SIEMENS

Active Integration Add-on for Teamcenter Thin Client and Active Workspace Installation and Setup Guide

Contents

Tips and Tricks

Known Issues

Teamcenter Preferences for AW

XML Rendering Templates

Glossary

Preface

This documentation cannot be used as a substitute for consulting advice, because it can never consider the individual business processes and configuration. Despite our best efforts it is probable that some information about functionality and coherence may be incomplete.

Issue: July 2018

Legal notice:

Trademark notice:

Siemens, the Siemens logo and SIMATIC IT are registered trademarks of Siemens AG.

Camstar and Teamcenter are trademarks or registered trademarks of Siemens Product Lifecycle Management Software Inc. or its subsidiaries in the United States and in other countries.

Oracle is a registered trademark of Oracle Corporation.

SAP, R/3, SAP S/4HANA®, SAP Business Suite® and mySAP are trademarks or registered trademarks of SAP or its affiliates in Germany and other countries.

TESIS is a registered trademark of TESIS GmbH.

All other trademarks, registered trademarks or service marks belong to their respective holders.

1. Introduction

The Teamcenter Gateway product suite comes with two add-ons bringing T4x functionality to the users of the Teamcenter Active Workspace (AW):

- The Dataview for Web or WebDV for short brings the capabilities of the already available T4x Dataview to web based applications like the Teamcenter Active Workspace. It provides users a view into enterprise applications that are connected to Teamcenter using T4x. The WebDV for T4x 18.1 supports the Active Workspace starting with version 3.0. It may run with other versions as well but we have not tested the WebDV with them.

- The Logon workflow task allows users to authenticate themselves against external enterprise application systems in the context of Teamcenter workflows. A form asking for credentials will be presented to users who select a Logon task from their Active Workspace inbox. The form is displayed inside a task panel which appears when the user clicks on the task command associated with the Logon task.
  Note that each product comes with its own variation of the Logon task. They are called *TESIS SAP Logon Task*, *EBS Logon Task* or *EA Logon Task* respectively.
  The Logon workflow task support is available for T4S, T4S4, T4O and T4EA and supports the Active Workspace starting with version 3.3.

New with T4x 11.4

WebDV Channel Messaging and Hosted Mode Support

The WebDV has been part of T4x already. It calls functions in the T4x server which return data to be presented to the user. An HTTP session is created when a user logs in into the Active Workspace and destroyed upon log-out. The default method used by the WebDV to communicate with the T4x server requires the HTTP session to be shared between the Active Workspace and the WebDV. HTTP session sharing is not possible in all environments. In particular it does not work when the Active Workspace is hosted by an application in contrast to a stand-alone browser. Examples for applications that can host the Active Workspace are NX and the Rich Client.

Starting with T4x 11.4 the WebDV supports the Active Workspace's hosted mode and application server setups that do not allow HTTP session sharing.

Channel Messaging and Hosted Mode Support supports the Active Workspace starting with version 3.1.

The technology used to avoid HTTP session sharing is called *channel messaging* which is part of the HTML 5 standard.

Logon Task Panel

Starting with T4x 11.4 users can log in into external enterprise application systems using the Logon Task Panel described above.

1.1 About this manual

This manual explains the installation and configuration of the Active Integration Add-on for Teamcenter Thin Client and Active Workspace that is part of T4x version 18.1.

Terms are explained in the **Glossary**

2. Installation & Setup of the WebDV

2.1 Prerequisites

- Before starting the WebDV setup, it is recommended to have a running T4x environment (see **Teamcenter Gateway - Installation Guide** for details)

- The WebDV requires a Teamcenter four-tier installation including the T4x extensions. It does not have to be installed on every machine where a T4x four-tier client is used, but only once for the whