the user approves the signoff.
- Reject** Issue review records are checked for a target issue report revision when the user rejects the signoff.

PLACEMENT

Place on the **Perform** action of the **perform-signoffs** task.

RESTRICTIONS

None.

EXAMPLES

- In this example, issue review records are checked for a target issue report revision when the user approves the signoff. If no issue report revision is found for the target, the signoff is reset to **No Decision**. The user is prompted to choose **Tools→Review Issue** to review the issue and record a decision.

Argument	Values
	-Approve

- In this example, issue review records are checked for a target issue report revision when the user rejects the signoff. If no issue report record is found for the target issue report revision, the signoff is reset to **No Decision**. The user is prompted to choose **Tools→Review Issue** to review the issue and record a decision.

Argument**Values**

-Reject

- In this example where no argument is given, issue review records are checked for a target issue report revision when the user performs the signoff, either approving or rejecting it. If no issue report record is found for the target, the signoff is reset to **No Decision**. The user is prompted to choose **Tools→Review Issue** to review the issue and record a decision.

ISSUEMGT-update-issue-status

DESCRIPTION

Counts the issue review decisions from all reviewers and updates the issue status. It takes inputs such as decision type, passing threshold, and the list of issue attribute/value pairs to update when a review decision passes. If you use the **-force_set_properties** argument, the review decision does not need to be passed to update the issue status. You can optionally clean up review records after they are counted and issue status is updated. It sets a condition when configured with a **Condition** task.

SYNTAX

ISSUEMGT-update-issue-status -review_decision=decision-string -threshold=percentage-passes -set_condition [-force_set_properties] [-attribute-name=attribute-value] [-clean_up_review_records]

ARGUMENTS

-review_decision

Specifies the issue review decision. It accepts one of the following values:

- **defer**
- **reject**
- **approveFix**
- **close**
- **reopen**
- **approveIssue**

-threshold

Sets the percentage required to approve the review decision.

For example, **-threshold=51** means that the review decision passes with a 51 percent majority.

-set_condition

Sets the **Condition** task to **TRUE** if the review decision passes.

-force_set_properties

Forces the issue attributes to be set regardless if review decisions are counted or if review decision passes.

-attribute-name

Updates the specified attribute with the specified value when the review decision passes. You can specify more than one attribute and value pair.

-clean_up_review_records

Cleans up review records after they are counted and the issue status is updated.

PLACEMENT

Place in any workflow task.

RESTRICTIONS

If the **-review_decision** argument is set for this handler and the **-force_set_properties** is not set, Siemens Digital Industries Software recommends placing the **ISSUEMGT-check-review-decision** action handler on a previous **perform-signoffs** task to ensure that review decisions are logged from all reviewers.

LDF-create-object

DESCRIPTION

Creates an object in the remote system and relates it to the workflow attachment.

SYNTAX

```
LDF-create-object
service_provider
-object_type
[ -property::<oslc-namespace-prefix-url>.property-name]
[-from_attach]
-attachment_relation
[-remote_user_name]
```

ARGUMENTS

-service_provider

Service provider represents the services published by the external application.

Example:

Polarion is registered in Teamcenter as a site and service provider under which my objects will be created.

This is a mandatory argument.

The values specified for this argument can be dynamic. Users can configure the handler argument to read the property values from workflow attachments and substitute them as the argument values. For example, **-service_provider=PROP::owning_project** where **owning_project** is the property of the Teamcenter workflow attachment. If corresponding **service_provider** is not found, this handler returns an error.

-object_type

This argument specifies the type of object created in the remote system.

This is a mandatory argument.

-property::<oslc-namespace-prefix-url>.property-name

Specifies the property name for the remote object to be created.

Requires a fully qualified property name with a prefix URL prepended to every property in a workflow argument, which is prepended by **-property::**. The OSLC namespace prefix URL must be

contained in angle brackets, < and >, in the **<oslc-namespace-prefix-url>.property-name** format as shown in the examples section.

The values specified for this argument can be dynamic. User can configure the handler argument to read the property values from workflow attachments and substitute it as the argument value.

For example, **-property::<http://purl.org/dc/terms/>.title =PROP::object_name** where **object_name** is the property of the Teamcenter workflow attachment. User can also configure prefix or suffix.

The dynamic property values can also have prefix or suffix. For example, **-property::<http://purl.org/dc/terms/>.title =ABC PROP::object_name XYZ** ABC is the prefix, *PROP::object_name* is the dynamic value from Teamcenter object, and XYZ is the suffix.

-from_attach

target | reference

(Optional) Specifies which type of attachment (target or reference) to get the property value from when a property is specified in the **-property::<oslc-namespace-prefix-url>.property-name** argument. For example, **-property::<http://purl.org/dc/terms/>.title=PROP::object_name** where *object_name* is the property of the Teamcenter workflow attachment.

You can use this argument only when you get the property value from a property of the attachment object.

-attachment_relation

Specifies the relation name linking the remote object with the target. This relation name should match a relation name configured in Linked Data Framework. Refer to *Integrating Applications Using Linked Data Framework > Define the relations to apply when creating remote links*.

This is a mandatory argument.

-remote_user_name

Used by the handler to connect to a remote system like Polarion for sending HTTP requests.

The Restrictions section below describes separate actions required to generate an encrypted password file.

Note:

This argument is optional with SSO.

PLACEMENT

Place on the **Start** or **Complete** action.

Note:

Do not place on a **Perform** action requiring specific user interaction. Placement on the **Perform** action may cause the handler to be triggered multiple times.

RESTRICTIONS

Use if you are using the Linked Data Framework for application integrations, and you want Teamcenter workflows to create an object in a remote system.

You must generate an encrypted password file by following these steps in a Teamcenter command shell:

1. Run this command:
mkdir %TC_DATA%\polarionconnector
2. Run this command:
%TC_ROOT%\bin\install -encryptpwf -f=%TC_DATA%\polarionconnector\ <user name>
Where <user name> is user name of remote system such as Polarion ALM. This user name should be configured as a value of the **-remote_user_name** handler.

EXAMPLES

- This example shows the **LDF-create-object** handler configuration to create an object in the remote system of type **changerequest**, and attaching the remote link of this object with target by **Lcm0RelatedChangeRequest** relation. Uses service provider and title values from target object properties **object_desc**, **object_name**, respectively.

Argument	Values
-service_provider	PROP::object_desc
-object_type	changerequest
-property:: <http://purl.org/dc/terms/>.title	PROP::object_name
-from_attach	target
-attachment_relation	Lcm0RelatedChangeRequest
-remote_user_name	admin

- This example shows the **LDF-create-object** handler configuration to create an object in the remote system of type **issue**, and attaching the remote link of this object with target by

Lcm0AffectedByDefect relation. Uses title and description values from target object properties **object_name**, **object_desc** respectively.

Argument	Values
-service_provider	Drive Pilot
-object_type	issue
-property:: <http://purl.org/dc/terms/>.title	PROP::object_name
-property:: <http://purl.org/dc/terms/>.description	PROP::object_desc
-from_attach	target
-attachment_relation	Lcm0AffectedByDefect
-remote_user_name	admin

LDF-set-task-result-to-property

DESCRIPTION

LDF-set-task-result-to-property reads the specified property from the remote object. **LDF-set-task-result-to-property** uses that property value to set the result string attribute of the task where this handler is located, or on the task specified by the **-target_task** argument. A common use for this handler is to control **Condition** task branching instead of using a scheme that requires a custom handler. Using this handler to set the result attribute of a **Condition** task branches the workflow process based on a remote property of the target source object.

SYNTAX

```
-property
-source
[-attachment_relation]
[ -include_type ]
[ -target_task ]
[ -remote_user_name ]
```

ARGUMENTS

-property

Specifies the property to be read from the identified remote object attached to the target with specified relation.

The values specified for this argument require a fully qualified property name with a prefix URL prepended to every property in a workflow argument value. The OSLC namespace prefix URL must be contained in angle brackets in the **<oslc-namespace-prefix-url> -property-name** format as shown in the **Examples** section below.

This is a mandatory argument.

-source

Determines which source object identifies the remote object property. Source object values are either **target** or **reference**. The remote object property is identified in the **-property** argument.

- **target**
Declares that the remote object property is read from a target object. The **-include_type** argument specifies the target object type to use.
- **reference**
Declares that the remote object property is from a reference object. The **-include_type** argument specifies the reference object type to use.

-attachment_relation

Specifies the relation name to expand to get a linked object from a workflow attachment. Linked objects, attached to targets and references in a workflow with the relation specified by -**attachment_relation**, are searched. Linked objects not matching the specified relation criteria are ignored.

This is an optional argument.

-include_type

Identifies the source type to read the specified property of the remote object. The property name is defined in the -**property** argument. If more than one target object of a given type exists, the first target on the list is used. If a valid -**include_type** argument is absent, the property is read from the first target on the list.

-target_task

Identifies where the result string attribute is set. If not specified, then the task result attribute is set for the task containing this handler.

This is an optional argument.

- **\$ROOT_TASK**—Sets the result string attribute on the root task of the process.
- **\$DEPENDENT_TASK**—Sets the result string attribute on the parent process task which is dependent on this subprocess. The parent process task should be a **Condition** task.

-remote_user_name

Used by the handler to connect to a remote system, like Polarion, for sending HTTP requests.

The **Restrictions** section below describes separate actions required to generate an encrypted password file.

Note:

This argument is optional with SSO.

PLACEMENT

Typically placed on the **Start** action of the specified **Condition** task.

Note:

You can apply the **LDF-set-task-result-to-property** handler to *any* task, but it sets the result on either a root or **Condition** task.

The **Condition** task can contain the handler or be a parent of another dependent task that contains the handler.

RESTRICTIONS

- Do not place this handler on the **Perform** action.
- Do not use this handler in conjunction with other handlers that set the **result** attribute, such as **EPM-set-condition**, **EPM-set-parent-result**, or a custom handler.
- You can use this handler on the **Complete** action only if a change occurred on the **Perform** action.
- This handler allows you to set the **result** attribute on the root task or any other **Condition** task.
- Use if you are using the Linked Data Framework for application integrations and you want Teamcenter workflows to create an object in a remote system. You must generate an encrypted password file in a Teamcenter command shell. To create an encrypted password:
 1. Run this command: **mkdir %TC_DATA%\polarionconnector**.
 2. Run this command: **%TC_ROOT%\bin\install -encryptpwf -f=%TC_DATA%\polarionconnector \<user name>**.
Where **<user name>** is the user name of a remote system such as Polarion ALM. Configure this user name as a value of the **-remote_user_name** handler.

EXAMPLES

This **LDF_set_task_result_to_property** handler configuration branches a **Condition** task based on the remote object property **Priority**, which is attached to a target change request revision with the relation **Lcm0RelatedChangeRequest**.

Argument	Values
-property	<http://polarion.plm.automation.siemens.com/oslc#>.priority
-source	target
-include_type	ChangeRequestRevision
-attachment_relation	Lcm0RelatedChangeRequest
-remote_user_name	admin

MDL-attach-changes-to-baselines

DESCRIPTION

For all change item revisions that are targets of the root task, this handler finds any baseline revisions in the **Reference Items** folder and attaches the change item revision as a reference to the baseline.

If the attachment fails for any reason, an error is returned.

SYNTAX

MDL-attach-changes-to-baselines

ARGUMENTS

None.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

MDL-attach-subset-definition-changes

DESCRIPTION

Compares the **mdl0HistorySyncStatus** property for the content of all target subset definitions. Where content is out of synchronization, the handler adds the content to the workflow as a target.

An **Mdl0ModelElement** business object is in sync whenever the **mdl0HistorySyncStatus** property value is empty ("").

Examine both the latest-history and latest configurations for both content and partitions. This is required to get the correct promote-to-history of obsoleted or configured-out content.

SYNTAX

MDL-attach-subset-definition-changes [-partition=*scheme1*, [*scheme2*, ...]] | [* | all | any]

ARGUMENTS

-partition

(Optional) Attaches the required partitions from the subset definition content up to the root partitions. You can specify multiple partition schemes by name, all partitions, or any partition.

If the **-partition** argument is used, partitions in the specified partition schemes are also attached if the partition is:

- Configured by the subset definition.
- Itself is out of sync.
- Lies on the path from the subset definition content to the root partitions.

PLACEMENT

Place before the **MDL-promote-objects-to-history** handler to synchronize the subset definition content with the history.

RESTRICTIONS

None.

MDL-promote-objects-to-history

DESCRIPTION

Promotes all targets and any related objects to history. For non-revisable targets, this handler checks the maturity status for object stability.

If the target object is revisable, the logical object is copied to POM history and its references are checked for stability.

If the target object is not revisable, it is checked for stability

SYNTAX

MDL-promote-objects-to-history

ARGUMENTS

None.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

MDL-snapshot-baseline-revisions

DESCRIPTION

Sets the snapshot date and closure state for all baseline revisions that are targets of the root task.

Deleting and re-adding the baseline snapshot date is an alternative to revising a baseline. It avoids creating additional objects, but does not allow a record to be kept of the failed baseline attempt. The choice between a re-open versus a revise step is a business decision, and it is expected to be formally designed as a workflow.

Siemens Digital Industries Software recommends that you use a workflow action handler to close a baseline before performing signoffs. Once signoffs are complete, we recommend using another workflow action handler to assign a status to the baseline.

SYNTAX

MDL-snapshot-baseline-revisions -snapshot = add | replace | delete -closure=*name*]

ARGUMENTS

-snapshot

Sets the baseline revision snapshot date. The value can be one of the following:

- **add**
Ensure the baseline revision has a snapshot date.
If the baseline revision does not have a snapshot date, it is set to the current date.
If the baseline revision already has a snapshot date, the snapshot date is unchanged.
- **replace**
Sets the baseline revision snapshot date to the current date.
- **delete**
Sets the baseline revision snapshot date to **null**.

-closure

Sets the baseline revision closure property to the specified value.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

ME-create-mirror-mbom-AH

DESCRIPTION

Creates a single manufacturing bill of materials (MBOM) master root from a single engineering bill of materials (EBOM) master root. It allows different item types in the MBOM than were in the EBOM for certain nodes based on custom logic. By default, the MEBOM_* preferences listed set the item type to be created.

- **MEMBOM_Mirror_MakeRules**
- **MEMBOM_Mirror_RemoveLineWithIDIC**
- **MEMBOM_Mirror_ReplaceMakeOnChange**
- **MEMBOM_Mirror_TypePrefixSuffix**

Note:

This utility requires a mfg_mbm_author or manufacturing_author license.

You can also customize the item type to be created using the **USER_create_or_ref_item** user exit operation exposed in the Business Modeler IDE through **BMF_ITEM_create_or_ref_id** on the item.

Attachments that are associated with item revisions in the EBOM structure are carried forward. A user exit operation (**USER_sync_item**) must also be available on the item to align any additional attachment information or non-occurrence properties. The user exit is exposed in the Business Modeler IDE through **BMF_ITEM_sync** on the item.

The target must be an item or item revision or a structure context object. The top line of the structure is where the creation starts.

SYNTAX

ME-create-mirror-AH

```
[-revrule=revision-rule]
[-mbomrevrule=mbom-revision-rule]
[-depth=depth]
[-clientdata=data]
[-actiononrelease= {1 | 2 | 3 | 4}]
[-mscuid=UID]
[-usemfk= {0 | 1}]
[-log=log-file]
```

ARGUMENTS

-revrule

Specifies the revision rule of the EBOM structure used to traverse. This argument is mandatory only if the target is an item or item revision. Do *not* use this argument if the target is a structure context object.

-mbomrevrule

Specifies the revision rule for the MBOM structure. This argument is mandatory only if the target is an item or item revision. Do *not* use this argument if the target is a structure context object.

-depth

(Optional) Specifies the depth up to which to create the MBOM nodes.

If you do not specify this value, Teamcenter creates all of the MBOM nodes.

-clientdata

(Optional) Data to be passed to any custom-registered user exit functions defined on the item.

-actiononrelease

(Optional) Specifies a value indicating the action to be taken if an MBOM node already exists (has a computed ID linked to the EBOM) and is released. Possible values are:

- 1 – Skip (the default).
- 2 – Revise and modify,
- 3 – Update properties on the released item.
- 4 – Update properties on the MBOM and its children.

-mscuid

Specifies the UID of the structure context object for the MBOM structure if the **mbomrevrule** is not suitable (for example, it is a private revision rule).

-log

(Optional) Specifies the absolute path and name of the log file to capture details about the nodes created.

-usemfk

(Optional) Specifies whether to include the **MEMBOM_Mirror_TypePrefixSuffix** preference value with the EBOM item identifier as a multifield key that becomes the new MBOM item identifier. Values are:

0	Do not include the preference value in the multifold key. This value is the default.
1	If the preference defines an item type without a prefix or a suffix, include the value in the multifold key. This value is ignored if the preference also defines a prefix or a suffix.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

EXAMPLES

The following examples of specifying arguments for the **ME-create-mirror-mbom-AH** action handler demonstrate its use and the differences in output caused by changing the arguments. The initial values of the preferences are as follows.

- **MEMBOM_Mirror_MakeRules=KEY:Usage_MakeOrPurchase,VALUE:Make
|VALUE:Phantom**
- **MEMBOM_Mirror_RemoveLineWithIDIC=false**
- **MEMBOM_Mirror_TypePrefixSuffix=Company,M_**
- **MEMBOM_Mirror_ReplaceMakeOnChange=false**
- **Create an MBOM**

For the following EBOM, which is the target of the workflow:

BOM Line	Usage_MakeOrPurc...
000202/A;1-CAR EBOM (View)	
000203/A;1-Body (View)	Buy
000214/A;1-Chassis (View)	Buy
000224/A;1-Powertrain (View)	Phantom
000225/A;1-Transmission (View)	Phantom
000226/A;3-Drive Gears	Make
000227/A;3-Motor	Make
000228/A;3-Reducer Gears	Make
000229/A;2-rear_drive_asm (View)	Make
000230/A;2-rear_axle	Buy
000231/A;2-rear_drive_housing	Make
000232/A;2-main_drive_gear	Buy
000233/A;3-power pack case	Make
000235/A;3-rcvr servo remote control	Buy
000236/A;1-Power Source (View)	Phantom
000237/A;2-battery pack	Buy
000238/A;2-Wheel and Tire Asm (View)	Buy
000246/A;1-Steer and Control (View)	Buy

The following arguments on **ME-create-mirror-mbom-AH**:

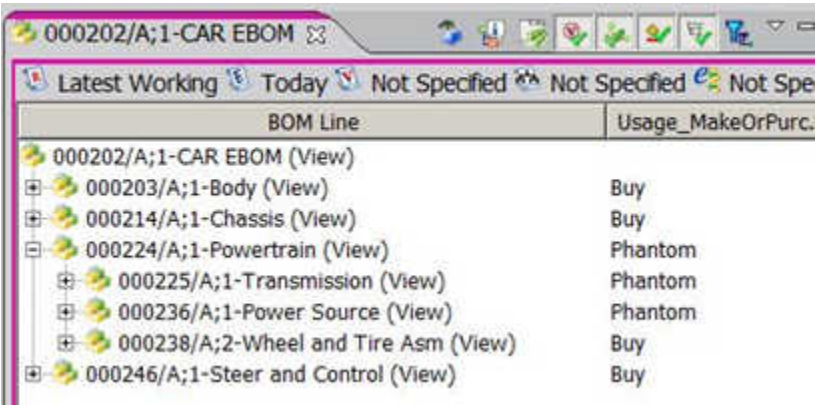
Argument	Values
-revrule=	"Latest Working"
-mbomrevrule=	"Latest Working"

Produce the following MBOM:

BOM Line	Usage_MakeO...
M_000202/A;1-M_CAR EBOM (View)	
000203/A;1-Body (View)	Buy
000214/A;1-Chassis (View)	Buy
M_000224/A;1-M_Powertrain (View)	Phantom
M_000225/A;1-M_Transmission (View)	Phantom
M_000226/A;1-M_Drive Gears	Make
M_000227/A;1-M_Motor	Make
M_000228/A;1-M_Reducer Gears	Make
M_000229/A;1-M_rear_drive_asm (Vi...	Make
M_000233/A;1-M_power pack case	Make
000235/A;3-rcvr servo remote control	Buy
M_000236/A;1-M_Power Source (View)	Phantom
000238/A;2-Wheel and Tire Asm (View)	Buy
000246/A;1-Steer and Control (View)	Buy

- Create the MBOM to a specific level

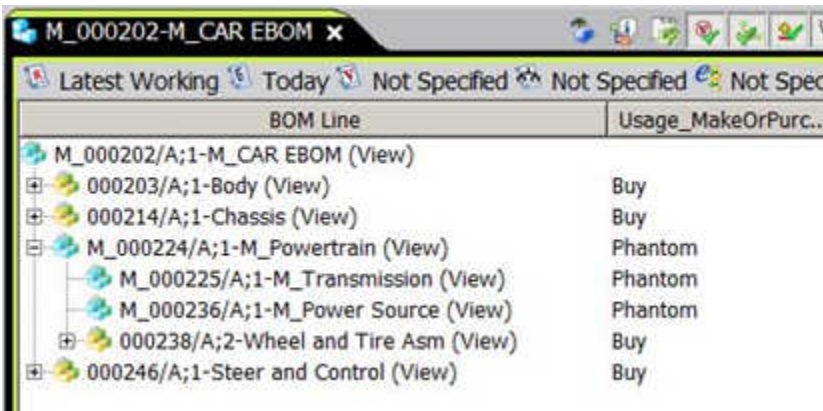
For the following EBOM, which is the target of the workflow:



The following arguments:

Argument	Values
-revrule=	"Latest Working"
-mbomrevrule=	"Latest Working"
-depth=	2

Produce a new MBOM, which contains only two levels of structure. The remaining levels in the EBOM are ignored.



ME-create-revision-change-XML-AH

DESCRIPTION

Creates a revision change delta XML file. The manufacturing change notice (MCN) revision contains the item revisions to find revision changes. The configuration context object supplies the current configuration, and the MCN can optionally have a **was** configuration set on it. The generated XML file is attached to the request object.

SYNTAX

ME-create-revision-change-XML-AH
[-filename=*file-name*]

ARGUMENTS

(Optional) -filename=*file-name*

When you specify the -filename= argument, the system uses it as a base name; however, the actual filename is **RevisionChangeXML***basename-randomstring.xml*

REFERENCES

- (Required) MCN revision object.
- (Required) Configuration context (execution plan type) object.

TARGETS

(Required) Request object.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

ME-mbom-resolve-AH

DESCRIPTION

Searches the specified engineering bill of materials (EBOM) for parts that resolve the search recipes defined in the target (root) manufacturing bill of materials (MBOM) and assigns them to the MBOM.

You can choose the scope of the resolution and whether to recursively resolve all nodes underneath the selected scope (**-recurse**) and remove previously assigned parts. Because you most often define the root of the EBOM as the target, be sure to set the **-recurse** argument to **1** to resolve the entire structure.

SYNTAX

ME-mbom-resolve-AH

```
[-itemid=UID | -scuid=in-context-ID | -key=multi-field-key-of-structure-root ]
[-revrule=revision-rule]
[-mbomrevrule=revision-rule]
[-log=log-file]
[-scopeid=scope-ID | -scopeidincontext=scope-in-context-ID |
  -scopekey=multi-field-key-of-structure-root]
[-mscopeid=UID | -mscopeidincontext=scope-in-context ID |
  -mscopekey=multi-field-key-of-structure-root]
[-recurse=1 | 0]
[-removepreviousresolvednodes=1 | 0]
```

ARGUMENTS

-itemid

(Optional) Specifies the root of the EBOM structure to be searched.

One of the **-itemid**, **scuid**, or **key** arguments is mandatory. Therefore, do *not* use if you define a structure context or a key.

-scuid

(Optional) Specifies the structure context capturing the root of the EBOM structure and configuration to be searched.

One of the **-itemid**, **-scuid**, or **-key** arguments is mandatory. Therefore, do *not* use if you define an item or item revision or a key.

-key

(Optional) Specifies the key of the top line of the root EBOM structure to be searched when multiple attributes are used to form the unique item ID. Use the following format:

```
[keyAttr1=keyVal1] [,keyAttr2=keyVal2]...[,keyAttrN=keyValN]
```

One of the **-itemid**, **-scuid**, or **-key** arguments is mandatory. Therefore, do *not* use if you define an item or item revision or structure context.

-revrule

(Optional) Specifies the revision rule of the EBOM structure to be searched. This argument is mandatory only if the EBOM is an item or item revision or key. Do *not* use if the target is a structure context object.

-mbomrevrule

(Optional) Specifies the revision rule for the MBOM structure where the recipes are defined. This argument is mandatory only if the target is *not* a structure context object.

-log

(Optional) Specifies the absolute path and name of the log file to capture details.

-scopeid

(Optional) Specifies the item ID in the EBOM from which to begin the search. This argument cannot be used with **scopeidincontext** or **scopekey**.

If you do not specify this value, Teamcenter begins searching at the top line of the EBOM.

Select one of the **-scopeid**, **-scopeidincontext**, or **-scopekey** arguments. Do *not* use if you define a structure context or a key.

-scopeidincontext

(Optional) Specifies the ID in top level context in the EBOM from which to begin the search. This argument cannot be used with **scopeid**.

If you do not specify this value, Teamcenter begins searching at the top line of the EBOM.

Select one of the **-scopeid**, **-scopeidincontext**, or **-scopekey** arguments. Do *not* use if you define an item or item revision or a key.

-scopekey

(Optional) Specifies the IDIC of the line in the EBOM from which to begin the search. This argument cannot be used with **scopeid**.

If you do not specify this value, Teamcenter begins searching at the top line of the EBOM.

Select one of the **-scopeid**, **-scopeidincontext**, or **-scopekey** arguments. Do *not* use if you define an item or item revision or structure context.

-mscopeid

(Optional) Specifies the item ID in the MBOM to resolve, for example, if you want to resolve for a particular phantom node. This argument cannot be used with **mscopeidincontext**.

If you do not specify this value, Teamcenter resolves at the top line of the MBOM.

Select one of the **-mscopeid**, **-mscopeidincontext**, or **-mscopekey** arguments. Do *not* use if you define a structure context or a key.

-mscopeidincontext

(Optional) Specifies the ID in top level context in the MBOM to resolve, for example, if you want to resolve for a particular phantom node.

If you do not specify this value, Teamcenter resolves the recipes starting at the top line of the MBOM.

Select one of the **-mscopeid**, **-mscopeidincontext**, or **-mscopekey** arguments. Do *not* use if you define an item or item revision or a key.

-mscopekey

(Optional) Specifies the IDIC of the line in the MBOM to resolve, for example, if you want to resolve for a particular phantom node. This argument cannot be used with **mscopeid**.

If you do not specify this value, Teamcenter resolves the recipes starting at the top line of the MBOM.

Select one of the **-mscopeid**, **-mscopeidincontext**, or **-mscopekey** arguments. Do *not* use if you define an item or item revision or structure context.

-recurse

(Optional) Specifies whether to resolve all nodes under the specified scope node. Valid values are **1** and **0**. The default value is **0** meaning Teamcenter only resolves the recipes at the specified scope node.

-removepreviousresolvednodes

(Optional) Specifies whether to remove the previously assigned parts. Valid values are **1** and **0**. The default value is **0** meaning Teamcenter does not remove parts that have already been resolved in the MBOM.

PLACEMENT

Requires no specific placement.

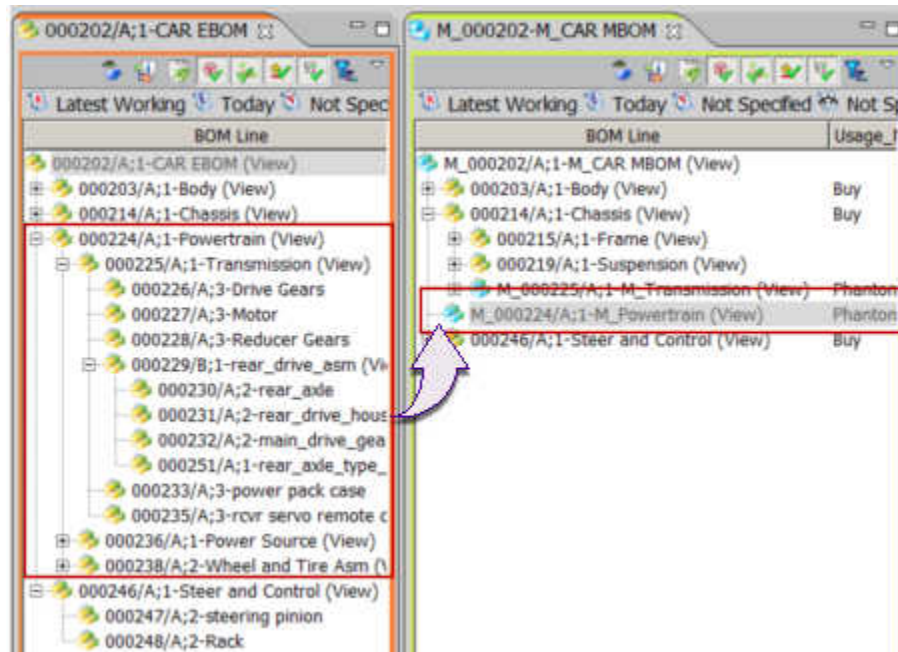
RESTRICTIONS

None.

EXAMPLES

The following arguments search the EBOM (**000202/A;1-CAR_EBOM**) for parts that resolve the recipes defined at node **000224/A** of the target MBOM (**M_000202-M_CAR_MBOM**) and assigns them to the MBOM:

Argument	Values
-itemid=	000202
-revrule=	"Latest Working"
-mbomrevrule=	"Latest Working"
-mscopeid=	000224
-recurse	1



ME-stamp-ids-AH

DESCRIPTION

Traverses a structure according to a closure rule and automatically assigns a value to a specific property based on a recipe determined by the value of the **MEIdGenerationPropertySetting** preference. The workflow targets must be items, item revision, or structure context objects.

The target item or item revision is used as the top line of the BOM window. Normally, the top line of the structure is where the transverse is started. If you need to start at a lower line, use the **-scopeid** or **-scopeidincontext** arguments.

SYNTAX

ME-stamp-ids-AH

```
[-revrule=revision-rule]  
[-scopeid=scope-ID]-scopeidincontext=scope-in-context-ID]  
[-cluserule=closure-rule-name]  
[-preference=preference-name]  
[-forceupdate=1]
```

ARGUMENTS

-revrule

Specifies the revision rule. This argument is mandatory only if the target is an item or item revision to set up the BOM window. Do not use this argument if the target is a structure context object.

-scopeid

(Optional) Specifies the item ID in the manufacturing BOM from which to begin the traversal. This argument cannot be used with **scopeidincontext**.

If you do not specify this value, Teamcenter begins the traversal at the top line in the manufacturing BOM.

-scopeidincontext

(Optional) Specifies the IDIC of the line in the manufacturing BOM from which to begin the traversal. This argument cannot be used with **scopeid**.

If you do not specify this value, Teamcenter begins the traversal at the top line in the manufacturing BOM.

-cluserule

(Optional) Specifies the closure rule that determines which lines in the structure Teamcenter stamps when it traverses the manufacturing BOM structure below the scope line.

If you do not specify a closure rule, every line in the structure below the given scope line is stamped.

-preference

(Optional) Specifies the preference name containing the rules for setting the BOM line property. The default preference is **MEIdGenerationPropertySetting**.

-forceupdate=1

(Optional) Specifies that an existing ID in a **Context** string should be ignored and that a new value is generated. By default, the old value is not overridden.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

EXAMPLES

- This example creates in-context IDs that are based on the **Usage Address** property based on the constituent properties of item ID and item type. To do this:

- Define the recipe for the IDIC value by setting the **MEIdGenerationPropertySetting** to:

```
type:Item,key: bl_usage_address,prop:bl_item_item_id,
prop:bl_item_object_type
```

- Do one of the following:

- Create the usage address property on each line under the top line.

Argument	Values
-revrule	Latest Working

- Create the usage address on selected lines specified in a closure rule under a scope line determined by the specified IDIC (top level) value. In other words, the handler begins with a line that you specify by IDIC, traverses the structure from the IDIC line downward using the given closure rule, and stamps the resulting lines with the usage address string.

Argument	Values
-revrule	Latest Working
-scopeidincontext	kJBtMh0hAAbaaA
-clusererule	AccountabilityAll

ME-update-mirror-mbom-AH

DESCRIPTION

Updates a manufacturing bill of materials (MBOM) based on an engineering bill of materials (EBOM) from the top structure level. It allows different item types in the MBOM than were in the EBOM for certain nodes based on custom logic. By default, the MEMBOM_* preferences listed below set the item type to be created.

- **MEMBOM_Mirror_MakeRules**
- **MEMBOM_Mirror_RemoveLineWithIDIC**
- **MEMBOM_Mirror_ReplaceMakeOnChange**
- **MEMBOM_Mirror_TypePrefixSuffix**

Note:

This utility requires a mfg_mbm_author or manufacturing_author license.

You can also customize the item type to be created using the **USER_create_or_ref_item** user exit operation exposed in the Business Modeler IDE through **BMF_ITEM_create_or_ref_id** on the item.

The target must be an item or item revision or a structure context object. The top line of the structure is where the update is started. If you need to start at a lower line, use the **-scopeid** or **-scopeidincontext** arguments.

SYNTAX

ME-update-mirror-mbom-AH

```
[-revrule=revision-rule]
[-mbomrevrule=mbom-revision-rule]
[-depth=depth]
[-clientdata=data]
[-actiononrelease= {1 | 2 | 3 | 4}]
[-mscuid=UID]
[-mbomroot=root-itemid]
[-usemfk= {0 | 1}]
[-log=log-file]
```

ARGUMENTS

-revrule

Specifies the revision rule of the EBOM structure used to traverse. This argument is mandatory only if the target is an item or item revision. Do *not* use this argument if the target is a structure context object.

-mbomrevrule

Specifies the revision rule for the MBOM structure. This argument is mandatory only if the target is a structure context object. This argument is required if the target is an item revision.

-depth

(Optional) Specifies the depth up to which to create the MBOM nodes.

If you do not specify this value, Teamcenter creates all of the MBOM nodes.

-clientdata

(Optional) Data to be passed to any custom-registered user exit functions defined on the item.

-actiononrelease

(Optional) A value indicating the action to be taken if an MBOM node already exists (has a computed ID) and is released. Possible values are:

- 1 – Skip (the default).
- 2 – Revise and modify,
- 3 – Update properties on the released item.
- 4 – Update properties on the MBOM and its children.

-mscuid

The UID of the structure context object for the MBOM structure if the **mbomrevrule** is not suitable (for example, it is a private revision rule). Either this argument or the **mbomroot** argument is mandatory.

-mbomroot

(Optional) The ID of the root of the MBOM structure. Either this argument or the **mscuid** argument is mandatory.

-scopeid

(Optional) Specifies the item ID in the EBOM from which to begin the traversal. This argument cannot be used with **scopeidincontext**.

If you do not specify this value, Teamcenter begins the traversal at the top line in the EBOM.

-scopeidincontext

(Optional) Specifies the IDIC of the line in the EBOM from which to begin the traversal. This argument cannot be used with **scopeid**.

If you do not specify this value, Teamcenter begins the traversal at the top line in the EBOM.

-log

(Optional) Specifies the absolute path and name of the log file to capture details about the nodes created.

-usemfk

(Optional) Specifies whether to include the **MEMBOM_Mirror_TypePrefixSuffix** preference value with the EBOM item identifier as a multifield key that updates the existing MBOM item identifier. Values are:

- | | |
|---|--|
| 0 | Do not include the preference value in the multifield key. This value is the default. |
| 1 | If the preference defines an item type without a prefix or a suffix, include the value in the multifield key. This value is ignored if the preference also defines a prefix or a suffix. |

PLACEMENT

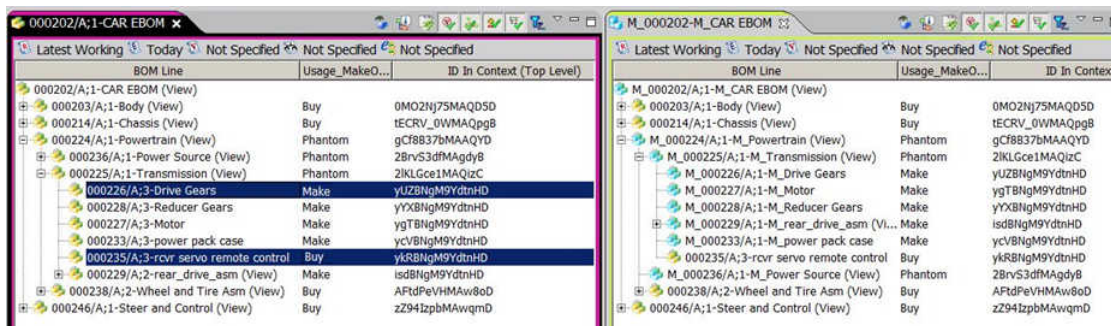
Requires no specific placement.

RESTRICTIONS

None.

EXAMPLES

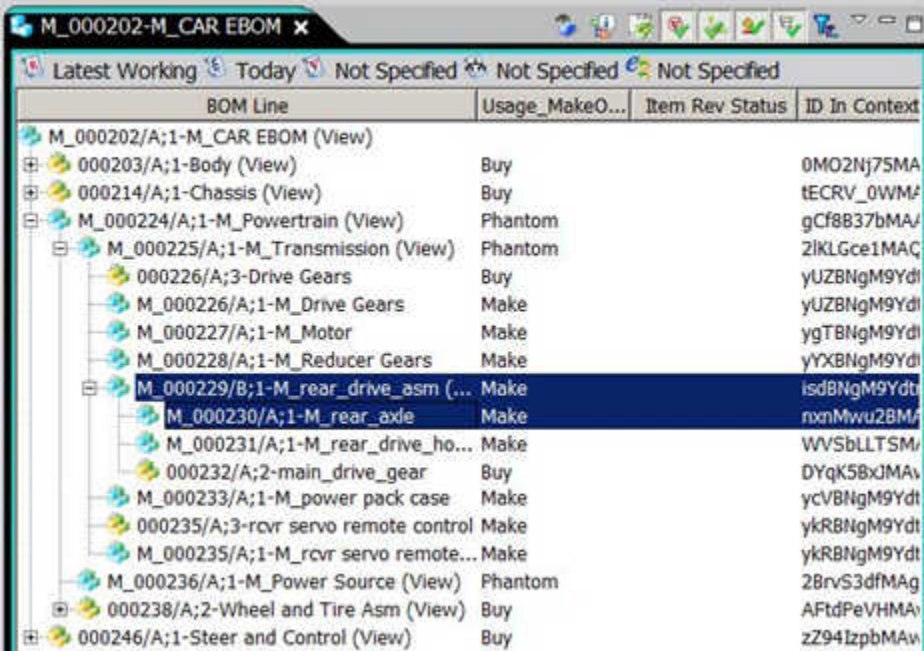
In the following EBOM and MBOM, **M_000229/A;1-M_rear_drive_asm** is released and then the make/buy property on its child, **000230/A;2-rear_axle**, is changed from **Buy** to **Make**.



You revise the MBOM part so you have write access and run the update workflow using the following arguments on **ME-update-mirror-mbom-AH** action handler for the target MBOM:

Argument	Values
-revrule=	"Latest Working"
-mbomrevrule=	"Latest Working"
-actiononrelease=	2

The results are the following:



BOM Line	Usage_MakeO...	Item Rev Status	ID In Context
M_000202/A;1-M_CAR EBOM (View)			
000203/A;1-Body (View)	Buy		0M02Nj75MA
000214/A;1-Chassis (View)	Buy		tECRV_0WMA
M_000224/A;1-M_Powertrain (View)	Phantom		gCf8B37bMA
M_000225/A;1-M_Transmission (View)	Phantom		2iKLGce1MA
000226/A;3-Drive Gears	Buy		yUZBNgM9Yd
M_000226/A;1-M_Drive Gears	Make		yUZBNgM9Yd
M_000227/A;1-M_Motor	Make		ygTBNgM9Yd
M_000228/A;1-M_Reducer Gears	Make		yYXBNgM9Yd
M_000229/B;1-M_rear_drive_asm (...)	Make		isdBNgM9Yd
M_000230/A;1-M_rear_axle	Make		rxnMwu28MA
M_000231/A;1-M_rear_drive_ho...	Make		WVSbLLTSM
000232/A;2-main_drive_gear	Buy		DYqK58xJMA
M_000233/A;1-M_power pack case	Make		ycVBNgM9Yd
000235/A;3-rcvr servo remote control	Make		ykRBNgM9Yd
M_000235/A;1-M_rcvr servo remote...	Make		ykRBNgM9Yd
M_000236/A;1-M_Power Source (View)	Phantom		2BrvS3dfMA
000238/A;2-Wheel and Tire Asm (View)	Buy		AFtdPeVHMA
000246/A;1-Steer and Control (View)	Buy		zZ94IzpbMA

MES-Update3DPDFReports

DESCRIPTION

Updates all 3DPDF reports attached to selected lines (processes and/or operations), according to the settings on the report creation. If a report update fails, the process continues until all update processes are complete.

The handler creates a dataset with a summary log, detailing for each report whether it successfully updated or not. Also, for each report that has failed to update, the handler creates a dataset with its log.

By default, the datasets are created in the **Newstuff** folder. You can define a different folder with the **MES_3DPDF_UPDATE_WORKFLOW_LOG_FOLDER** preference. If the handler does not complete in 10 minutes, a timeout error message is issued and the task fails. You can change the timeout wait time with the **MES_3DPDF_UPDATE_WORKFLOW_WAIT_TIME** preference.

SYNTAX

MES-Update3DPDFReports

ARGUMENTS

None.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

Use only on process revision and operation revision business objects.

OBJIO-archive-target-objects

DESCRIPTION

Archives objects from the master site to the archive site.

The user executing **OBJIO-archive-target-objects** must be a system administrator with DBA privileges.

SYNTAX

OBJIO-archive-target-objects [-include_bom]

ARGUMENTS

-include_bom

Specifies to include assembly components of the BOM at all levels for processing. Caution must be exercised in using this option as all children components of BOM gets archived. This option cannot be used with 4GD target objects.

PLACEMENT

No restrictions.

RESTRICTIONS

Use in workflow processes with objects belonging to either class or subclass of **Item** or **Mdl0ApplicationModel** as targets.

OBJIO-release-and-replicate

DESCRIPTION

Supports controlled replication of structure context objects.

(SCOs). An SCO represents a virtual product configuration. The assembly for such a configuration might spread across multiple sites. To make the information available as quickly as possible to all sites participating on the assembly, Multi-Site provides *controlled replication*. This functionality replicates these objects to participating sites when the assembly is released.

Note:

A *structure context* is a specific configuration of structure representation. A structure context is similar to an occurrence group but contains a configuration context. The configuration context is a persistent object that stores the configuration specified by revision and variant rules. The structure context also contains the root item.

You can use this handler to:

- Configure the target assembly with a specified revision rule or variant rule.
- Perform specified checks against the first level of the target assembly and apply a **Release** status to the target assembly when the checks are successful. You can check that all levels are precise, that no components are stubs, and/or that all components have a **Release** status.
If any check fails, an error appears.
- Initiate additional validation by the **CreateAssemblyPLMXML** Dispatcher task, performed asynchronously.
If the validation fails, a **Release_check_failed** status is applied to the target assembly and an e-mail notification sent to the process initiator

SYNTAX

```
OBJIO-release-and-replicate [-revision_rule=revision-rule-to-configure-assembly]
[-variant_rule=variant-rule-to-configure-assembly]
[-check_precise] [-check_no_stubs] [-check_all_released]
```

ARGUMENTS

-revision_rule

Specifies the revision rule used to configure the target assembly. If not specified, the **Latest Released** revision rule is used for the BOM configuration.

-variant_rule

Specifies the variant rule used to configure the target assembly. If not specified, the default variant rule is used for the BOM configuration.

-check_precise

Checks that all levels of the assembly are precise. If this check fails, **Release** status is not applied to the assembly.

-check_no_stubs

Checks that no component of the assembly is a stub. If this check fails, **Release** status is not applied to the assembly.

-check_all_released

Checks that each component of the assembly have a **Release** status. If this check fails, **Release** status is not applied to the assembly.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

Use in workflow processes with SCOs as targets.

OBJIO-restore-target-objects

DESCRIPTION

Restore objects from the archive site to the master site.

The user executing **OBJIO-restore-target-objects** must be a system administrator with DBA privileges.

SYNTAX

OBJIO-restore-target-objects [-include_bom]

ARGUMENTS

-include_bom

Specifies to include assembly components of the BOM at all levels for processing. Caution must be exercised in using this option as all children components of BOM gets archived. This option cannot be used with 4GD target objects.

PLACEMENT

No restrictions.

RESTRICTIONS

Use in workflow processes with objects belonging to either class or subclass of **PublishedObject** as targets.

OBJIO-send-target-objects

DESCRIPTION

Sends to or synchronizes objects at other Multi-Site Collaboration sites. If the object is not present at the remote site, the object is replicated; otherwise, it is synchronized.

SYNTAX

OBJIO-send-target-objects [-class=*classname*] {-target_site=*site-name* | ALL | \$SCHEDULE_SITE | -owning_site=*site-name* | \$SCHEDULE_SITE} [-target_revision_only=YES] [-reason=*string*]

ARGUMENTS

-class

Sends target objects of the specified class to the specified site. You can specify this argument more than once to send different classes of target objects. If this argument is not used, all target objects are sent.

-target_site

Sends the target objects to the specified site, but does not transfer ownership. You can specify multiple sites, separated by a comma or the character specified by the **EPM_ARG_target_user_group_list_separator** preference. Use **ALL** to send the specified target objects to all sites.

Use the **\$SCHEDULE_SITE** keyword to define the target site as the owning site of the schedule task or schedule task proxy link attached to the workflow process as **schedule_task**.

This argument is mutually exclusive with the **-owning_site** argument. One or the other of these two arguments must be specified for the handler to run.

-owning_site

Transfers site ownership of the target objects to the specified site. All target objects are converted to reference objects before the data transfer.

Use the **\$SCHEDULE_SITE** keyword to define the owning site as the owning site of the schedule task or schedule task proxy link attached to the workflow process as **schedule_task**.

This argument is mutually exclusive with the **-target_site** argument. One or the other of these two arguments must be specified for the handler to run.

-target_revision_only

Exports only the released item revision to the remote site. When this argument is not used, all item revisions are exported.

Do not use this argument with the **-owning_site** argument; all revisions must be transferred when transferring site ownership.

-reason

Allows you to enter a string (up to 240 characters) explaining why these objects were sent.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

- Requires Multi-Site Collaboration to be configured at your site.
- The sending site must own all objects to be sent to other sites.
- When using the **-target_revision_only** argument, the **-class** argument must be set to *ItemRevision*. This argument cannot be used with the **-owning_site** argument; all revisions must be transferred when transferring site ownership.

EXAMPLES

- This example shows how to send all item target objects to the **Detroit** and **Tokyo** sites without transferring ownership:

Argument	Values
-class	Item
-target_site	Detroit, Tokyo

- This example shows how to send item and dataset target objects to all sites without transferring ownership:

Argument	Values
-class	Item, Dataset
-target_site	ALL

- This example shows how to transfer site ownership of item and dataset target objects to the **Tokyo** site:

Argument	Values
-class	Item, Dataset
-owning_site	Tokyo

PARTITION-activate-or-inactivate

DESCRIPTION

Marks a partition as active or inactive.

SYNTAX

PARTITION-activate-or-inactivate -activate={true | false}

ARGUMENTS

-activate

Marks the partition as active (**-activate=true**) or inactive (**-activate=false**).

PLACEMENT

Place in a new workflow specifically designed to activate or inactivate partitions. The ability to activate partitions must be enabled first by setting the **Ptn0EnableActivationBehavior** business object constant to **true**.

RESTRICTIONS

None.

PIE-export-to-plmxmlfile

DESCRIPTION

Exports targets, references, and/or workflow process information to a PLM XML file. Use this handler to export targets and references data to a PLM XML file during a workflow process. You can also export operation and plant objects or the state of the workflow tasks to the PLM XML file. See *Workflow task actions and states* for more information.

SYNTAX

PIE-export-to-plmxmlfile [-context=*context-string*]
 [-attach={target|reference|both}] [-file=*filename*] [-include_process_info] [-revrule]

ARGUMENTS

-context

Defines the context string, which specifies the transfer mode used for export. If not specified, it uses the default transfer mode.

-attach

Specifies which workflow process attachments are exported. If not specified, only targets are exported.

-file

Specifies the path and file name to which the data is exported. The export file is saved to the server machine.

If the path is not specified, the file is placed in the **TC_TMP_DIR** directory on the server. If this argument is not defined, the workflow process name is used as the file name, and the file is placed in the **TC_TMP_DIR** directory.

-include_process_info

Includes the workflow process information in the PLM XML file.

-revrule

Specifies the revision rule to be applied for the BOM lines while exporting the structure.

This argument applies only when the target object is a single item or item revision. The argument is ignored when the target has multiple objects or when the object is not an item or item revision.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

Note:

Exporting this information may take some time, depending on the export content. Siemens Digital Industries Software recommends using the **-context** and **-file** arguments, which provide better control over the XML file's content and location, respectively.

EXAMPLES

This example releases an item revision, exporting the item revision information along with the BOM to a PLM XML file and sending the file to a third-party application. In this example, it is assumed that there is a transfer mode context named **MyApplication** that has a tool attached that connects to the third-party application and process the PLM XML file. Place this handler immediately after you add a release status.

Argument	Values
-context	MyApplication
-attach	target
-file	tceng2myap.xml
-revrule	Latest Working

PROJ-assign-members

DESCRIPTION

Adds members to projects. You can specify the projects and the members using handler arguments only, using properties on a form attached to the workflow template, and using a combination of handler arguments and form properties.

- The list of projects to receive new members is specified directly by projects and indirectly by the **projects_property** argument.
- The list of nonprivileged members to be added to the projects is specified directly by members and indirectly by the **members_property** argument.
- The list of privileged members to be added to the projects is specified directly by privileged_members and indirectly by the **privileged_members_property** argument.

Note:

To run this handler, you must be either the project administrator, or the project team administrator of each project receiving new members.

SYNTAX

```
PROJ-assign-members [-source_task=task-name.attachment-type]
[-type=form_type_name]
[-projects=comma_separated_project_list]
[-members=comma_separated_member_list]
[-privileged_members=comma_separated_member_list]
[-projects_property=property_name]
[-members_property=property_name]
[-privileged_members_property=property_name]
[-bypass]
```

ARGUMENTS

-source_task

Specifies the task-name and attachment-type combination that associates a source form with the EPM task. The default reference attachments are those that are attached to the current task and are of the type specified by the **-type** argument.

task-name

Use one of the following values:

- The name of the current task (the default value)

- The **\$ROOT** reserved keyword (the root task)

attachment-type

Use one of the following reserved keywords:

- **\$REFERENCE** for reference attachments
- **\$TARGET** for target attachments

-type

Specifies the form type that designates properties to be used as the source of project names and member references.

-projects

Specifies a list of project names to receive new members. The privileged and non-privileged members are added to each project. Members already assigned to a particular project remain assigned.

Separate multiple entries with commas.

-members

Specifies a list of members to be added to the projects as non-privileged members. Each member is of the form group/role/user. An empty value can be specified for group, role, or user when necessary.

Separate multiple members with commas. Separate sub-groups with a period.

-privileged_members

Specifies a list of members to be added to the projects as privileged members. Each member is of the form group/role/user. An empty value can be specified for group, role, or user when necessary.

Separate multiple members with commas.

-projects_property

Specifies the name of a source-form property that designates project names to receive new members. The privileged and non-privileged members are added to each project. Members already assigned to a particular project remain assigned.

If you use this argument, you must use the **-type** argument also.

-members_property

Specifies the name of a source-form property that designates member references to be added to the projects as non-privileged members.

If you use this argument, you must use the **-type** argument also.

-privileged_members_property

Specifies the name of a source-form property that designates member references to be added to the projects as privileged members.

If you use this argument, you must use the **-type** argument also.

-bypass

Specifies that access checks are bypassed for reading the project name and member references from the source form. Otherwise, you must have access to read properties from the source form.

PLACEMENT

Place on any task action.

RESTRICTIONS

None

EXAMPLES

- This example adds members to projects using handler arguments only. In this example, assume the following:
 - The projects to receive members are named **Proj1** and **Proj2**.
 - The user named **john** is to be added to both projects as a non-privileged member. This user has the **Designer** role in the **Engineering** group.
 - The user named **jane** is to be added to both projects as a privileged member. This user has the **Manager** role in the **Engineering** group.

Argument	Values
-projects	Proj1,Proj2
-members	Engineering/Designer/john
-privileged_members	Engineering/Manager/jane

- This example adds members to projects using properties of a form attached to the workflow template. In this example, assume the following:
 - The source form is associated with the root task as a reference attachment.
 - The form type is **Pwf0ProjMemberForm**.
 - The projects to receive members are listed in the value of the **pwf0Projects** form property.

- The non-privileged members to be added are listed in the value of the **pwf0NonPrivilegedMembers** form property.
- The privileged members to be added are listed in the value of the **pwf0PrivilegedMembers** form property.

Argument	Values
-source_task	\$ROOT.\$REFERENCE
-type	Pwf0ProjMemberForm
-projects_property	pwf0Projects
-members_property	pwf0NonPrivilegedMembers
-privileged_members_property	pwf0PrivilegedMembers

- This example adds members to a project using a combination of handler arguments and form properties. In this example, assume the following:
 - The source form is associated with the root task as a reference attachment.
 - The form type is **Pwf0ProjMemberForm**.
 - The projects to receive members are **Proj1** and those that are listed in the value of the **pwf0Projects** form property.
 - The non-privileged members to be added are **john**, with the **Designer** role in the **Engineering** group, and those users that are listed in the value of the **pwf0NonPrivilegedMembers** form property.
 - The privileged members to be added are **jane**, with the **Manager** role in the **Engineering** group, and those users that are listed in the value of the **pwf0PrivilegedMembers** form property.

Argument	Values
-source_task	\$ROOT.\$REFERENCE
-type	Pwf0ProjMemberForm
-projects	Proj1
-members	Engineering/Designer/john
-privileged_members	Engineering/Manager/jane
-projects_property	pwf0Projects

Argument	Values
-members_property	pwf0NonPrivilegedMembers
-privileged_members_property	pwf0PrivilegedMembers

PROJ-update-assigned-projects

DESCRIPTION

Updates the list of projects to which the workflow target objects are assigned. The handler arguments determine project IDs to be assigned to and removed from the targets. You can assign and remove projects using handler arguments only, using properties on a form attached to the workflow template, and using a combination of handler arguments and form properties.

Note:

The ability to assign or remove a project is controlled by the following:

- The **TC_project_validate_conditions** preference.
- The Access Manager privileges **Assign to Project** and **Remove from Project**.
- Whether you are a privileged or non-privileged member of the project.

SYNTAX

```
PROJ-update-assigned-projects [-source_task=task-name.attachment-type]
[-type=form_type_name]
[-assign_property=property_name] [-remove_property=property_name]
[-assign_projects=comma_separated_project_list]
[-remove_projects=comma_separated_project_list]
[-bypass]
```

ARGUMENTS

-source_task

Specifies the task-name and attachment-type combination that associates a source form with the EPM task. The default reference attachments are those that are attached to the current task and are of the type specified by the **-type** argument.

task-name

Use one of the following values:

- The name of the current task (the default value)
- The **\$ROOT** reserved keyword (the root task)

attachment-type

Use one of the following reserved keywords:

- **\$REFERENCE** for reference attachments
- **\$TARGET** for target attachments

-type

Specifies the type name of a form that contains project IDs to assign or remove from the target objects.

-assign_property

Specifies the name of a source-form property that designates projects to assign to the target objects.

If you use this argument, you must use the **-type** argument also.

-remove_property

Specifies the name of a source-form property that designates projects to remove from the target objects.

If you use this argument, you must use the **-type** argument also.

-assign_projects

Specifies a list of projects to assign to the target objects. Projects already assigned to a particular target remain assigned.

Separate multiple entries with commas.

-remove_projects

Specifies a list of projects to remove from the target objects. Projects not already assigned to a particular target remain unassigned.

Separate multiple entries with commas.

-bypass

Specifies that access checks are bypassed for reading the source form and for writing the target objects. Otherwise, you must have both read access to the source form and write access to the target objects.

Note:

If you use this argument, you must have the Access Manager privileges **Assign to Project** and **Remove from Project** for each project assigned to or removed from the target objects.

PLACEMENT

Place on any task action.

RESTRICTIONS

None

EXAMPLES

- This example assigns and removes projects from the target objects using handler arguments only. In this example, assume that the projects to be assigned are **Proj1** and **Proj2**, and that the projects to be removed are **Proj3** and **Proj4**.

Argument	Values
-assign_projects	Proj1,Proj2
-remove_projects	Proj3,Proj4

- This example assigns and removes projects from the target objects using properties of a form attached to the workflow template. In this example, assume the following:
 - The source form is associated with the root task as a reference attachment.
 - The form type is **Pwf0AssignProjForm**.
 - The projects to be assigned are listed in the value of the **pwf0AssignProjects** form property.
 - The projects to be removed are listed in the value of the **pwf0RemoveProjects** form property.

Argument	Values
-source_task	\$ROOT.\$REFERENCE
-type	Pwf0AssignProjForm
-assign_property	pwf0AssignProjects
-remove_property	pwf0RemoveProjects

- This example assigns and removes projects from the target objects using a combination of handler arguments and form properties. In this example, assume the following:
 - The source form is associated with the root task as a reference attachment.
 - The form type is **Pwf0AssignProjForm**.
 - The projects to be assigned are **Proj2** and those that are listed in the value of the **pwf0AssignProjects** form property.

- The projects to be removed are **Proj4** and those projects that are listed in the value of the **pwf0RemoveProjects** form property.

Argument	Values
-source_task	\$ROOT.\$REFERENCE
-type	Pwf0AssignProjForm
-assign_projects	Proj2
-remove_projects	Proj4
-assign_property	pwf0AssignProjects
-remove_property	pwf0RemoveProjects

PS-attach-assembly-components

DESCRIPTION

Attaches all the components of the target assembly as the targets of the same workflow process. This handler is intended for use only with item revisions.

When a workflow process is initiated for an item revision, this handler derives the components of the targeted item revision by traversing item revisions attached BOM.

By default, the handler traverses only one level deep. Set the **-depth** argument to **all** to traverse all levels. In this case, if any of the derived objects are subassemblies, they are also traversed and their component item revisions are also added as targets to the workflow process. If any remote item revisions are encountered, a warning is displayed and the remote item revisions are attached as references to the workflow process.

By default, all component item revisions currently in workflow process are ignored. If the **EPM_multiple_processes_targets** preference is set to **ON**, you can use the **-include_in_process_targets** argument to attach components that are currently in workflow process.

Note:

If the **WRKFLW_allow_replica_targets** preference is set to **true** and if any replica object qualifies to be attached as a workflow target, that object is attached as a **Replica Proposed Target** to the workflow process.

If the preference is set to **false** or is undefined, the handler attaches replica objects as references instead of targets.

Note:

If the target item revision contains attachments such as BOM view revisions, datasets should be released along with the assembly, the **EPM-attach-related-objects** handler should be used in conjunction with this handler.

SYNTAX

```
PS-attach-assembly-components [-depth=depth-of-traversal]
[-owned_by_initiator][-owned_by_initiator_group] [-initiator_has_write_prev]
[[-exclude_released [-traverse_released_component]]] [-rev_rule=revision-rule]
[-saved_var_rule=saved-variant-rule ]
[[-exclude_related_type=types-to-be-excluded] |
[-include_related_type=types-to-be-included]] [-add_excluded_as_ref]
[-include_in_process_targets]
```

ARGUMENTS

-depth

Defines the depth to which the traversal should take place. Specify **1** to traverse one level deep. Specify **all** to traverse all levels.

If not specified, traverses one level deep.

-owned_by_initiator

Adds all the component item revisions owned by the initiator as targets to the workflow process.

-owned_by_initiator_group

Adds all the component item revisions owned by the initiator's group as targets to the workflow process.

-initiator_has_write_prev

Adds all the component item revisions to which the initiator has write access as targets to the workflow process.

-exclude_released [-traverse_released_component]

Excludes released component item revisions from being added as targets. If the released component is a subassembly, the handler does not traverse the components of the released component unless **traverse_released_component** is also specified. The **traverse_released_component** argument can only be used in conjunction with the **exclude_released** argument.

The **-traverse_released_component** argument can only be used in conjunction with the **-exclude_released** argument.

If the **-traverse_released_component** is used, the handler traverses the structure of the released component, and adds the components as targets to the workflow process.

If the **-depth** argument is set to **1**, **-traverse_released_component** only traverses one level deep.

If the **-depth** argument is set to **all**, the **-traverse_released_component** traverses all levels of the subassembly.

-rev_rule

Defines the name of the revision rule to be applied for BOM traversal. If not supplied, the default revision rule is used.

-saved_var_rule

Defines the name of the saved variant rule to be applied on BOM window for BOM traversal.

-exclude_related_type

Defines the types to be excluded from being added as targets.

The **-exclude_related_type** and **-include_related_type** arguments are mutually exclusive. Only one of these can be specified as arguments to the handler. If both arguments are specified, an error is displayed when running a workflow process using this handler.

-include_related_type

Defines the types to be included as targets.

The **-exclude_related_type** and **-include_related_type** arguments are mutually exclusive. Only one of these can be specified as arguments to the handler. If both arguments are specified, an error is displayed when running workflow process using this handler.

-add_excluded_as_ref

Adds components that are not included as targets as reference to the workflow process.

-include_in_process_targets

Can be used only if the preference **EPM_multiple_processes_targets** is set to **ON**. In this case, this argument attaches components that are currently in process as targets.

PLACEMENT

Can place on any action. Typically placed on the **Start** action of the root task so that the initial list is expanded at the start of the workflow process.

RESTRICTIONS

Do not place the **disallow_adding_targets** handler before this handler or it fails. The **disallow_adding_targets** handler can be used after the placement of this handler.

EXAMPLES

- This example releases an assembly when only one level of traversal is required. Only the components of the top-level assembly are released, not the components of any subassemblies:

Argument	Values
-depth	1

- This example releases an assembly using a specific revision rule and a saved variant rule. For this example, the **Working** revision rule and the **GMC 300 Rule** variant rule are used:

Argument	Values
-rev_rule	Working
-saved_var_rule	GMC 300 Rule

- This example releases an assembly using the default revision rule and the default saved variant rule, releasing only the components owned by the workflow process initiator:

Argument	Values
-owned_by_initiator	

- This example releases an assembly using the default revision rule and the default saved variant rule, releasing only the components owned by the group to which the workflow process initiator belongs:

Argument	Values
-owned_by_initiator_group	

- This example releases an assembly using the default revision rule and the default saved variant rule, releasing only the components to which the workflow process initiator has write access:

Argument	Values
-initiator_has_write_prev	

- This example releases an assembly, including all components traversed to all depths, using the **Latest Released** revision rule, excluding released components from the assembly but attaching them as references:

Argument	Values
-depth	all
-rev_rule	Latest Released
-exclude_released	
-add_excluded_as_ref	

- This example releases an assembly, including all components traversed to all depths using the **Latest Released** revision rule, excluding released components from the assembly but attaching them as references, yet traversing the excluded released components to all depths for subcomponents to be added as targets:

Argument	Values
-depth	all
-rev_rule	Latest Released
-exclude_released	

Argument	Values
----------	--------

-traverse_released_component	
-add_excluded_as_ref	

- In this example, consider an assembly containing these revisions: **CORP_Part**, **CORP_Tool**, **CORP_Vehicle**, **CORP_Product**, **CORP_Analysis**, **CORP_Proc_Plan**, **CORP_Facility**, and **CORP_Build**. To release the top-level assembly, excluding all the **CORP_Build** revisions, define the arguments:

Argument	Values
-exclude_related_type	CORP_Build

- In this example, consider an assembly containing the revisions: **CORP_Part**, **CORP_Tool**, **CORP_Vehicle**, **CORP_Product**, **CORP_Analysis**, **CORP_Proc_Plan**, **CORP_Facility**, and **CORP_Build**. To release the top-level assembly, including only the **CORP_Build** revisions, define the arguments:

Argument	Values
-include_related_type	CORP_Build

- This example releases an assembly containing targets already in process. This argument can only be used if the **EPM_multiple_processes_targets** preference is set to **ON**.

Argument	Values
-include_in_process_targets	

- This example releases an assembly, including all components traversed to all depths using the **Latest Released** revision rule, excluding released components from the assembly but attaching them as references, yet traversing the excluded released components to all depths for subcomponents to be added as targets, and all **CORP_Build** item revisions must be excluded:

Argument	Values
-depth	all
-rev_rule	Latest Released
-exclude_released	
-traverse_released_component	
-add_excluded_as_ref	
-exclude_related_type	CORP_Build

ADDITIONAL INFORMATION

This handler attaches component item revisions of the assembly to the workflow process. Therefore, you should not place the **EPM-disallow-adding-targets** handler before this handler.

Care should be taken when using this handler in conjunction with the **EPM-check-status-progression** and **PS-check-assembly-status-progression** handlers; possible placement conflicts could arise, including:

- If you place the above rule handlers in a **Task** action ahead of this handler, there is a possibility that the assembly may never be released, as some business rules may fail, and the rule handlers may return an **EPM_nogo**.
- If you place this handler in a **Task** action ahead of the above rule handlers, there is a possibility that the assembly may be released, but may not follow the business rules. For example, the assembly may have a status which may not follow the progression path.

Teamcenter provides another method of releasing an entire assembly. You can use the **Advanced Paste** button to compile a list of objects to be pasted into the assembly. These objects can be appended to the list from multiple sources, including query results, active rich client applications, and BOM views.

PS-make-mature-design-primary

DESCRIPTION

Sets the item revision as the primary representation of the associated part revision. This handler checks if the input item revision is mature. If it is, all part revisions for the design revision are found and the item revision is set as the primary representation.

SYNTAX

PS-make-mature-design-primary

ARGUMENTS

None.

PLACEMENT

Preferably placed on the **Complete** action.

RESTRICTIONS

Considers only item revisions or a subclass of them.

PS-occ-effectivity-cutback

DESCRIPTION

Process Occurrence Effectivity Cutbacks associated with a **BOMViewRevision** object. The **BOMViewRevision** object needs to be a target to the workflow. This workflow handler currently supports only **Execute**.

SYNTAX

PS-occ-eff-cutback [-mode = { EXECUTE }]

ARGUMENTS

-mode Sets the handler to operate in a specified mode. Currently supported mode is to search and apply active cutbacks related to BVRs attached as targets to workflow process using the **Execute** flag.

PLACEMENT

The handler should be used in the **Complete task** folder.

RESTRICTIONS

Must have write access to **BVR** in order to apply occurrence effectivity cutback updates.

PUBR-publish-target-objects

DESCRIPTION

Publishes target objects (that is, enters them) in the Object Directory Services (ODS) database.

SYNTAX

PUBR-publish-target-objects [-class=*classname*] [-site=*site-ID*]

ARGUMENTS

-class

Class of the target objects being published. This argument can be supplied more than once to publish multiple classes of target objects. If not supplied, all target objects are published. See the second item in the **Restrictions** section.

-site

ODS sites that publishes the objects. This argument can be supplied more than once to publish the objects to multiple ODS sites. If not supplied, the default ODS is used.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

- Requires Multi-Site Collaboration to be configured at your site.
- The class must be defined by the **TC_publishable_classes** preference or it cannot be published.
- You can control the publication behavior of item revision objects by changing the setting of the **TC_publish_item_or_itemrev** preference. You can publish only the item revision object, only its parent item object, or both.

EXAMPLES

This example shows how to publish all item revision target objects to **Detroit** and **Tokyo** ODSs:

Argument	Values
-class	ItemRevision
-site	Detroit, Tokyo

PUBR-unpublish-target-objects

DESCRIPTION

Unpublishes target objects (removes them) from the ODS.

SYNTAX

PUBR-unpublish-target-objects [-class=*classname*] [-site=*site-ID*]

ARGUMENTS

-class

Teamcenter *classname* of the target objects being unpublished. This argument can be supplied more than once to unpublish multiple classes of target objects. If not supplied, all target objects are unpublished.

-site

Teamcenter ODS *site-IDs* that unpublishes the objects. This argument can be supplied more than once to unpublish the objects to multiple ODS sites. If not supplied, the default ODS is used.

PLACEMENT

Place on any task where a demotion or cancellation is performed.

RESTRICTIONS

Do not place this handler on the **Perform** action, or any other action that is called multiple times. Place on an action that is only called once, such as **Start**, **Complete**, or **Undo**.

EXAMPLES

This example shows how to unpublish all item and dataset target objects from the default ODS:

Argument	Values
-class	Item, Dataset

RDV-delete-ugcgm-markup

DESCRIPTION

Attaches all the drawing sheets as a target object for a **UGMASTER/UGPART** dataset in the selected workflow process, so the **DrawingSheet** dataset also attains a release status once the workflow process is approved. If the **DrawingSheet** dataset names are the same as for the previous item revisions, all **DirectModelMarkup** datasets are deleted if the **UGMASTER/UGPART** dataset names are also the same as in the previous revision.

SYNTAX

RDV-delete-ugcgm-markup [-type=*valid-dataset-type*, [*valid-dataset-type*]]

ARGUMENTS

-type

The valid dataset types for this handler are **UGMASTER** and **UGPART**. A user can specify more than one dataset type separated by a comma or the character specified by the **EPM_ARG_target_user_group_list_separator** preference. If the user does not specify any dataset type, this handler assumes **UGPART** as the dataset type.

PLACEMENT

Place on the **Start** action of the root task.

RESTRICTIONS

None.

EXAMPLES

Argument	Values
-type	UGMASTER, UGPART

RDV-generate-image

DESCRIPTION

Generates NX part images for display by Web Reviewer. This handler calls an external NX UFUNC (no license required) to accomplish this. The generated images are stored as named references to the **UGMASTER** dataset; image types and sizes are specified in the preference XML file.

SYNTAX

RDV-generate-image [-stop] [-continue]

ARGUMENTS

-stop

Halts the process if image generation is unsuccessful.

-continue

For noncritical image generation, continues the process regardless of unsuccessful image generation.

PLACEMENT

Place at a point in the workflow process where the initiator has write and copy access to the **UGMASTER** dataset (that is, before object protections are locked down). Siemens Digital Industries Software recommends that this handler have its own **Review** task at the beginning of the workflow process.

RESTRICTIONS

- Parts requiring images must be **UGMASTER** dataset targets of the workflow process.
- The **ugimg** executable must be located in the **\$UGII_BASEDIR/ugmanager** directory.

Note:

Part files are automatically updated to the current NX version.

RDV-generate-ugcgm-drawing

DESCRIPTION

Generates drawing sheet datasets (CGM images) of NX drawings for display in Lifecycle Visualization. You must add this handler to a release procedure as an action handler. You should initiate the release procedure containing this action handler by selecting the **UGPART/UGMASTER** dataset. The **UGMGR_DELIMITER** preference must be added as a preference. This handler calls an external NX UFUNC program to generate the CGM images of the drawing sheets in the part. The generated images are stored as named references to the **DrawingSheet** dataset that is attached to the **UGMASTER/UGPART** dataset with an **IMAN_Drawing** relationship.

This handler requires NX to be installed on all systems on which the handler runs. In a 2-tier environment, NX must be installed on all clients that run this workflow handler. In a four-tier environment, handlers run in the **tcserver** process, so NX must also be installed onto the enterprise tier servers (pool servers). The environment variables **UGII_BASE_DIR** and **UGII_ROOT_DIR** (normally set by the NX installation) are used to determine the location of the NX software. This example depicts the two environment variables set to NX on a Windows platform.

```
set UGII_BASE_DIR = c:\apps\nx75

set UGII_ROOT_DIR = c:\apps\nx75\ugii\
```

SYNTAX

RDV-generate-ugcgm-drawing [-type=*valid-dataset-type*] [-text= *text|polylines*]

ARGUMENTS

-type

The valid dataset types for this handler are **UGMASTER** and **UGPART**. You can specify more than one dataset type separated by a comma or the character specified by the **EPM_ARG_target_user_group_list_separator** preference. If you do not specify any dataset type, this handler assumes **UGPART** as the dataset type.

-text

Specifies whether the text in your file is converted into searchable, standard font text or records text as CGM polyline elements, each of which is a collection of line segments. The valid values are **text** or **polylines**.

PLACEMENT

Place on the **Start** action of the root task.

RESTRICTIONS

If you are using Teamcenter Integration for NX, this handler may require the external NX program **export_ugdwgimages** to be copied from **\$TC_BIN\ugcgm_images** to **\$TC_BIN** or **UGII_BASE_DIR\ugmanager** directory.

The release procedure script **start_ugdwgimages** looks for the UFUNC program in the **UGII_BASE_DIR\ugmanager** directory first, then in the **\$TC_BIN** directory.

EXAMPLES

Argument	Values
-type	UGMASTER, UGPART
-text	text

RDV-tessellation-handler

DESCRIPTION

Tessellates NX datasets. It identifies which datasets to tessellate by reading the targets set in the **EPM_tessellation_target_type** preference and comparing them against the targets identified for the workflow process. Datasets identified as targets in both the workflow process and the preferences are tessellated. Targets are objects such as **UGMASTER** and **UGALTREP** datasets.

This handler can be run in the background or foreground. The background mode can be configured to act in:

- **Synchronous mode**

The workflow process waits for the tessellation to complete.

- **Asynchronous mode**

The workflow process continues after the tessellation is initiated.

SYNTAX

**RDV-tessellation-handler -continue | {-signoff | -background |
-status=*status-type*}**

ARGUMENTS

-continue

Continues the review process, even when tessellation is unsuccessful. Use for noncritical tessellation processes.

-signoff

Completes the **perform-signoffs** task if the handler was placed on the **Complete** action of the **perform-signoffs** task. Completes the process if the handler was placed on the **Complete** action of the root task.

-background

Runs tessellation in the background.

-status

Status type to be applied to a rendered child.

PLACEMENT

- In the foreground mode, it requires no specific placement.
- For background tessellation, do the following:

- For asynchronous background tessellation, use the **-background** argument and place on the **Complete** action of the root task after the **EPM-set-status** handler.
- For synchronous background tessellation, use the **-signoff** argument and place on the **Complete** action of the **perform-signoffs** task.

RESTRICTIONS

NX datasets must be included as targets of the process.

PREFERENCES

You must set the following preferences before running the tessellation process with this action handler:

- **EPM_tessellation_target_type**
Defines the NX dataset types requiring tessellation. Only targets matching these types are tessellated.
- **EPM_tessellation_servers=hostname:port-number**
Defines the host name and port number of the tessellation server. The value **None** indicates that the tessellation is performed on the client side only.

ENVIRONMENT VARIABLES

You must set the following environment variables before running the tessellation process with this action handler:

- **UGII_ROOT_DIR**
- **UGII_BASE_DIR**

EXAMPLES

If a business process required that **UGMASTER** and **UGALTREP** datasets are tessellated when they are released, the tessellation can be performed in the modes:

- **Foreground mode**
Include the handler in the workflow process template.
- **Background/Synchronous mode**
Set the **-background** and **-signoff** arguments for the handler, and place the handler in the **Complete** action of the **perform-signoffs** task of the Review task. The workflow process waits for tessellation to complete before continuing.
- **Background/Asynchronous mode**
Set the **-background** argument for the handler, and place the handler in the **Complete** action of the root task.

Define the tessellation server by setting this preference in the **preference** XML file:

EPM_tessellation_server=*hostname:port*

Define the NX datasets that can be tessellated by listing the required NX datasets as values in the following preference in the **preference** XML file:

EPM_tessellation_target_type=
UGMASTER
UGALTREP

RM-attach-SM-tracelink-requirement

DESCRIPTION

Sends requirements tracelinked to Schedule Manager tasks to the specified folder in the task assignee's worklist.

This action handler is implemented to attach defining or complying objects using the trace links on predecessor tasks.

SYNTAX

```
RM-attach-SM-tracelink-requirement
[-defining_complying_type=defining | complying]
[-folder_type=target | reference] [-tracelink_subtype=subtype]
```

ARGUMENTS

-defining_complying_type

Specifies if the **defining** or **complying** requirement is sent. If this argument is not specified, **defining** is the default.

-folder_type

Specifies if the requirement is placed in the task's **target** or **reference** folder in the worklist. If this argument is not specified, **target** is the default.

-tracelink_subtype

Sends only the specified subtype of the tracelink object.

PLACEMENT

Place on the **Start** action of the root task of the workflow process.

RESTRICTIONS

This handler is implemented only for **RequirementRevision**, **ParagraphRevision**, and **RequirementSpecRevision** and its subtypes.

EXAMPLES

- This example sends a Schedule Manager task linked to a requirement with a tracelink to the **Tasks to Perform** folder of the assignee's worklist and places the defining requirement object in the task's **Targets** folder.

Argument	Values
-defining_complying_type	defining
-folder_type	target

- This example sends a Schedule Manager task linked to a requirement with a tracelink to the **Tasks to Perform** folder of the assignee's worklist and places the complying requirement object in the task's **References** folder.

Argument	Values
-defining_complying_type	complying
-folder_type	reference

RM-attach-tracelink-requirement

DESCRIPTION

Sends requirements tracelinked to Teamcenter objects in the **Targets** folder to the specified folder in the workflow assignee's worklist.

SYNTAX

```
RM-attach-tracelink-requirement
[-defining_complying_type=defining | complying]
[-folder_type=target | reference] [-tracelink_subtype=subtype]
```

ARGUMENTS

-defining_complying_type

Specifies if the **defining** or **complying** requirement is sent.

-folder_type

Specifies if the requirement is placed in the task's **target** or **reference** folder in the worklist.

-tracelink_subtype

Sends only the specified subtype of the tracelink object.

PLACEMENT

Place on the **Start** action of the root task of the workflow process.

RESTRICTIONS

None.

EXAMPLES

- This example sends the defining requirement linked to Teamcenter objects in the **Targets** folder with a tracelink to the **Targets** folder of the **Tasks to Perform** folder of the assignee's worklist.

Argument	Values
-defining_complying_type	defining
-folder_type	target

- This example sends the defining requirement linked to Teamcenter objects in the **Targets** folder with a tracelink to the **References** folder of the **Tasks to Perform** folder of the assignee's worklist.

Argument	Values
-defining_complying_type	complying
-folder_type	reference

SAP-set-valid-date-AH

DESCRIPTION

Copies the **Effect In** date from the release status object attached to the process and adds it to the **valid_from** box of all **BOMHeader** forms attached to the process using transfer folders. This handler is only required if you want to store the **Effect In** date persistently on the form. Use the special **effect_in_date** keyword to obtain the value for the transfer.

If the date is not set or there is no release status attached to the process, today's date is used.

Note:

This handler requires the **valid_from** attribute to exist in the form type with **erp_object** = "BOMHeader".

SYNTAX

SAP-set-valid-date-AH

ARGUMENTS

None.

PLACEMENT

Place on the **Perform Signoff** task.

RESTRICTIONS

None.

SAP-upload-AH

DESCRIPTION

Calls the script defined in the **Transfer_script** global setting. This script calls a third-party upload program to update the ERP system.

This action handler depends on the **Send_file_format** global setting.

The upload program reads the data from the transfer file and updates the ERP database. The action handler passes the following arguments to the upload program:

- **Transfer file path/name**
Set by the **Send_file_path** global setting.
- **Response file path/name**
Set by the **Response_file_path** global setting.

Note:

This handler invokes the upload program and exits with success status, regardless of the success or otherwise of the upload itself. Success or failure of upload is logged in the ERP logfile dataset. The **ERP-post-upload-AH** handler must then be called to process the outcome of the upload.

SYNTAX

SAP-upload-AH

ARGUMENTS

None.

PLACEMENT

Place on the **Perform Signoff** task.

RESTRICTIONS

None.

SCHMGT-approve-timesheetentries

DESCRIPTION

Retrieves the target objects, the scheduled task, and the corresponding schedule, in the approve branch of the **TimeSheetApproval** workflow process. The minutes from the time sheet entry are updated in the scheduled task.

The **TimeSheetApproval** workflow is run from Schedule Manager. This handler can only be used within the **TimeSheetApproval** workflow process template. Do not add this handler to any other workflow process template.

SYNTAX

SCHMGT-approve-timesheetentries

ARGUMENTS

None.

PLACEMENT

By default, this handler is placed in the correct location of the **TimeSheetApproval** workflow process template. Do not change the placement.

RESTRICTIONS

This handler can only be used within the **TimeSheetApproval** workflow process template along the approval path. Adding this handler to any other workflow process template causes the workflow process to fail.

SCHMGT-reject-timesheetentries

DESCRIPTION

Retrieves the target objects, the scheduled task, and the corresponding schedule, in the reject branch of the **TimeSheetApproval** workflow process. The minutes from the time sheet entry are updated in the scheduled task.

The **TimeSheetApproval** workflow is run from Schedule Manager. This handler can only be used within the **TimeSheetApproval** workflow process template. Do not add this handler to any other workflow process template.

SYNTAX

SCHMGT-reject-timesheetentries

ARGUMENTS

None.

PLACEMENT

By default, this handler is placed in the correct location of the **TimeSheetApproval** workflow process template. Do not change the placement.

RESTRICTIONS

This handler can only be used within the **TimeSheetApproval** workflow process template along the reject path. Adding this handler to any other workflow process template causes the workflow process to fail.

SCHMGT-revise-timesheetentries

DESCRIPTION

Retrieves the target objects, the scheduled task, and the corresponding schedule, for the **TimeSheetRevise** workflow process. The minutes from the time sheet entry are updated in the scheduled task.

The **TimeSheetRevise** workflow is run from Schedule Manager. This handler can only be used within the **TimeSheetRevise** workflow process template. Do not add this handler to any other workflow process template.

SYNTAX

SCHMGT-revise-timesheetentries

ARGUMENTS

None.

PLACEMENT

By default, this handler is placed in the correct location of the **TimeSheetRevise** workflow process template. Do not change the placement.

RESTRICTIONS

This handler can only be used within the **TimeSheetRevise** workflow process template. Adding this handler to any other workflow process template causes the workflow process to fail.

SCHMGT-sync-schedule-attachments

DESCRIPTION

Synchronizes the change attachments of the parent schedule task with the workflow's change attachments. The change attachments of the schedule tasks are the same as that of the workflow after executing this handler if no error is encountered during the operation.

This handler works with remote schedule tasks only. The workflow does not inherit the change relations for local schedule tasks.

SYNTAX

SCHMGT-sync-schedule-attachments [-attachment= *attachment-types*]

ARGUMENTS

-attachment

(Optional) Specify one or more of the following change attachment types to synchronize.

- **problem_item**
- **solution_item**
- **impacted_item**

Separate multiple attachment types with commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference.

If this argument is not specified, all three change attachments types are synchronized.

PLACEMENT

Place on the **Start** or **Complete** action of any task. Do not place on the **Perform** action.

Because this handler invokes Multi-Site operations, Siemens Digital Industries Software recommends that you place this handler on a task marked for background processing.

RESTRICTIONS

None.

SERVICEFORECASTING-approve-ma-extension

DESCRIPTION

Approves a change in a maintenance action due date in Service Scheduler.

SYNTAX

SERVICEFORECASTING-approve-ma-extension -prop=ssf0ExtensionApproval -value=Approved

ARGUMENTS

-prop

Specifies the property to be updated. The only valid property for this handler is **ssf0ExtensionApproval**.

-value

Specifies the value for the property. The only valid value for this handler is **Approved**.

PLACEMENT

Place on the **Start** action of a task that follows the approval path of a **Review** task.

RESTRICTIONS

None.

EXAMPLES

- Approves the request to change a maintenance action due date.

Argument	Values
-prop	ssf0ExtensionApproval
-value	Approved

SERVICEPROCESSING-approve-service-structure

DESCRIPTION

Runs an approval process for SLM service structures.

SYNTAX

SERVICEPROCESSING-approve-service-structure

ARGUMENTS

None.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

Use only for approval of SLM service structures inheriting from a transaction element.

SMC0-create-solution-variants

DESCRIPTION

Creates solution variants for item revisions and variant rules attached as target and reference respectively to the root task.

Solution variants can be created for multiple item revisions and variant rules. Ensure that each item revision and variant rule have a one to one correspondence.

You can provide the following optional arguments. They are applicable to the creation of all solution variants and cannot be provided individually for each input Item revision.

- Revision rule
- Solution variant category
- Multilevel boolean parameters

The output is:

- Item revision attached as a target.
- Solution variants attached as a target.

Both are attached as target and added in that order. The source item revision is attached first and then its associated solution variants. Users of the workflow handler can check its type. The source item revision is of the item revision type and the solution variant is the item type.

Any input item revision for which the handler fails to create a solution variant is added as a reference attachment to the root task.

SYNTAX

SMC0-create-solution-variants -revision_rule -sv_multi_level -sv_category

ARGUMENTS

-revision_rule

Defines the name of revision rule to be applied for BOMWindow configuration.

-sv_multi_level

Specify **0** or **1**. A multilevel solution variant is created if the input is **true**. A single level is created if **false** is provided as the input.

-sv_category

Specify one of the following values:

- **0** for unmanaged solution variant category.
- **1** for managed solution variant category.
- **2** for reuse solution variant category.

PLACEMENT

This handler can be placed on any action. It is typically placed at the **Start** action of the root task so that the initial list is expanded at the start of the workflow process.

RESTRICTIONS

None.

EXAMPLES

Use the following arguments and values to create a multilevel reused solution variant:

Argument	Values
Target Attachment	Item revision for which you want to create a new reused solution variant.
Reference Attachment	Variant rule acts a recipe with which a solution variant is to be created.
Revision_rule	Latest Working
sv_category	2

SMC0-update-solution-variants

DESCRIPTION

Updates solution variants for items or item revisions attached as target and reference respectively to the root task.

When a structure (item revision) is modified both within and outside of a change context, all solution variants associated with impacted item revisions are updated.

The default configuration for updating solution solutions is:

- Revision rule – Use the **Latest Working** revision rule.
- Effectivity – Use the effectivity of the active change. If an active change context is not set, effectivity is ignored.

The output is:

- Item revision attached as a target.
- Updated solution variants attached as a target.

Both are attached as target and added in that order. The source item revision is attached first and then its associated solution variants. Users of the workflow handler can check its type. The source item revision is of the item revision type and the solution variant is the item type.

SYNTAX

SMC0-create-solution-variants

ARGUMENTS

None

PLACEMENT

This handler can be placed on any action. It is typically placed at the **Complete** action of the root task so that the initial list is expanded at the start of the workflow process.

RESTRICTIONS

None.

EXAMPLES

Use the following arguments and values to create a multilevel reused solution variant:

Argument	Values
Target Attachment	Item revision for which you want to update the associated reused solution variant.

SMP-auto-relocate-file

DESCRIPTION

Relocates all released datasets of a job to a specified directory. Teamcenter does not automatically register this handler. Users have to register and modify the handler code to suit their requirements, using the sample code provided. For more information about using this handler and to reference the sample code, see *Server Customization*.

TCRS-IRM-cleanfields

DESCRIPTION

Allows you to delete the values of item revision master form attributes.

The attribute names must be defined as a Teamcenter preference. Create a Teamcenter preference called **EXPRESS_IRM_cleanfieldsrelease**, where *release* is the value defined in the **-block** parameter. For example, define the **EXPRESS_IRM_cleanfieldsrelease** preference values as follows:

- TCX_Rel_No
- TCX_Rel_Txt

The field names must match the real attribute name and not the display names.

When the handler is run, the values stored in the **Release No** and **Release text** fields of the item revision master form are deleted.

SYNTAX

TCRS-IRM-cleanfields -block=*blockname*

ARGUMENTS

Parameter	Value	Required
-block	Any value.	Yes

PLACEMENT

Requires no specific placement.

RESTRICTIONS

All item revisions must have write privileges at the level at which the handler is used.

EXAMPLES

Argument	Values
-block	release

TSTK-CreateTranslationRequest

DESCRIPTION

Creates a new translation request for all datasets matching the type specified using the translator specified with the provider and service name. If more than one dataset exists in the item revision, multiple translation requests are created.

This handler does not create translation requests for custom types.

Note:

NX datasets containing drawing sheets must be pasted into the **Target** folder for **nxtocgmdirect** to create CGM files.

The target of the handler must be an item revision. The handler traverses the item revision to look for the dataset that was specified in the handler definition.

SYNTAX

TSTK-CreateTranslationRequest -ProviderName= *UGS* -ServiceName=
nxtopvdirect -Priority=1 -DatasetTypeName=*UGPART*

ARGUMENTS

-ProviderName

Creates a new translation request for all datasets with the specified translator provider name.

-ServiceName

Creates a new translation request for all datasets with the specified service name.

-Priority

Defines the priority assigned to the new translation request.

-DatasetTypeName

Specifies the dataset name for the selected workflow and item revision. Custom types cannot be specified.

PLACEMENT

The **Start** or **Complete** action.

RESTRICTIONS

None.

VAL-approve-result-overrides

DESCRIPTION

Sets all requested result overrides to the **Approved** state for the workflow targets when the **perform-signoffs** task is approved.

SYNTAX

VAL-approve-result-overrides

ARGUMENTS

None.

PLACEMENT

Place on the **Perform** action of the **perform-signoffs** subtask of a **Review** task.

RESTRICTIONS

This handler should be used with the **perform-signoffs** task of the **OverrideReviewTask** template. This handler assumes that all target objects, reference objects, and status types are attached to the root task.

VAL-reject-result-overrides

DESCRIPTION

Sets all requested result overrides to the **Rejected** state for the workflow targets when the **perform-signoffs** task is approved.

SYNTAX

VAL-reject-result-overrides

ARGUMENTS

None.

PLACEMENT

Place on the **Perform** action of the **perform-signoffs** subtask of a **Review** task.

RESTRICTIONS

This handler should be used with the **perform-signoffs** task of the **OverrideReviewTask** template. This handler assumes that all target objects, reference objects, and status types are attached to the root task.

VAL-set-condition-by-check-validation-result

DESCRIPTION

This action handler can be configured to set the **Condition** task result status using **Validation Rule** and **Validation Object** applications a from workflow process. It can also check target NX datasets validation result status. To add this handler to a workflow process template, the user must have a well-defined **Validation Rule set file** that best describes the business process in terms of which NX datasets should run checks at certain times and the conditions that the check must meet.

The handler sets the **Condition** task result based on the overall result status of the verification (true when all target NX datasets satisfy all rules defined in the **Validation Rule set file**). The handler logs validation rules and validation result checks. The format of the log file name is *First-target-name_Time-stamp*. The log file is stored in the directory specified by the **TC_TMP_DIR** environment variable. If **TC_TMP_DIR** is not defined, it is stored in the **%TEMP%** directory (Windows) or **/tmp** directory (Linux).

When a **Condition** task template is configured with this action handler, no other saved queries or handlers should be added to the task template. The logic that this handler uses to check validation results is the same logic used by the **VAL-check-validation-result-with-rules** rule handler.

SYNTAX

VAL-set-condition-by-check-validation-result

-rule_item_revision=*item-revision-id* [**-current_event=***value*]

[**-pass_item_revision_only**] [**-ref_log**]

ARGUMENTS

-rule_item_revision

The item revision ID that the validation rule set dataset is attached under.

-current_event

A value that is used to select validation rules from the rule file by comparing with the event values list of each rule. When this argument is not provided, all rules from the rule file are selected at the first step. When a rule is defined without the event values list, then the rule is selected at the first step. The event values list of a rule can contain an asterisk (*) as a wildcard. The event values list also can be marked as exclusive (it is inclusive by default).

-pass_item_revision_only

When this argument is added to the input list, only item revision targets are passed to the handler. NX datasets are searched from each item revision and verified according to rules.

-ref_log

If this argument is present and the validation fails, the validation results log is created and the log is attached, but no warning is displayed.

If this argument is not present and the validation fails, the validation results log is created, the log is *not* attached, and no warning message is displayed.

If the validation passes, the validation results log is not created and no message is displayed.

PLACEMENT

Place under the **Complete** action.

RESTRICTIONS

- **-rule_item_revision** cannot be NULL.
- You cannot customize the path names that branch from the **Condition** task. They must be either **T** or **F**.

VAL-set-condition-result-overrides

DESCRIPTION

If there are unapproved result override requests for the workflow targets, sets the condition to **EPM_RESULT_True**. If there are no unapproved result override requests, sets the condition to **EPM_RESULT_False**.

SYNTAX

VAL-set-condition-result-overrides

ARGUMENTS

None.

PLACEMENT

Place on the **Start** action of a **Condition** task.

RESTRICTIONS

This handler assumes that all target objects, reference objects, and status types are attached to the root task.

Rule handlers

Rule Handlers

Rule handlers integrate workflow business rules into EPM workflow processes at the task level. They attach conditions to an action. Rule handlers confirm that a defined rule has been satisfied. If the rule is met, the handler returns the **EPM_go** command, allowing the task to continue. If the rule is not met, it returns the **EPM_nogo** command, preventing the task from continuing. If there are multiple targets for a single rule handler, all targets must satisfy the rule for **EPM_go** to be returned (**AND** condition).

Many conditions defined by a rule handler are binary (that is, they are either true or false). However, some conditions are neither true nor false. EPM allows two or more rule handlers to be combined using logical **AND/OR** conditions. When several rule handlers are combined using a logical **Or** condition, rule handler quorums specify the number of rule handlers that must return **EPM_go** for the action to complete.

ASBUILT-validate-for-checkedout-physicalpartrevision

DESCRIPTION

Validates that the as-built structure does not contain any checked-out physical parts by any user other than the one submitting the physical part to a workflow.

SYNTAX

ASBUILT-validate-for-checkedout-physicalpartrevision

ARGUMENTS

None.

PLACEMENT

Place at the entry of the workflow to validate that the target structure does not contained any checked out physical part revisions.

RESTRICTIONS

This handler is available only when Teamcenter service lifecycle management Service Manager or As-Built Manager is licensed and installed.

ASBUILT-validate-for-physicalpartrevision

DESCRIPTION

Validates that the submitted object is a physical part revision before traversing the as-built structure and releasing each of the physical part revisions.

SYNTAX

ASBUILT-validate-for-physicalpartrevision

ARGUMENTS

None.

PLACEMENT

Place at the entry of the workflow to validate that the target object is a physical part revision for as-built structure traversal.

RESTRICTIONS

This handler is available only when Teamcenter service lifecycle management Service Manager or As-Built Manager is licensed and installed.

ASBUILT-validate-missing-structure

DESCRIPTION

Validates the as-built structure does not contain any missing or unidentified physical parts.

SYNTAX

ASBUILT-validate-missing-structure

ARGUMENTS

None.

PLACEMENT

Place at the entry of the workflow to validate that the target structure does not contain any missing physical parts.

RESTRICTIONS

This handler is available only when Teamcenter service lifecycle management Service Manager or As-Built Manager is licensed and installed.

ASMAINTAINED-validate-for-checkedout-physicalpartrevision

DESCRIPTION

Checks if any physical parts are checked out in the as-maintained structure by a user other than the creator or submitter of the workflow process.

SYNTAX

ASMAINTAINED-validate-for-checkedout-physicalpartrevision

ARGUMENTS

None.

PLACEMENT

Place at the entry of the workflow to validate that the target structure does not contained any checked out physical parts.

RESTRICTIONS

This handler is available only when Teamcenter service lifecycle management Service Manager is licensed and installed.

ASMAINTAINED-validate-for-latest-asmphysicalpartrevision

DESCRIPTION

Checks if the target physical part revision is the latest revision.

SYNTAX

ASMAINTAINED-validate-for-latest-asmphysicalpartrevision

ARGUMENTS

None.

PLACEMENT

Place at the entry of the workflow to validate that the target physical part revision is the latest one.

RESTRICTIONS

This handler is available only when Teamcenter service lifecycle management Service Manager is licensed and installed.

ASMAINTAINED-validate-for-unserviceable-physicalpartrevision

DESCRIPTION

Checks the as-maintained structure for any unserviceable physical parts.

SYNTAX

ASMAINTAINED-validate-for-unserviceable-physicalpartrevision

ARGUMENTS

None.

PLACEMENT

Place at the entry of the workflow to validate that the target structure does not contain any unserviceable physical parts.

RESTRICTIONS

This handler is available only when Teamcenter service lifecycle management Service Manager is licensed and installed.

ASMAINTAINED-validate-missing-asmaintained-structure

DESCRIPTION

Validates the as-maintained structure does not contain any missing or unidentified physical parts.

SYNTAX

ASMAINTAINED-validate-missing-asmaintained-structure

ARGUMENTS

None.

PLACEMENT

Place at the entry of the workflow to validate that the target structure does not contain any missing physical parts.

RESTRICTIONS

This handler is available only when Teamcenter service lifecycle management Service Manager is licensed and installed.

AUTOSCHEDULING-person-reassign-validate

DESCRIPTION

Verifies that when a workflow task with an attached job card or job task is reassigned to another user, that user has the discipline (skill) and qualifications specified on the job card or job task.

SYNTAX

AUTOSCHEDULING-person-reassign-validate

ARGUMENTS

None.

PLACEMENT

Place on the **Start** action of the **perform-signoffs** task.

RESTRICTIONS

None.

EPM-assert-signoffs-target-read-access

DESCRIPTION

Checks if all the selected reviewers have read access to the attached target attachments.

SYNTAX

EPM-assert-signoffs-target-read-access [-check_assignee=\$RESOURCE_POOL_ALL]

ARGUMENTS

-check_assignee

If the selected reviewer is a resource pool, checks if all members of the resource pool have read access to the attached targets.

The only valid value is **\$RESOURCE_POOL_ALL**.

PLACEMENT

Place on the **Complete** action of a **select-signoff-team** task.

RESTRICTIONS

None.

EPM-assert-targets-checked-in

DESCRIPTION

Verifies that all target objects in this workflow process are checked in.

Note:

EPM-assert-targets-checked-in will not execute on a fail path. Target objects in the workflow are only verified as checked in when a success path is taken.

SYNTAX

EPM-assert-targets-checked-in

ARGUMENTS

None.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

EPM-check-action-performer-role

DESCRIPTION

Checks whether the user performing this action matches the criteria specified in the handler arguments.

SYNTAX

```
EPM-check-action-performer-role -responsible=[owner|$OWNER] |
[group|$GROUP] | [$RESPONSIBLE_PARTY] | [privileged | $PRIVILEGED] |
[group::[*|role]] | [role]
```

ARGUMENTS

-responsible

Checks if the user matches the specified value. Valid values are:

- **owner | \$OWNER**
Specifies the owner of the task.
- **group | \$GROUP**
Specifies that the current user's logged-on group be the same as one of the groups of the task's responsible party.
- **\$RESPONSIBLE_PARTY**
Specifies the responsible party of the task.
- **privileged | \$PRIVILEGED**
Specifies the responsible party of the task and the owner of the workflow process. If the task does not have a responsible party, the handler ascends the hierarchy of tasks to find the first assigned responsible party.
- **group::[*|role]**
Specifies a group name and role name to match.
- **role**
Specifies a role name to match.

PLACEMENT

Requires no specific placement. Typically place on the **Assign**, **Skip**, or **Undo** actions to control access to those actions.

RESTRICTIONS

There must be no role in the database with the name **privileged**.

EXAMPLES

- This example allows the owner of the workflow process and the responsible party to trigger the action.

Argument	Values
-responsible	privileged

- This example allows any member of the **engineering** group to trigger the action.

Argument	Values
-responsible	engineering::*

- This example allows any user with the role of **manager** to trigger the action.

Argument	Values
-responsible	manager

- This example allows any user with the role of **designer** in the **engineering** group or the **Project Administrator** role in the **Project Administration** to trigger the action.

Argument	Values
-responsible	Project Administration::Project Administrator, engineering::designer

- This example allows any user with the role of **designer** in the **structure** subgroup of the **engineering** group to trigger the action.

Argument	Values
-responsible	structure.engineering::designer

EPM-check-condition

DESCRIPTION

By default, this handler is placed on the **Complete** action of the **Condition** task, and on the successor tasks of the **Validate** task. When placed on these tasks, no arguments should be used. When placed on the **Complete** action of the **Condition** task, the handler confirms the result of the **Condition** task is either **true** or **false** or the specified custom result. The handler prevents the **Condition** task from completing until the default setting of **unset** has been modified to **true** or **false**. When placed on the successor tasks of the **Validate** task, the handler confirms whether errors occurred (either any error, or the specified errors.)

This handler can also be placed on the **Start** action of all tasks immediately succeeding the **Condition** task. Use the **-source_task** argument to specify the name of the preceding **Condition** task and the **-decision** argument to specify the result (**true**, **false**, or specified custom result) that must be met. (This value is defined during the workflow process template design, when the two or more flow paths that branch from the **Condition** task are created.) The handler returns **EPM_go** when the value matches or **EPM_nogo** when the value does not match. The immediately succeeding tasks only start if they match the required value, resulting in the conditional branching of the workflow process flow.

This handler exists as part of the workflow conditional branching functionality. Manually adding this handler to a task other than a **Condition** task, a task succeeding a **Condition** task, or the successor task of a **Validate** task has no advantage and is not recommended.

SYNTAX

EPM-check-condition **-source_task=** *task-name* **-decision=** {**true** | **false** | *custom-result* | **ANY** | *error-code*}

ARGUMENTS

-source_task

Specifies the name of the preceding **Condition** task. This argument is required if you place the handler on the **Start** action of a task succeeding a **Condition** task.

You must omit this argument if you place the handler on the **Complete** action of a **Condition** task.

-decision

Specifies the result that must be met. Use this argument in conjunction with a **Condition** task, placing this handler on a successor task. Valid values are the following:

- *custom-result*
Valid values are any string. When the **Condition** task's task results return a value matching the value defined for this argument, the successor task starts when the **Condition** task completes. Multiple values are accepted, separated by commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference.

Note:

This value is automatically set when you use the **Set Custom Result** option to configure the flow path from the **Condition** task to the successor task.

- **ANY**

Use this value in conjunction with a **Validate** task, placing this handler on a successor task. Indicates that if *any* error occurs on the **Validate** task, the workflow process starts the successor task.

Note:

This value is automatically set when you use the **Set to Error Path** option to configure a failure path from the **Validate** task to the successor task.

- *error-code*

Use this value in conjunction with a **Validate** task, placing this handler on a successor task. Indicates that if the specified error codes occur on the **Validate** task, the workflow process starts the successor task.

Note:

This value is automatically set when you use the **Set Error Codes** option to configure a failure path from the **Validate** task to the successor task.

PLACEMENT

Place on the **Complete** action of a **Condition** task, the **Start** action of any successor tasks of a **Condition** task, or the successor tasks of a **Validate** task.

RESTRICTIONS

None.

Note:

Workflow Designer provides a number of prepackaged task templates, such as the **Review** task, **Route** task, and **Acknowledge** task templates. Adding subtasks below any of these tasks to implement a branching condition is not recommended as this may jeopardize the integrity of the task's structure, and doing so may result in unpredictable behavior.

EPM-check-item-status

DESCRIPTION

Verifies that all secondary relations connected by **ImanRelations** of a target item or item revision have been released or that these secondary objects are also target objects in this workflow process. If the target object is an item, this handler checks the item's **Requirements** folder; if the target object is an item revision, this handler checks the item revision's **Specification** folder. All objects in these folders must satisfy these requirements for the handler to return **EPM_go**. The relation, type, and status arguments verify their relation, type, and status, respectively.

SYNTAX

```
EPM-check-item-status [-relation=relation-name] [-include_related_type=object-type]  
[-allowed_status=status-name-to-check]
```

ARGUMENTS

-relation

Relation name.

-include_related_type

Object type.

-allowed_status

Status to check.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

EXAMPLES

- This example verifies the text datasets in the **Requirements** folder of a target object have the status of **X**:

Argument	Values
-relation	IMAN_requirement
-include_related_type	Text
-allowed_status	X

- This example verifies all the **UGPART** datasets of a target object have been assigned status. For example, that the datasets are released, or are the target object of the present job:

Argument	Values
-include_related_type	UGPART

EPM-check-object-properties

DESCRIPTION

Checks that a required or non-null value has been entered for the specified properties of the specified object type that is attached to the current workflow process. If any specified properties do not have the required values, an error message lists those properties.

If the specified object type is a form, this handler also checks for form attributes. If the -**check_first_object_only** argument is specified, it only checks the property on the first attached target type. You can use this handler to ensure that you are not releasing the form without defining the mandatory attributes.

SYNTAX

```
EPM-check-object-properties -include_type=object-type
-property=property-names
[-value=required-values]
[-attachment=attachment-type]
[-check_first_object_only] [-include_replica]
```

ARGUMENTS

Note:

To check for a single property value that is not null, omit the **-value** argument.

-include_type

Specifies the type of the workflow target/reference attachments to be checked. Workflow attachments not matching the specified type are not checked.

Caution:

This argument is required.

This argument is used in cases where the check is used only on a specific type subset of workflow attachments, particularly if that property is specific to that type and not found on others.

Note:

Multiple values can be added to **-include_type** by using a comma-separated list.

Note:

An error does not occur if target/reference objects do not match the **-include_type** value.

-property

Specifies the properties to be checked. Enter a list separated by commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference.

Note:

If the handler uses a property that references a group member and its value is being checked, then the value should be specified as: **group/role/person name (user id)**.

Caution:

If you specify a property of the **Reference** type, the handler checks the referenced object, not the workflow attachment.

-value

Specifies the required real values to be checked. Enter real values as defined in Business Modeler IDE.

Caution:

Do not enter localized values.

Enter a list separated by commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference. The order of these values must match the order of properties listed in the **-property** argument.

This argument is optional.

Note:

If **-value** is not specified, then any populated value will be accepted.

-attachment

Specifies the type of attachment to be checked.

- **target**
Checks the targets attachment.
- **reference**
Checks the reference attachment.

- **schedule_task**

Checks the schedule task attachment.

- **both**

Checks **target** and **reference** types of attachments.

If this argument is not used, the target attachment is checked.

This argument is optional.

-check_first_object_only

If specified, only the first object of type specified by type is considered. This argument is optional.

-include_replica

(Optional) Checks the **Replica Proposed Targets** as well as the target objects if the **-attachment=target** argument is also specified.

If the **-attachment=schedule_task** argument is specified with this argument, it ignores the attached schedule object if it is a proxy link of schedule task.

PLACEMENT

Place on any action except the **Perform** action.

RESTRICTIONS

None. Both empty and null values are treated as null values.

EXAMPLES

- This example checks the target **CMII CR Form** for nonempty values for **cr_priority** and **prop_soln** properties:

Argument	Values
-include_type	CMII CR Form
-property	cr_priority,prop_soln
-attachment	target

- This example checks the target **CMII CR Form** for the specific value **1 = High** for the **cr_priority** property, and the specific value **Corrective Action** for the **cr_type** property:

Argument	Values
-include_type	CMII CR Form
-property	cr_priority,cr_type
-value	1 = High,Corrective Action
-attachment	target

- This example checks the target **CMII CR Form** for the specific value **1 = High** for the **cr_priority** property, and the specific value **Corrective Action** for the **cr_type** property, and any nonempty value for the **prop_soln** property:

Argument	Values
-property	cr_priority,prop_soln,cr_type
-value	1 = High,,Corrective Action
-include_type	CMII CR Form
-attachment	target

Note:

Not placing a value between two commas instructs the system to check for any non-null values for the corresponding property. In the previous example, the second of the three properties to be checked, the **prop_soln** property, corresponds to the empty value. Therefore, any non-null values for this property are checked.

- This example checks the target **CMII CR Form** for the specific value **1 = High** for the **cr_priority** property, and the specific value **Corrective Action** for the **cr_type** property, and any nonempty value for the **prop_soln** property:

Argument	Values
-include_type	CMII CR Form
-property	cr_priority,cr_type,prop_soln
-value	1 = High,Corrective Action
-attachment	target

Note:

An alternative method of checking for nonvalues as illustrated in example 3 is to place the property that needs to be checked for nonvalues at the end of the properties list, as in the previous example. This also instructs the system to check for any non-null values for the corresponding property.

- This example checks the target *and* reference **CMII CR Form** for the specific value **1 = High** for the **cr_priority** property, and the specific value **Corrective Action** for the **cr_type** property and any nonempty value for the **prop_soln** property:

Argument	Values
-include_type	CMII CR Form, CMII CN Form
-property	cr_priority,prop_soln,cr_type
-value	1 = High,,Corrective Action
-attachment	both
-check_first_object_only	

EPM-check-related-objects

DESCRIPTION

Checks whether the specified target object contains the required secondary related objects, and whether those objects are in process or have achieved a valid status. You can check only one type of target object per handler. You can check for either a primary or secondary attachment type; the validation confirms the attachment is the specified type and specified relation.

Note:

If this handler is checking multiple objects, all objects must meet the criteria to satisfy this handler.

SYNTAX

EPM-check-related-objects

[-include_type=type-of-target-object]

**{-primary_type=type-of-target-object
| -secondary_type=secondary-object-type}**

[-relation=relation-type]

**[-allowed_status=status-names
| ANY | NONE |
IN_PROCESS]**

[-check_first_object_only]

**[-check_only_for_assembly]
[-check_only_for_component]
[-ignore_empty_bom]
[-negate_return_result]**

ARGUMENTS

-include_type

Specifies the type of the target object.

-primary_type

Specifies the type of the primary attachment.

This argument is mutually exclusive of the **-secondary_type** argument. You may specify only one of these arguments.

-secondary_type

Specifies the type of the secondary attachment. This argument is mutually exclusive of the **-primary_type** argument. You may specify only one of these arguments.

-relation

Specifies the relation to be checked. The relation is between the specified target object and the specified attachment (either the primary attachment or the secondary attachment).

- Specify verification of a manifestation relationship with **IMAN_manifestation**.
- Specify verification of a specification relationship with **IMAN_specification**.
- Specify verification of a requirement relationship with **IMAN_requirement**.
- Specify verification of a reference relationship with **IMAN_reference**.
- Specify verification of a BOM view attachment with **PSBOMViewRevision**.
- Specify verification of an impacted item of a change object with **CMHasImpactedItem**.
- Specify verification of a solution item of a change object with **CMHasSolutionItem**.
- Specify verification of a problem item of a change object with **CMHasProblemItem**.
- Specify verification of a reference item of a change object with **CMReferences**.
- Specify verification of a change object that implements another change object with **CMImplements**.

-allowed_status

Specifies the target object status to be verified:

- Specify any Teamcenter status with **ANY**.
- Specify no status, or working status, with **NONE**.
- Specify in process with **IN_PROCESS**.

This argument is optional.

-check_first_object_only

If specified, only the first object of type specified by **-include_type** is considered.

This argument is optional.

-check_only_for_assembly

If specified, the checks specified in the handler are made only on targets that have an assembly (BOM) structure associated with it.

This argument is optional.

-check_only_for_component

If specified, the checks specified in the handler are only made only for non-assembly target type.

This argument is optional.

-ignore_empty_bom

If used, this argument must be specified in combination with the argument [-check_only_for_assembly]. Specifying this argument makes the checks applicable only on a non-empty BOM target. Empty BOMs/leaf nodes of BOM that do not have any children are excluded from the check.

This argument is optional.

-negate_return_result

If specified, checks that the primary or secondary attachment type is not present on the target.

This argument is optional.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

EXAMPLES

- This example checks for a secondary attachment of type **xyz**, with a release status of **Released**, with an **IMAN_specification** relation to the target item revision:

Argument	Values
-include_type	ItemRevision
-secondary_type	xyz
-relation	IMAN_specification
-allowed_status	Released

- This example checks for a primary attachment that is a **ChangelItemRevision**, currently in process, and attached to the target item revision with a **CMHasImpactedItem** relation:

Argument	Values
-include_type	ItemRevision
-primary_type	ChangelItemRevision
-relation	CMHasImpactedItem
-allowed_status	IN_PROCESS

- This example checks for a primary **ChangelItemRevision** attachment that is either a change request (ECR) or change notification (ECN), that is in process, and attached to the target item revision with a **CMHasImpactedItem** relation. This checks for both **ChangeRequestRevision** and **ChangeNoticeRevision** **ChangelItemRevisions**, whether in process or not:

Argument	Values
-include_type	ItemRevision
-primary_type	ChangelItemRevision:: ChangeRequestRevision~ ChangeNoticeRevision
-relation	CMHasImpactedItem
-allowed_status	IN_PROCESS

- This example checks for any released secondary **xyz** attachment with an **IMAN_specification** relation to the **type1** target object:

Argument	Values
-include_type	type1
-secondary_type	xyz
-relation	IMAN_specification
-allowed_status	ANY

- This example checks for a secondary **xyz** attachment with no status in the **Impacted Items** folder of the target change object revision:

Argument	Values
-include_type	ChangeItemRevision
-secondary_type	xyz
-relation	CMHasImpactedItem
-allowed_status	NONE

- This example checks for a secondary dataset attachment with a working status attached to the target item revision. Defining the **secondary_type** as **Dataset** checks for all dataset types of the defined relation:

Argument	Values
-include_type	ItemRevision
-secondary_type	Dataset
-relation	IMAN_specification
-allowed_status	NONE

- This example checks for a secondary attachment of type **xyz**, with a release status of **Released**, with an **IMAN_specification** relation to the target item revision only:

Argument	Values
-include_type	ItemRevision
-secondary_type	xyz
-relation	IMAN_specification
-allowed_status	Released
-check_first_object_only	

EPM-check-responsible-party

DESCRIPTION

Verifies that the current user is the responsible party for the task (every task has a default responsible party). If not, it verifies whether the current user meets the criteria specified in the argument of the handler.

SYNTAX

EPM-check-responsible-party [-responsible={User|Group|Role}:*value*]

ARGUMENTS

-responsible

(Optional) Defines an additional responsible party.

PLACEMENT

Place on the **Perform** action of the task.

RESTRICTIONS

This handler cannot be placed on the **Perform** action of the *root* task.

EXAMPLES

This example shows user **george**, members of group **dba**, and the responsible party being allowed to perform the action associated with this handler.

Argument	Values
-responsible	User:george, Group:dba

EPM-check-signoff

DESCRIPTION

Checks decisions of all the signoffs attached to this task. If the number of approvals is greater than, or equal to, the quorum, then **EPM_go** is returned. If it is possible to obtain enough approvals from those signoffs without a decision, **EPM_undecided** is returned. Otherwise, there are too many rejections and the function **EPM_nogo** is returned.

SYNTAX

EPM-check-signoff -quorum=*n*

ARGUMENTS

-quorum

Specifies the approval quorum, where *n* is an integer specifying the quorum. A value of **-1** sets the quorum equal to the total number of signoffs; in other words, a unanimous decision is required.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

EPM-check-status-progression

DESCRIPTION

Checks the complete release status progression of a specific object. For example, this handler identifies the last status added on any item revision because the handler considers that the latest status for that item revision.

- This handler can also check whether the object follows a nonlinear progression. A nonlinear progression does not require every subsequent release status of an object to follow the progression path in the same order, though the latest release status must always be greater than the previous release status. For example, if the progression path is **Experimental**, **Quote**, **Design**, **Manufacture**, **Production**, the object can achieve **Experimental**, **Quote**, and then **Production** release statuses, skipping **Design** and **Manufacture**.
- If the workflow process contains several **Condition** tasks that apply different release statuses at different levels, the value provided in the **-status** argument can be used. If this argument is not used in this situation, the status applied to the target object is applied to the object.

SYNTAX

EPM-check-status-progression

[-status=*status-being-applied-to-the-target-object*]

[-rev=current_rev|previous_rev|latest_rev|greatest_released_rev]

ARGUMENTS

-status

Derives the status being applied to the target object.

-rev

Checks for one of the following:

- Only the current revision, use **current_rev**. Even if the previous revision is released to a production status, the current revision is released to a lesser status than production.
- The latest release status of the immediately previous revision, use **previous_rev**.
- The greatest release status of all the revisions of the target, use **latest_rev**.
For example: An object has revisions **A**, **B**, and **C**. Revision **A** is released later than revision **B**, and **C** is not released. The **latest_rev** option returns **A**.
- The latest release status of the greatest release status of the target object, use **greatest_released_rev**.
For example: An object has revisions **A**, **B**, and **C**. Revision **A** is released later than revision **B**, and **C** is not released. The **greatest_released_rev** option returns **B**.

Note:

The **EPM-check-status-progression** rule handler first identifies the last status added on an item revision. The handler considers that the latest status for that item revision. Then this handler looks at the various **-rev** arguments to determine which revision to use.

When checking the last status added to each revision, status maturity is established by the release status order in the **ProgressionPath.plmxml** file.

PLACEMENT

Place on any task action. Typically placed on the **Complete** action of the **perform-signoffs** task.

RESTRICTIONS

None.

EXAMPLES

- This example checks the status of design against the progression path when the workflow process contains several **Condition** tasks, which apply different release statuses at different levels:

Argument	Values
-status	Design

- In this example, consider the scenario:
 - Progression path: **Quote, Experimental, Development, Design, Manufacturing, Production**
 - IR ABC123
 - IR ABC123/001 has **Experimental** status
 - IR ABC123/002 in **Working** state
 - IR ABC123/003 status not yet applied

To release IR ABC123/003 based on the current revision status only, define the following arguments. Previous revision statuses are not checked. Even if the previous revision was released to a **Production** status the current revision can be released to a lesser status than **Production**. In this scenario, IR ABC123/003 can be released to **Quote** status or upward, even though IR ABC123/001 is released to **Experimental** status.

Argument	Values
-rev	current_rev

- In this example, consider the previous scenario. To release IR ABC123/003 based on the latest release status of its immediate previous revision, define the following arguments. The previous revision is IR ABC123/002, which is in **Working** state and does not have a status applied. In this case, IR ABC123/003 can be released to **Quote** status or upward.

Argument	Values
-rev	previous_rev

- In this example, consider the previous scenario. To release IR ABC123/003 based on the last status of the latest released revision, define the following arguments. The latest released revision is IR ABC123/001, its last status was **Experimental**. In this case, IR ABC123/003 can be released only to **Experimental** status or upward.

Argument	Values
-rev	latest_rev

- In this example, consider the progression path and values:
 - Progression path: **Quote, Experimental, Development, Design, Manufacturing, Production.**
 - IR XYZ123
 - IR XYZ123/001 has **Design** status
 - IR XYZ123/002 has **Experimental** status
 - IR XYZ123/003 has **Development** status
 - IR XYZ123/004 status not yet applied

To release IR XYZ123/004 based on the greatest release status among all the revisions of the target object, define the following arguments. IR XYZ123/004 releases as **Design**.

Argument	Values
-rev	greatest_released_rev

ADDITIONAL INFORMATION

The progression path must be manually defined in the **ProgressionPath.plmxml** file before the handler can reference the path. The file is stored in the **TC_DATA** directory. Create a backup copy of this file before editing it.

All target types that you want to follow the progression path must be set in this file. A **UserData** block must be created for each type that follows a progression path. For example, to define the progression path for the **ItemRevision**, **PSBOMView**, and **MSWord** types, the **UserData** blocks can be defined as follows:

```
<UserData id="id1">
  <UserValue title="Type" value="ItemRevision"/>
  <UserValue title="ReleaseProgressionList"
    value="Quote,Development,Prototype,Production">
  </UserValue>
</UserData>
<UserData id="id2">
  <UserValue title="Type" value="PSBOMView"/>
  <UserValue title="ReleaseProgressionList"
    value="Quote1,Development1,Prototype1,Production1">
  </UserValue>
</UserData>
<UserData id="id3">
  <UserValue title="Type" value="MSWord"/>
  <UserValue title="ReleaseProgressionList"
    value="Quote2,Development2,Prototype2,Production2">
  </UserValue>
</UserData>
```

Note:

- Add the **UserData** blocks between the **<PLMXML>** and **</PLMXML>** tags.
- Ensure you increment the **UserData id** value when you add a new entry.
- After adding a new **UserData** block, change the value for **Type** to a type you are defining.
- You can modify the value of the release status to meet your requirements.

EPM-check-target-attachments

DESCRIPTION

Checks that the specified target object contains the required attachment with the required status or statuses. You can provide the target object type, relation type, attached object type, and valid statuses as handler arguments.

This handler can be used with an LOV to specify different types of targets and attachments to be checked, requiring just one occurrence of the handler. For an overview of using LOVs in handlers, see [Lists of values as argument values](#).

Note:

Enable **debugging functionality** for this handler with the **TC_HANDLERS_DEBUG** environment variable.

SYNTAX

EPM-check-target-attachments { **-include_type**=*target-object-type*

-include_related_type=*attached-object-type*

-relation=*relation-type*} | **-lov**=*lov-name*}

[**-allowed_status**=*valid-status-names* | **ANY** | **NONE**]

ARGUMENTS

-include_type

Defines the type of target object to be checked.

Note:

To check multiple values for a single argument, separate the values with commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference.

Example:

The following example checks if the **UGMASTER** or **UGPART** dataset exists in the **ItemRevision** type with the *IMAN* specification relation **EPM-check-target-attachments**:

-include_type=*ItemRevision*


```
-include_related_type= UGMASTER,UGPART

-relation=IMAN specification

-allowed_status=NONE
```

-include_related_type

Defines the type of attachment to be checked.

-relation

Specifies the relation between the target object and the attachment:

- Specify a manifestation relationship with **IMAN_manifestation**.
- Specify a specification relationship with **IMAN_specification**.
- Specify a requirement relationship with **IMAN_requirement**.
- Specify a reference relationship with **IMAN_reference**.
- Specify a BOM view attachment with **PSBOMViewRevision**.
- Specify an impacted item of a change object with **CMHasImpactedItem**.
- Specify a solution item of a change object with **CMHasSolutionItem**.
- Specify a problem item of a change object with **CMHasProblemItem**.
- Specify a reference item of a change object with **CMReferences**.
- Specify a change object that implements another change object with **CMImplements**.

-allowed_status

Specifies the required status of the attachment. Multiple statuses can be checked by listing valid Teamcenter statuses separated by commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference.

ANY checks for any status. **NONE** checks for working status.

-lov

Specifies the list of values (LOVs) used to define which objects are attached to which target objects.

This argument is mutually exclusive of the **-include_type**, **-include_related_type**, and **-relation** arguments. It can be used with the **-allowed_status** argument to check relation status.

See the LOV row, for the required LOV format.

LOV

For an overview of using LOVs in handlers, see [Lists of values as argument values](#).

The LOV can contain multiple optional lines: a line for each type of target to check, followed by one or more multilevel object path lines specifying the relations required for that target type.

For an overview of using multilevel object paths in handlers, see [Defining multilevel object paths](#).

If the system does not find any targets for one of the target types, it checks the next target type line.

When a target exists for the specified type, then each relation listed must exist. An error is reported for each relation type missing.

[\$TARGET.]*target-(class)-or-type-1*

relation1.sec-obj-(class)-or-type-in-target-1

relation2.sec-obj-(class)-or-type-in-target-1

[\$TARGET.]*target-(class)-or-type-2*

relation1.sec-obj-(class)-or-type-in-target-2

relation2.sec-obj-(class)-or-type-in-target-2

...

Note:

When using a LOV with this handler, you can improve readability and clarity by indenting the relation lines with spaces. You can also add line numbers in square brackets.

[\$TARGET.]*target-(class)-or-type-1*

Defines the type/class of target to check, using a comma-separated list of types/classes in the format shown next.

Target lines are prefixed with **\$TARGET** or identified by their lack of dots (.).

[(Class)[!Type1][,(Class2)[,Type1[,...]]]]

For example, to specify that all item revisions are checked except software revision:

(ItemRevision)!Software Revision

relation1.sec-obj-(class)-of-type-in-target-1

A multilevel object path that must start with a relation (such as **IMAN_specification**). Defines a secondary object that must exist in the specified relation for the target line.

Relation lines always contain a dot (.).

For example, to check that a **UGMASTER** and **UGPART** dataset exist in all revision targets of the design revision type:

\$TARGET.Design Revision

IMAN_specification.UGMASTER

IMAN_specification.UGPART

PLACEMENT

Requires no specific placement.

RESTRICTIONS

If checking multiple statuses through LOVs, this handler must be used once for each status.

EXAMPLES

- This example checks the targeted change revision for an item revision with any status in the **Problem Items** folder:

Argument	Values
-include_type	ChangeItemRevision
-include_related_type	ItemRevision
-relation	CMHasProblemItem
-allowed_status	ANY

- This example checks the targeted change revision for an item revision with no status in the **Impacted Items** folder:

Argument	Values
-include_type	ChangeItemRevision
-include_related_type	ItemRevision
-relation	CMHasImpactedItem
-allowed_status	NONE

- This example checks the targeted change revision for the **CORP_Part** revision with a released status in the **Solution Items** folder:

Argument	Values
-include_type	ChangeItemRevision
-include_related_type	CORP_PartRevision
-relation	CMHasSolutionItem
-allowed_status	Released

Alternatively, you can use these LOV settings:

Argument	Values
-lov	SYS_EPM_check_target_attachments
-allowed_status	Released

where the **SYS_EPM_check_target_attachments** LOV contains this data:

```
$TARGET.ChangeItemRevision
CMHasSolutionItem.CORP_PartRevision
```

- This example checks the targeted change revision for an item revision for any status of the following statuses (**Concept Approval**, **Funding Approval**, **Design Approval**) in the **Solution Items** folder:

Argument	Values
-include_type	ChangeItemRevision
-include_related_type	ItemRevision
-relation	CMHasSolutionItem
-allowed_status	Concept Approval,Funding Approval,Design Approval

- This example checks the targeted change revision for an item revision in the **Solution Items** folder, irrespective of status:

Argument	Values
-include_type	ChangelItemRevision
-include_related_type	ItemRevision
-relation	CMHasSolutionItem

- This example performs specific relation checks for particular revision type targets and other relation checks for the remaining revision types all with no status:

Argument	Values
-lov	SYS_EPM_check_target_attachments
-allowed_status	NONE

where the **SYS_EPM_check_target_attachments** LOV contains this data:

Value	Description
Software Revision, DocumentRevision IMAN_specification.Text	Check that any software and document revision targets have a text dataset attached in the IMAN_specification relation.
DocumentRevision IMAN_specification.Word, Excel, PowerPoint	Check that any DocumentRevision targets also have a Word, Excel OR PowerPoint dataset attached in the IMAN_specification relation.
(ItemRevision)!Software Revision! DocumentRevision IMAN_specification.UGMASTER IMAN_specification.UGPART	Check that any other targets of class ItemRevision , (in other words, that are not SoftwareRevision or DocumentRevision) have a UGMASTER and UGPART attached in the IMAN_specification relation.
(ItemRevision) Proj.Project	Check that any revision targets also have a project item attached to the custom Proj relation.

Note:

The relation lines are indented for clarity.

EPM-check-target-object

DESCRIPTION

Checks the status of the object to determine whether to allow the action.

Note:

Enable debugging functionality for this handler with the **TC_HANDLERS_DEBUG** environment variable.

SYNTAX

EPM-check-target-object -allowed_status=
status-name | **-disallowed_status=***status-name*

ARGUMENTS

-allowed_status

Defines statuses to check against target objects. If a potential target matches any of the statuses defined with this argument, paste is available.

Accepts one or more valid Teamcenter status names.

Indicate *any* status with one of the following:

***|all|ALL|any|ANY**

Indicate *no* status with one of the following:

null|NULL|none|NONE

Indicate *in process* status:

IN_PROCESS

-disallowed_status

Defines statuses to check against target objects. If a potential target matches any of the statuses defined with this argument, paste is unavailable. Can use in place of **-status** for clarity. A warning message is displayed indicating noncompliance to the business rule when you click **OK**. Additionally, if the argument passed to the handler is incorrect, this warning message is also displayed when you click **OK**.

Accepts one or more valid Teamcenter status names.

Indicate *any* status with one of the following:

***|all|ALL|any|ANY**

Indicate *no* status with one of the following:

null|NULL|none|NONE

Indicate *in process* status:

IN_PROCESS

PLACEMENT

Place on the **Perform** action of the root task.

RESTRICTIONS

None.

EXAMPLES

- This example allows any target to be attached with a status of **Pending** or with no status (work in progress):

Argument	Values
-allowed_status	Pending, NONE

- This example disallows any targets from being attached with a status of **Released** or **Obsolete**:

Argument	Values
-disallowed_status	Released, Obsolete

EPM-debug-rule

DESCRIPTION

Notifies a user that an action is executing. Attaching **EPM-debug-rule** to any EPM action notifies the user when that task action runs by printing that action name to the standard output device.

SYNTAX

EPM-debug-rule **-comment**=*string*

ARGUMENTS

-comment

Additional descriptive string appended to the action name.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

EXAMPLES

This example notifies the user when the **Complete** action runs by printing **Complete, action is executing** to the standard output device.

Argument	Values
-comment	action is executing

Note:

This example assumes you have attached this handler to a **Complete** action.

EPM-disallow-adding-targets

DESCRIPTION

Disallows adding targets interactively after a workflow process is initiated. A switch can be used to specify the types of objects to be excluded. If you configure other handlers to add targets programmatically, they are added during the workflow process even if this handler is used.

It is good practice to add this handler to the root task **Perform** action to ensure that target objects are not added from a workflow process once it is started. If you want to allow the addition of objects of all types as targets, this handler should be removed from the respective workflow process template, and you must ensure that the desired users have change access to the workflow process (job) object. You may need to use the **EPM-set-rule-based-protection** handler to ensure that the required change access is asserted.

Note:

The **EPM-attach-related-objects** and **PS-attach-assembly-components** handlers are dependent on this handler.

SYNTAX

EPM-disallow-adding-targets [-exclude_type=type-of-object [, type-of-object2]]

ARGUMENTS

-exclude_type=type-of-object [, type-of-object2]

Types of objects that are allowed to be added as targets after the workflow process is initiated.

This argument is optional.

PLACEMENT

Place on the **Perform** action of the root task.

RESTRICTIONS

None.

EXAMPLES

This example allows only BOM view revisions to be added interactively as targets after the workflow process is initiated.

Argument	Values
-exclude_type	BOMView Revision

EPM-disallow-removing-targets

DESCRIPTION

Prevents targets from being removed from a workflow process after the workflow process has been started.

It is good practice to add this handler to the root task of the **Perform** action. This prevents target objects from being removed from a workflow process once it is started. To allow the removal of targets, verify that this handler has been removed from the respective workflow process template (if it has not been removed, do so) and ensure that the desired users have *change* access to the workflow process object. You may need to use the **EPM-set-rule-based-protection** handler to ensure that the required *change* access is asserted.

Note:

The named ACL must have *change* access to provide the proper protection.

SYNTAX

EPM-disallow-removing-targets

ARGUMENTS

None.

PLACEMENT

Place on the **Perform** action of the root task.

RESTRICTIONS

None.

EPM-disallow-reviewers

DESCRIPTION

Prevents specified users, the workflow process owner, reviewers for a specified task, reviewers from all tasks, or a combination of them from being added to a signoff team in a **Review** task.

SYNTAX

EPM-disallow-reviewers **-assignee**=**user:**[*user-name-1*] [**,user:***user-name-2*,...] | [**user:****\$PROCESS_OWNER**] **-task**=[*parent-task-name:sub-task-name* | **ALL**]

ARGUMENTS

-assignee

Specifies the user IDs and/or the workflow process owner that are not allowed as reviewers.

Any Teamcenter users or **\$PROCESS_OWNER** are specified in the following format:

user:*user-name-1*, **user:***user-name-2*, ...

You must use either the **-assignee** or the **-task** argument. You can optionally use both.

-task

Specifies the parent task and subtask names, separated by a colon (:), for an existing **select-signoff-team** task in the workflow process. Reviewers for this task are not allowed as reviewers for the task with this handler. You can specify all tasks in the workflow process with the **ALL** keyword.

You must use either the **-assignee** or the **-task** argument. You can optionally use both.

PLACEMENT

Place *only* on the **Complete** action of the **select-signoff-team** task.

RESTRICTIONS

None.

EXAMPLES

- This example prevents the user **Smith** from being a reviewer:

Argument	Values
-assignee	user:Smith

- This example prevents the workflow process owner and user **Smith** from being reviewers:

Argument	Values
-assignee	user:\$PROCESS_OWNER, user:Smith

- This example prevents the existing reviewers on the **Review1:SST1** task from being reviewers:

Argument	Values
-task	Review1:SST1

- This example prevents the existing reviewers on all other **select-signoff-team** tasks within the workflow process from being the reviewers:

Argument	Values
-task	ALL

- This example prevents the process owner and existing reviewers on the **Review1:SST1** task from being reviewers:

Argument	Values
-assignee	user:\$PROCESS_OWNER
-task	Review1:SST1

EPM-hold

DESCRIPTION

Pauses the task, requiring the user to perform an action on the task before the task can complete. Typically, a task completes automatically once started. **EPM-hold** prevents this automatic completion.

Use this rule handler with custom tasks that require customized **Perform** actions, or to require the user to manually perform a **Complete** action to complete the task.

This handler checks the **task_result** property of the task to which it is attached. If this property is not set to **Completed**, this handler pauses the task. If the value is set to **Completed**, the task progresses normally.

In addition, in case of **Notify** tasks that are sub-tasks of **Route** tasks, this handler checks whether the reviewers are completely assigned to the **Route** task. If the reviewers' assignment is complete, then it allows the **Notify** task to proceed even if the value of **task_result** property of the **Notify** task is not set to **Completed**.

Configuring a task to display forms using EPM-display-form, EPM-hold, and EPM-create-form

To configure a task to display a form when a user performs a specified action, use the **EPM-hold** handler. This handler pauses the task, requiring the user to perform an action on the task before the task can complete. Without the use of this handler, a task completes automatically once started.

To create an instance of a specified form and attach the form to the specified task, use the **EPM-create-form** handler.

Therefore, the **EPM-create-form** handler creates the form when the **Start** action is initiated, the **EPM-display-form** handler displays the form when the **Perform** action is initiated, and the **EPM-hold** handler prevents the task from automatically completing, allowing the form to be completed by the user.

Variations on the above example may be required for a more sophisticated interaction when it is required that the task not complete until required fields are entered in the form. This type of configuration requires the creation of customized rule handlers.

SYNTAX

EPM-hold

ARGUMENTS

None.

PLACEMENT

Place on the **Complete** action of any task with which you want the user to interact before the task completes.

RESTRICTIONS

None.

ADDITIONAL INFORMATION

- By default, this handler is placed in the **Do** task template, pausing the task to allow the **Do Task** dialog box to display when the user performs the **Perform** action on a selected **Do** task.
- Use this handler with custom tasks that present custom forms when the user performs the **Perform** action.
For information about configuring custom tasks to present custom forms when the **Perform** action is invoked, see the description of the **EPM-display-form** handler.

EPM-invoke-system-rule

DESCRIPTION

Runs an external command (specified with the **-command** argument) such as Perl scripts, shell scripts, or external ITK programs, then continues or halts the workflow process based on the return code of the external command.

Use this handler for increased control of the workflow process. For example, to synchronize NX attributes and structure with Teamcenter, or to generate JT tessellation from CAD files.

This handler writes process-related information to an XML file. The file is passed to the external script or program as **-f XML-file-name**. APIs are provided (in the form of Perl modules) to read the XML file and perform functions on its data objects. The APIs are located in the **Workflow.pm** file in the **TC_ROOT/bin/tc** directory.

Write Perl scripts (for example, **TC_ROOT/bin/iman_check_renderings.pl** for background tessellation of CAD data) using the provided APIs to read the XML file and perform required functions on its data objects. Then use the Perl script as the value of the **-command** argument in the workflow process template.

Note:

Siemens Digital Industries Software recommends you place the Perl scripts in the **TC_ROOT/bin** folder.

Alternatively, you can place the script in an alternate location and provide an absolute path to the location (for example, **c:\temp\test.bat**). However, using an absolute path requires that you update the template if there are any changes. In the previous example, **c:\temp\test.bat** is a path on a Windows platform. If you were to change to a Linux platform, the template would need to be updated. This second method is not recommended.

The handler returns a code that is mapped to:

- **EPM_go** when the external script returns **0** or **EPM_go** and no other errors are returned
- **EPM_nogo** when the external script/program returns error or **EPM_nogo**
- **EPM_undecided** when the external script/program returns **EPM_undecided**

SYNTAX

```
EPM-invoke-system-rule -command=name-of-the-external-program
[-trigger_on_go= [task:]action]
[-trigger_on_nogo= [task:]action]
[-trigger_on_undecided= [task:]action] [-skip_unreadable_objs]
[-change_status_on_go= [old-status-name:][new-status-name]]
```



```

[-change_status_on_nogo= [old-status-name:][new-status-name]]
[-change_status_on_undecided= [ old-status-name:][new-status-name]]
[-add_occurrence_notes] [-comment=signoff-comment]
[-responsible_party= [User:responsible-party[; Task:task-name]]
[-reviewer= [User:user-id] [; Group:group] [; Role:role] [; Level:level]]
[-send_mail=user-ids] [-initiate_process] [-where_used=item-revision-type]
[-expand=item-revision-type] [-list_sibling_processes=wildcarded-procname]
[-depth=maximum-recursion-depth] [-debug]

```

ARGUMENTS

-command

Name of the external executable. This executable can be an external Perl script that reads and modifies the XML file that this handler writes, or an ITK program to perform specific functionality.

This argument is required.

-trigger_on_go

Triggers an action in the same workflow process when **EPM_go** is returned.

Trigger an action in another task by specifying an action and task name. If another task name is unspecified, the specified action in the current task is triggered.

The system supports the following actions:

ASSIGN, START, PERFORM, COMPLETE, SUSPEND, RESUME, SKIP, ABORT, REFUSE, UNDO, REJECT, APPROVE, PROMOTE, DEMOTE.

Action names are not case sensitive.

Task names cannot contain a colon or a period. If the task name is ambiguous (for example, **select-signoff-team**), hierarchical notation is required.

This argument is optional.

-trigger_on_nogo

Triggers an action in the same workflow process when **EPM_nogo** is returned. Trigger an action in another task by specifying an action and task name. If another task name is unspecified, the specified action in the current task is triggered.

The system supports the following actions:

ASSIGN, START, PERFORM, COMPLETE, SUSPEND, RESUME, SKIP, ABORT, REFUSE, UNDO, REJECT, APPROVE, PROMOTE, DEMOTE.

Action names are not case sensitive.

Task names cannot contain a colon or period. If the task name is ambiguous (for example, **select-signoff-team**), hierarchical notation is required.

This argument is optional.

-trigger_on_undecided

Triggers an action in the same workflow process when **EPM_undecided** is returned.

Trigger an action in another task by specifying an action and task name. If another task name is unspecified, the specified action in the current task is triggered.

The system supports the following actions:

ASSIGN, START, PERFORM, COMPLETE, SUSPEND, RESUME, SKIP, ABORT, REFUSE, UNDO, REJECT, APPROVE, PROMOTE, DEMOTE.

Action names are not case sensitive.

Task names cannot contain a colon or period. If the task name is ambiguous (for example, **select-signoff-team**), hierarchical notation is required.

This argument is optional.

-skip_unreadable_objs

Unreadable objects are not processed. The handler does not attempt to write information about unreadable objects into the XML file; the objects are skipped.

If this argument is not specified, the handler displays an error when a failure occurs when there is no read access.

-change_status_on_go

Adds, removes, or changes the status of attachments when **EPM_go** is returned.

Both the old and new status names are optional.

- If both status names are specified, the new status name replaces the old status name.
- If only the new status name is specified, the corresponding status is added.
- If only the old status name is specified, the corresponding status name is removed.
- If neither status name is specified, no action is taken.

If a value is not provided for this argument, the value set by the external Perl script is read.

-change_status_on_nogo

Adds, removes, or changes the status of attachments when **EPM_nogo** is returned.

Both the old and new status names are optional.

- If both status names are specified, the new status name replaces the old status name.
- If only the new status name is specified, the corresponding status is added.
- If only the old status name is specified, the corresponding status name is removed.
- If neither status name is specified, no action is taken.

If a value is not provided for this argument, the value set by the external Perl script is read.

-change_status_on_undecided

Adds, removes, or changes the status of attachments when **EPM_undecided** is returned.

Both the old and new status names are optional.

- If both status names are specified, the new status name replaces the old status name.
- If only the new status name is specified, the corresponding status is added.
- If only the old status name is specified, the corresponding status name is removed.
- If neither status name is specified, no action is taken.

If a value is not provided for this argument, the value set by the external Perl script is read.

-add_occurrence_notes

Sets occurrence notes of target assemblies. Can be used in combination with the **-expand** argument to set **OccurrenceNotes** for components of assembly structures.

This argument is optional.

-comment

The signoff decision is set depending on the return code of the external program:

- 0=Approve
- 1=Reject
- 2=No Decision

If a value is not provided for this argument, the value set by the external Perl script is read.

This argument is optional.

-responsible_party

Assigns a responsible party. If no user ID is specified for this argument, the value set by the external Perl script is read.

This argument is optional.

-reviewer

Assigns a reviewer for a release level. If no reviewer is specified for this argument, the value set by the external Perl script is read.

This argument is optional.

-send_mail

Sends target, reference, or sibling objects through program mail. If one or more user IDs are defined for this argument, the workflow process is sent to the specified users through program mail.

Separate multiple user IDs with a space, a comma, or the character specified by the **EPM_ARG_target_user_group_list_separator** preference.

If no user IDs are defined for this argument, the recipients and the contents of the envelope set by the external Perl script is read.

This argument is optional.

-initiate_process

Initiates a workflow process for another object. Target objects are defined by the values set by the external Perl script.

This argument is optional.

-where_used

Reports the where-used of item and item revision target attachments by writing the hierarchy of all parent and grandparent assemblies of item and item revision target attachments into the XML file to allow the external Perl script to perform required functions. If an **ItemRevision** type is specified, the type argument is compared to the corresponding item revision type. For example, **ItemRevision** matches objects of the **Item** type. If an item revision type is specified, the parent assemblies of only those target attachments that match this type are listed.

This argument is optional.

-expand

Reports the assembly of item and item revision target attachments by writing the hierarchy of all child and grandchild components of item and item revision target attachments into the XML file to allow the external Perl script to perform required functions.

If an **ItemRevision** type is specified, the type argument is compared to the corresponding item revision type. For example, **ItemRevision** matches objects of the **Item** type. The assembly structure is expanded for all item revision of all matching item target attachments.

If an item revision is specified, the child components of only those target attachments are listed that match this type.

This argument is optional.

-list_sibling_processes

Writes information regarding processes that belong to the same **Change** item into the XML file to allow the external Perl script to perform required functions. The information concerns processes sharing the same **Change** item as a reference attachment.

If a process template name is specified in the procedure definition, only the processes that match the procedure name are included.

This argument is optional.

-depth

Increases the maximum incursion depth. The **-trigger_on_go** or **-initiate_process** arguments could cause the triggered action to use the same handler in a deeper level of recursion. If this is intended, the maximum level of recursion must be set to the desired number. If necessary, it can be disabled by setting it to 0. The default is set to 1, to avoid infinite loops.

This argument is optional.

-debug

Enables debugging. Each occurrence of this argument increases the debug level by one. Debug messages are written to the Teamcenter error stack for display in the rich client user interface, as well as written to the syslog file.

This argument is optional.

PLACEMENT

Place on the **Start** or **Complete** action of any task. If this handler is configured to set the signoff decisions on a **perform-signoffs** task (for example, if the **-comment** argument is specified), then place on the **Complete** action of the **perform-signoffs** task.

RESTRICTIONS

Do not add to a workflow process containing *any* handler using resource pools.

EXAMPLES

This example shows how to run the **iman_check_renderings_pl** script using the **-command** argument. Do not list the file extension in the value. This value runs either the **iman_check_renderings_pl.bat** (Windows) or **iman_check_renderings_pl** (Linux) script, depending on which platform the server is running.

Note:

The script should be placed in the *TC_ROOT/bin* directory.

Argument	Values
-command	iman_check_renderings_pl

EPM-signoff-team-validation

DESCRIPTION

Checks to ensure the minimum number of reviewers specified by the **-num_reviewers** argument is assigned to the **select-signoff-team** task. If no argument is provided, the handler checks for at least one reviewer.

If the number of reviewers assigned to the **select-signoff-team** task is less than the minimum reviewers required, then **EPM_nogo** is returned.

SYNTAX

EPM-signoff-team-validation [-num_reviewers= *minimum-number*]

ARGUMENTS

-num_reviewers

(Optional) Minimum number of reviewers required for the **select-signoff-team** task.

PLACEMENT

Place *only* on the **Complete** action of the **select-signoff-team** task.

RESTRICTIONS

None.

EXAMPLES

This example checks to see if at least 2 reviewers are assigned to the **select-signoff-team** task.

Argument	Values
-num_reviewers	2

EPM-validate-target-objects

DESCRIPTION

Restricts the types of objects that can be added as target objects. It always prevents the **Home**, **Newstuff**, and **MailBox** folders from being added as target objects.

Note:

Enable **debugging functionality** for this handler with the **TC_HANDLERS_DEBUG** environment variable.

SYNTAX

EPM-validate-target-objects

```
[-include_type =type-of-workspace-object[, type-of-workspace-object2,..]]
[-exclude_type =type-of-workspace-object[, type-of-workspace-object2,..]]
[-latest_rev]
```

ARGUMENTS

-include_type

Defines the type of objects that can be added as target objects to a workflow process. You can define more than one type by using commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference between the types. This argument is optional.

Accepts valid Teamcenter object types, such as **ItemRevision**, **UGMASTER**, and **UGPART**.

When you add any object type or class as a target, all its subtypes are also included. To explicitly exclude any subtypes, use the **-exclude_type** argument.

For example, if this argument is specified as **ItemRevision**, any type of item revision (for example, **DocumentRevision**, and so on, and any custom item revision types) is allowed.

Does not accept bracketed () class notation to distinguish between classes and types.

-exclude_type

Defines the type of objects that cannot be added as target objects to a workflow process. You can define more than one type by using commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference between the types.

Accepts valid Teamcenter object types, such as **ItemRevision**, **UGMASTER**, and **UGPART**.

If this argument is specified as **ItemRevision**, any type of item revision (for example, **DocumentRevision**, and so on, and any custom item revision types) is disallowed.

-latest_rev

Ensures any revisions added to the workflow process are the latest revision within their owning item. This argument is optional.

PLACEMENT

Place on any action in any task.

RESTRICTIONS

None.

EXAMPLES

- This example allows only item revisions as targets:

Argument	Values
-include_type	ItemRevision

- This example allows **MEOPRevision** objects as the targets and disallows **MENCMachining Revision** and **METurningRevision** objects:

Argument	Values
-include_type	MEOPRevision
-exclude_type	MENCMachining Revision, METurningRevision

Note:

MEOPRevision is the parent type (class) for **MENCMachining Revision** and **METurningRevision**. In this example, all **MEOPRevision** subtypes are allowed as targets except for **MENCMachining Revision** and **METurningRevision**.

- This example allows only the latest item revisions as targets:

Argument	Values
-include_type	ItemRevision
-latest_rev	

EPM-verify-digital-signature

DESCRIPTION

Verifies if the target objects and, optionally, the schedule task have a valid digital signature.

SYNTAX

EPM-verify-digital-signature [-include_schedule_task] [-quorum=*size*] [-no_void]

ARGUMENTS

-include_schedule_task

(Optional) Verifies the digital signature on the schedule task and all target objects of the workflow. If this argument is not provided, the digital signature is verified only on the target objects of the workflow.

-quorum

(Optional) Specifies the minimum number of valid digital signatures each target must have, where *size* is a positive integer specifying the quorum. If this argument is not specified, all digital signatures on all targets must be valid.

-no_void

(Optional) Checks each target object in the workflow for a void digital signature. If the target object has one or more void digital signatures, the handler fails with an error indicating the failure, even if the quorum in the **-quorum** argument for valid digital signatures is met.

PLACEMENT

Place on any action on any task.

RESTRICTIONS

None.

ERP-check-effective-date-RH

DESCRIPTION

Checks the **Effect In** date on the release status attached to the process does not have a value before the current date.

SYNTAX

ERP-check-effective-date-RH

ARGUMENTS

None.

PLACEMENT

Place on the **perform-signoff** task.

RESTRICTIONS

None.

ERP-check-target-status-RH

DESCRIPTION

Checks that the release status for target item revisions is specified.

SYNTAX

ERP-check-target-status-RH **-status_name=***name*

ARGUMENTS

-status_name

Specifies the name of the release status.

RESTRICTIONS

None.

ERP-validate-data-RH

DESCRIPTION

Applies the validation criteria specified in the mapping schema on all forms attached to the process's transfer folders and related **BOMComponent** data. The following validations are performed:

- For each attribute:
 - If the attribute parameter is required, the field must have a value.
 - If the attribute definition has an LOV, the value in the field must match one in the list. Although this is checked at entry time, this allows for LOVs that changed in the mapping since the data was originally entered.
For an overview of using LOVs in handlers, see *Lists of values as argument values*.
 - For string attributes, the length of string entered must be no more than that defined in the schema.
 - If there is a custom validation function defined using the **custom_check** attribute parameter, call the function.
- For each **BOMHeader** to be sent to ERP:
 - Check a corresponding BOMView revision of the correct type exists, as described for the **SAP-check-forms-attached-RH** handler.
 - Check all components with the same item ID have the same attribute values (for those attributes specified in the mapping schema, except quantity).
 - Check component attribute values conform to parameters in the mapping schema (mandatory, LOV, length). Although LOVs cannot be presented to the user for Structure Manager notes, values can still be validated with this handler.

SYNTAX

ERP-validate-data-RH

ARGUMENTS

None.

PLACEMENT

Call this handler after you attach data with **ERP-attach-targets-AH**. Place this handler on the **perform-signoff** task.

RESTRICTIONS

None.

ICS-assert-target-classified

DESCRIPTION

Checks whether an item is classified by verifying that target objects of the specified types in this workflow process are classified. If the item is classified, the rule handler returns **EPM_go**. If the item is not classified, it returns **EPM_nogo**. The user then has the option of associating this rule handler with the selected workflow completion process, therefore, preventing the state transition if the item does not comply with the classified business rule.

SYNTAX

ICS-assert-target-classified -allowed_type =type-of-workspace-object
[, type-of-workspace-object2,..]

ARGUMENTS

-allowed_type

Must be valid workspace object types. For example: **ItemRevision** and **ITEM**

If this argument is specified as **Dataset**, any type of dataset (**UGMASTER**, **UGPART**, **Text**, and so on) is considered.

If this argument is specified as **ItemRevision**, any type of item revision (**DocumentRevision**, and so on, and any custom item revision types) is considered.

PLACEMENT

Place on any action and on any task.

RESTRICTIONS

None.

EXAMPLES

This example checks item revisions as targets:

Argument	Values
-allowed_type	ItemRevision

This handler is very useful in restricting unclassified items and item revisions from being released.

LDF-sync-ldf-status

DESCRIPTION

Queries the remote Linked Data Framework (LDF) integrated systems, such as Polarion, for properties, and checks their values against the expected values configured.

- If the values match, the handler applies the configured status to the target(s) and allows the task to continue processing.
- If the expected values do not match, the handler does not allow a task to continue processing.

Querying a remote system like Polarion is accomplished through APIs against LDF objects attached to the root task by target or reference relations, or attached to a target or reference by a specified relation or property.

Note:

Arguments specific to applying release status are the same as the **EPM-set-status** handler. Any added, modified, or deleted **EPM-set-status** handler arguments apply to the **LDF-sync-ldf-status** handler arguments.

SYNTAX

```
LDF-sync-ldf-status -property=<oslc-namespace-prefix-url>.property-name
  [-remote_user_name=user_name]
  [-attachment={target / reference / both}] [-attachment_property=property-name]
  [-attachment_relation=relation-name]
  ] [-include_type=include-type]
[-include_related_type=include_related_type] [-check_first_object_only]
[-[action={append/rename/replace/delete}]
[-status=name]
[-new_status=new-status]
[-retain_release_date] [-set_effectivity]
```

ARGUMENTS

Parameter	Description	Default	Req
-property:: <oslc-namespace-prefix-url> . property-name	Specifies the remote property or properties check. Requires a fully qualified property name with a prefix URL prepended to every property in a workflow argument, which is prepended by -property:: . The OSLC namespace prefix URL must be		Yes

Parameter	Description	Default	Req
	<p>contained in angle brackets, < and >, in the <oslcnamespace-prefix-url>.property-name format as shown in the <i>Examples</i> section.</p> <p>Enter a list separated by commas or the character specified by the EPM_ARG_target_user_group_list_separator preference.</p>		
-remote_user_name	<p>Used by the handler to connect to a remote system like Polarion for sending HTTP requests.</p> <p>The <i>Restrictions</i> section describes separate actions required to generate an encrypted password file.</p>		No
-attachment	<p>Specifies the type of attachment to be checked:</p> <p>target</p> <p>Checks the target attachments</p> <p>reference</p> <p>Checks the reference attachment</p> <p>both</p> <p>Checks target and reference types of attachments.</p>	target	No
-attachment_property	Property of the attachment to derive the linked object.		No
-attachment_relation	<p>Specifies the relation name to expand to get the linked object from workflow attachment. Linked objects attached to targets and references of a workflow with the relation specified by attachment_relation are searched. Linked objects not matching the specified relation are not checked.</p>	Lcm0AffectedByDefect	No
-include_type	Specifies the type of workflow target and reference attachments to be checked. Workflow attachments not matching the specified type are not checked.	target	No

Parameter	Description	Default	Req
-include_related_type	Specifies the type of linked object to retrieve that is related to the workflow attachment using the attachment_relation value. This argument should be used in conjunction with the attachment_relation or attachment_property arguments.	target	No
-check_first_object_only	If specified, only the first object of the type specified by include_type is considered. This argument is optional.	true	No
-status	When the check is satisfied, a new milestone with the name specified by this argument is added to targets and references of the workflow.	task-name	No
-action	<p>Specifies an action:</p> <p>append</p> <p>Attaches the status objects from the root task to the target objects, with no impact to any previous status objects applied to the same targets.</p> <p>replace</p> <p>Deletes all existing status objects attached to target objects and attaches the status objects from the root task to the target objects.</p> <p>rename</p> <p>Renames an existing status object attached to the target objects from old_name to new_name.</p> <p>If a status object with the old_name status is not found, it renames the last status object attached to the target objects.</p> <p>If the target object has an existing status, the status object is renamed from old_name to new_name.</p> <p>delete</p>	append	No

Parameter	Description	Default	Req
	<p>Deletes the status status_name specified by the status argument from the target object.</p> <p>If the delete argument is not used in combination with the status argument, all status objects are removed from the target objects.</p> <p>If the status objects being removed from the target objects were created in the same workflow, they are attached to the root task upon creation and are not removed from the root task by this handler.</p>		
-new_status	<p>Specifies the new name for the status object.</p> <p>Use in conjunction with rename and replace actions.</p>		No
-retain_release_status	Retains the original release date on the target object if it had previously been released. Not valid for replace .	false	No
-set_effectivity	If used, the system creates the open-ended date effectivity with the release date as the start date.	false	No

PLACEMENT

Because this is a rule handler with some action handler behavior, place it as the last rule handler in the rule handler list for the task **Complete** action.

RESTRICTIONS

Use if you are using the LDF framework for application integrations and you want Teamcenter workflows to apply status based on LDF linked property values.

You must generate an encrypted password file by following these steps in a Teamcenter command shell:

1. Run this command:

```
mkdir %TC_DATA%\polarionconnector
```

2. Run this command:

```
%TC_ROOT%\bin\install -encryptpwf -f=%TC_DATA%\polarionconnector\<user name>
```

Where <user name> is user name of remote system such as Polarion ALM. This user name should be configured as a value of the **-remote_user_name** handler.

EXAMPLES

- The following example checks the status property of linked objects on the remote system.

Argument	Values
-property:: <http://polarion.plm.automation.siemens.com/oslc#> .priority	Low, Medium
-attachment	target
-attachment_relation	Lcm0RelatedChangeRequest
-include_type	ChangeRequestRevision
-status	Synced
-action	append
-remote_user_name	admin

MESINTEG_ValidateReleaseAndExport

DESCRIPTION

Performs customized validation checks for Manufacturing Execution System Integration. This handler does the following:

- Takes the **CC** object and creates BOP windows.
- Configures all windows with the configuration rule.
- Calls the validation checks for any BOP window.

If a validation check fails or there is an error or warning, it is returned within the **validationError** structure and added to the log in the handler or in the user interface.

SYNTAX

MESINTEG_ValidateReleaseAndExport -Type = *callback-type-1, callback-type-2, ...*

ARGUMENTS

-Type

Specifies the callback type, for example, **MFG_ValidationChecksCallback** or **MESINTEG_ValidationChecksCallback**. Each -Type value is paired with the -Name value, separated by commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference. You can have more than one type/name pair.

-Name

Specifies the callback name, for example, **ValidationCheck1**.

Each -Type value is paired with the -Name value, separated by commas or the character specified in the **EPM_ARG_target_user_group_list_separator** preference. You can have more than one type/name pair.

-perform

Specifies the list of operations to be performed by the action handler.

Values include **Validate**, **Release**, **GenerateMESWIRep**, **Export**, and **modifyscope**.

Note:

Specify these values without spaces and separated by commas or the character specified in the **EPM_ARG_target_user_group_list_separator** preference

-fullexport

Indicates whether it is a full export or a delta export.

-ContinueOnFail

(Optional) Specifies whether to continue checking if the previous check fails. The default value is **False**. You can use multiple values, separated by commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference. Specify one value less than the number of type/name pairs, because if the last check fails, there is no check to continue.

-export_as_fai

Specifies whether to consider the work package as part of the **Send to MES** command.

If set to **True**, the work package is considered as a part of the **Send to MES** command.

PLACEMENT

Place this handler on any workflow that eventually creates a BOP window from the **VisStructureContext**, exports the data, and updates the release status.

RESTRICTIONS

None.

EXAMPLES

Arguments used in the **ReleaseToMES**, **Send**, and **ReleaseUpdateToMES** workflows.

Note:

Specify values without spaces and separated by commas or the character specified in the **EPM_ARG_target_user_group_list_separator** preference

Argument	Values
-Type	MFG_ValidationChecksCallback, MFG_ValidationChecksCallback, MFG_ValidationChecksCallback
-callback_name	Release Status Validation, Workarea Assigned Validation, Process Hierarchy Validation, Workarea Name Validation
-perform	Validate, Release, GenerateMESWIRep, Export
-fullexport	True

Argument	Values
-ContinueOnFail	True or False
-export_as_fai	True, False
	If this property is set to True , the work package is considered as a part of the Send to MES command.

Arguments used in the **ReleaseToProduction** workflow.

Note:

Specify values without spaces and separated by commas or the character specified in the **EPM_ARG_target_user_group_list_separator** preference

Argument	Values
-Type	MFG_ValidationChecksCallback
-callback_name	Change Object Validation
-target	production
-perform	<p>Validate, Pending, Export, exportdelta, Release, modifyscope</p> <p>The modifyscope value is specific to ReleaseToProduction workflow. If you want to use this value, you must register this callback using the following command:</p> <pre>install_callback -u=Tc-admin-user -p=password -g=group -mode=create -type=MFG_ModifyScopeCallback -library=library -function=function -name=Modify Export Scope</pre>
	<p>Note:</p> <p>Do not use modifyscope, Pending, or exportdelta values for MES Integration.</p>
-fullexport	TRUE
-ContinueOnFail	TRUE
-export_as_fai	True, False

Argument	Values
	If this property is set to True , the work package is considered as a part of the Send to MES command.

MFG-invoke-customized-validations

DESCRIPTION

Performs customized validation checks for Manufacturing Execution System Integration. This handler does the following:

- Takes the **CC** object and create BOP windows.
- Configure all windows with the configuration rule.
- Calls the validation checks for any BOP window.

If a validation check fails or there is an error or warning, it is returned within the **validationError** structure and added to the log in the handler or in the user interface.

SYNTAX

MFG-invoke-customized-validations -Type = *callback-type-1, callback-type-2, ...* -Name =*callback-name-1, callback-name-2, ...* [-ContinueOnFail = True|False, True|False, ...]

ARGUMENTS

-Type

The callback type; for example, **MFG_ValidationChecksCallback** or **MESINTEG_ValidationChecksCallback**. Each -Type value is paired with the -Name value, separated by commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference. You can have more than one type/name pair.

-Name

The callback name; for example, **ValidationCheck1**. Each -Type value is paired with the -Name value, separated by commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference. You can have more than one type/name pair.

-ContinueOnFail

(Optional) Whether or not to continue checking if the previous check failed. The default is **False**. You can use multiple values, separated by commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference. There should be one less value than the number of type/name pairs, because if the last check fails, there is not another check to continue to.

PLACEMENT

Place this handler on any workflow that transfers a **CC** object to a BOP window.

RESTRICTIONS

None.

EXAMPLES

- This example runs three different validation checks, **ValidationCheck1**, **ValidationCheck2**, and **ValidationCheck3**. If **ValidationCheck1** fails, the handler runs **ValidationCheck2** anyway. If **ValidationCheck2** fails, the handler does not run **ValidationCheck3**.

Argument	Values
-Type	MFG_ValidationChecksCallback, MFG_ValidationChecksCallback, MFG_ValidationChecksCallback
-Name	ValidationCheck1, ValidationCheck2, ValidationCheck3
-ContinueOnFail	True, False

MROCORE-validate-for-class

DESCRIPTION

Validates that the item revision submitted to the workflow is a physical part revision. If it is a physical part revision, the handlers returns **EPM_go**. If it is not a physical part revision, the handler displays an error, returns the decision as **EPM_nogo**, and stops further processing.

SYNTAX

MROCORE-validate-for-class -class name=*class-name*

ARGUMENTS

-class name

Specifies the class name to validate.

PLACEMENT

Place at the entry of the workflow to validate that the target object is the physical part revision for the as-built structure traversal.

RESTRICTIONS

This handler is available only when Teamcenter service lifecycle management Service Manager or As-Built Manager is licensed and installed.

PS-check-assembly-status-progression

DESCRIPTION

Enforces status value progression for BOM assemblies. When an assembly is selected for release to a specific status, this handler checks if all its components are at or above the status of the assembly.

An item revision is required as the target of the workflow process. Additional targets are derived by traversing the BOM attached to the target item revision. The handler then compares the targeted release status to the release status of its components. The latest release status of the components must be the same or later in the status progress, in relationship to the targeted release status of the assembly.

This handler traverses only one level. If every subassembly of the target were previously released by this handler, all subassemblies would have been forced to align to the progression path.

Note:

If the target release status of the assembly must be checked against the latest release status of its own preceding revisions, use the **EPM-check-status-progression** handler before using this handler.

If the workflow process contains several **Condition** tasks that apply different release statuses at different levels, the value provided in the **-status** argument can be used. If this argument is not used in this situation, the status applied to the target object is applied to the object. There is no validation ensuring the value provided by this argument is a valid status being applied by the current release procedure.

You can check the BOM components for a specific status, rather than for any status. In this case, the handler traverses the BOM, checking for the specific release status of each individual component, rather than any status; the progression path is not read.

SYNTAX

PS-check-assembly-status-progression [-rev_rule=*revision-rule*]
 [-saved_var_rule=*saved-variant-rule*] [-status=*status-being-applied-to-the-target-object*]
 [-check_component_status=*component-status-to-be-checked-against*] [-check_unconfigured]

ARGUMENTS

-rev_rule

Specifies the name of the revision rule to be applied for BOM traversal. If not supplied, the default revision rule is used.

-saved_var_rule

Specifies the name of the saved variant rule to be applied on BOM window for BOM traversal.

-status

Defines the status being applied to the target object. If you do not specify **-status**, you must specify **-check_component_status**.

-check_component_status

Checks if all the components have this status. If you do not specify **-check_component_status**, you must specify **-status**.

-check_unconfigured

Returns **NO-GO** in case the applied revision rule on the assembly results in unconfigured children.

When specified, all the components are checked to see if they are configured. While the components are checked, if any component has an invalid status, the status is ignored for the time being and the rest of the components are continued to be checked. After all the components are checked:

- If one of the components is unconfigured, **NO-GO** is returned regardless of whether any other component has an invalid status.
- If all the components are configured then if one of them has an invalid status, the invalid status error is displayed and **NO-GO** is returned.

PLACEMENT

Place on any task action. However, if the target assembly is very large, placing it on the **Start** action of the root task could affect performance. With this placement, the **Create Process** dialog box does not close until the entire assembly is traversed.

RESTRICTIONS

If there are separate release progression tables for assemblies and for components, there must be common statuses between these two tables. If there are no common statuses between these two tables, this handler returns an **EPM_nogo** and aborts the release process of the assembly when the workflow process is initiated. See the fourth example below.

EXAMPLES

- In this example, assume that the revision rule is **Working** and the variant rule is **GMC 300 Rule**. If an assembly target object has to be checked against the status of its components, using a specific revision rule and saved variant rule to configure the assembly, define the arguments:

Argument	Values
-rev_rule	Working
-saved_var_rule	GMC 300 Rule
-status	Design

- In this example, if the assembly target object being released has to check if each of its components are at **Design** status, rather than any status, define the following argument. In this case, the progression path is not read:

Argument	Values
-check_component_status	Design

- In this example, assume a workflow process contains several **Condition** tasks, which apply different release statuses at different levels, and **Design** is a status at one of the levels. To check the status of **Design** against the progression path, rather than deriving the status being applied to the target object, define the following argument:

Argument	Values
-status	Design

- In this example, consider the scenario:
 - Assy1/A is a **CORP_Product** item revision, at **Design** status
 - 002/A is a **CORP_Part** item revision, at **Design** status
 - 003/A is a **CORP_Part** item revision, at **Design** status
 - **CORP_Product** progression path: **Assembly Quote, Experimental, Development, Design, Prototype, Manufacturing, Production**
 - **CORP_Part** progression path: **Quote, Experimental, Development, Design, Manufacturing, Production**

If Assy1/A is now being released to **Prototype** status, the handler returns an **EPM_nogo** because the component's progression path (and therefore the component progression table) does not contain the **Prototype** status. The assembly process would be aborted.

ADDITIONAL INFORMATION

- If the target release status of the assembly has to be checked against the latest release status of its own preceding revisions, the best practice is to use the **EPM-check-status-progression** handler before this handler.
- The progression path must be manually defined in the **ProgressionPath.plmxml** file before the handler can reference the path. The file is stored in the **TC_DATA** directory. Create a backup copy of this file before editing it.
All target types that you want to follow the progression path must be set in this file. A **UserData** block must be created for each type that follows a progression path. For example, to define the progression

path for the **ItemRevision**, **PSBOMView**, and **MSWord** types, the **UserData** blocks can be defined as follows:

```
<UserData id="id1">
  <UserValue title="Type" value="ItemRevision"/>
  <UserValue title="ReleaseProgressionList"
    value="Quote,Development,Prototype,Production">
  </UserValue>
</UserData>
<UserData id="id2">
  <UserValue title="Type" value="PSBOMView"/>
  <UserValue title="ReleaseProgressionList"
    value="Quote1,Development1,Prototype1,Production1">
  </UserValue>
</UserData>
<UserData id="id3">
  <UserValue title="Type" value="MSWord"/>
  <UserValue title="ReleaseProgressionList"
    value="Quote2,Development2,Prototype2,Production2">
  </UserValue>
</UserData>
```

Note:

- Add the **UserData** blocks between the **<PLMXML>** and **</PLMXML>** tags.
- Ensure you increment the **UserData id** value when you add a new entry.
- After adding a new **UserData** block, change the value for **Type** to a type you are defining.
- You can modify the value of the release status to meet your requirements.

PS-check-occ-notes

DESCRIPTION

Checks whether a value has been entered for the specified occurrence note types on the occurrences of a given assembly.

SYNTAX

PS-check-occ-notes **-note_types**=*occurrence-note-type-names*

ARGUMENTS

-note_types

Defines the occurrence note types to be validated.

PLACEMENT

Requires no specific placement.

RESTRICTIONS

None.

EXAMPLES

This example checks if the given assembly has the **Torque** and **Power** occurrence note types defined in all its BOM lines:

Argument	Values
-note_types	Torque,Power

SAP-check-forms-attached-RH

DESCRIPTION

Makes the following checks:

- For each BOM, check that the master data for each component and the assembly itself is created in ERP at the plant specified in the associated **BOMHeader** form or is a target of the current process. This prevents the upload failing, which it would if the component data did not already exist. This handler does not make any calls to ERP; it simply checks the **Sent to ERP** box.

Note:

If the process has both component and assembly item revisions, the material data is created first, and then the BOMs.

- For each **BOMHeader** form, there must be a corresponding BOM view revision with the view type specified by the **TC_view_type** attribute in the form.
- Complete sets of ERP forms are attached to each item revision as a target of the process. The mapping schema allows data for an **erp_object**, typically plant-specific, to be split across several form types. As the upload is expecting a complete set of attribute values for an **erp_object**, a complete set of forms must be transferred (for example, an instance of each form type defined for the **erp_object**).
- For a BOM, check that the parent and all components have had their master data **Sent to ERP** for the plant in which the BOM is created or are part of the process.

Note:

If the **erp_object** defines a key field with the **is_key_fld** parameter, the value in this field is used to distinguish between different instances of data for the same **erp_object**. For example, all forms having value 1000 in the **plant** field for form types with **erp_object PlantSpecific** constitute the set of forms defining the plant-specific data for plant 1000.

This handler only searches for ERP forms defined in the mapping schema attached by the relation types listed by the **-reln_names** argument. This list should be consistent with that used in the **ERP-attach-targets-AH**. Only those forms whose state has not yet been transferred to ERP (for example, those for which the **Sent_to_ERP** field is empty) are checked.

SYNTAX

SAP-check-forms-attached-RH **-reln_names** = *reln1,reln2,...*

ARGUMENTS

-reln_names

A list of the relation types used to relate ERP forms to item revisions.

Separate multiple types with commas or the character specified by the **EPM_ARG_target_user_group_list_separator** preference.

Note:

Relation names are case sensitive and should be named, for example, **tc_specification** not **TC_Specification**.

ERP_Data is the special relation supplied for attaching ERP forms.

PLACEMENT

Place this handler on the **Review** task.

RESTRICTIONS

None.

SAP-check-forms-to-download-RH

DESCRIPTION

Checks to make certain all form sets in transfer folders are valid, with the same rules as the **SAP-check-forms-attached-RH** rule handler. However, the **SAP-check-forms-to-download-RH** handler is intended for final checking of the form sets to be sent, rather than an initial input validation set.

SYNTAX

SAP-check-forms-to-download-RH

ARGUMENTS

None.

PLACEMENT

Call this handler after data is attached using the **ERP-attach-targets-AH** handler. Place this handler on the **Perform Signoff** task.

RESTRICTIONS

None.

VAL-check-validation-result

DESCRIPTION

Evaluates the validation result of each target before releasing the object. The handler first looks for all results relative to all targets. If no validation result is found, or all results are outdated or failed, the handler reports the corresponding error message and returns an **EPM_nogo** and the workflow is cancelled. If at least one validation result is successful and current, the handler returns an **EPM_go** and the workflow proceeds.

There are five situations in which validation results are checked:

- If the target object is an item revision, the handler finds all the validation targets by the closure rule specified in the **NX Agent** and then finds all the results relative to these validation targets.
- If the target object is an item, the handler runs on the latest revision, searching for validation results as specified in the previous situation. You may also supply a handler specifying the item revisions. After the first handler runs, the second handler runs on the specified item revisions as specified in the previous situation.
- If the target object is a dataset, the handler finds the validation results relative to the dataset.
- If the target object is a folder, the handler includes all secondary objects under the folder in its search for validation results.
- If there are multiple objects as targets, (for example, if multiple item revisions are selected as targets of a workflow), the handler finds all the validation results relative to all the validation targets by closure rule.

SYNTAX

VAL-check-validation-result [-each_validation_target]

ARGUMENTS

-each_validation_target

(Optional) At least one validation result must exist for each NX dataset for the workflow to proceed.

If this argument is not used, the workflow proceeds if there is a successful result on one NX dataset.

PLACEMENT

Place on the **Start** action of the root task. The workflow process is aborted if a target is not validated, or if its validation result is not **Pass**.

An alternative is to place on the **Complete** action of the root task. The release status is not added to a target if it is not validated, or if its validation result is not **Pass**.

RESTRICTIONS

None.

VAL-check-validation-result-with-rules

DESCRIPTION

Leverages validation rule and validation object applications from the workflow process and checks target NX datasets validation result status. To add this handler to a workflow process template, the user must have a well-defined validation rule set file that best describes the user's business process in terms of what NX datasets should run what checks at what time and what conditions that the check must meet. The handler returns a **EPM_go** or **EPM_nogo** decision based on overall result status of the verification (**EPM_go** is returned only when all target NX datasets satisfy all rules defined in validation rule set file).

The handler logs validation rules and validation result checks. The format of the log file name is *First-target-name_Time-stamp*. The log file is stored in the directory specified by the **TC_TMP_DIR** environment variable. If **TC_TMP_DIR** is not defined, it is stored in the **%TEMP%** directory (Windows) or **/tmp** directory (Linux).

Note:

The system will not process a log file name longer than 32 characters when the **TC_Allow_Longer_ID_Name** preference is set to **false**. In this situation, if the log file name is longer than 32 characters, the log file name is automatically truncated.

SYNTAX

VAL-check-validation-result-with-rules -rule_item_revision=*item-rev-id* [**-current_event=***event-value*] [**-pass_item_revision_only**] [**-ref_log**]

ARGUMENTS

-rule_item_revision

The item revision ID that the validation rule set dataset is attached under.

-current_event

A value that is used to select validation rules from the rule file by comparing with the event values list of each rule. When **-current_event** is not provided, all rules from the rule file are selected at the first step. When a rule is defined without the event values list, the rule is also selected at the first step. The event values list can contain a wildcard (***** only). The event values list also can be marked as exclusive (inclusive by default).

-pass_item_revision_only

When this argument is added to an input list, only item revision targets are passed to the handler. NX datasets are searched from each item revision and verified according to rules.

-ref_log

If this argument is present and the validation fails, the validation results log is created, a warning message is displayed, and the log is attached.

If this argument is not present and the validation fails, the validation results log is created, a warning message is displayed, but the log is *not* attached.

If the validation passes, the validation results log is not created and no message is displayed.

PLACEMENT

Do not place this handler on the root task. Place it on the **Start** action of a subsequent task after a target is attached.

Note:

If the handler is placed on the root task, and the handler fails to complete, the workflow process itself is not created. No log file under the **Newstuff** folder is created.

RESTRICTIONS

-rule_item_revision cannot be NULL.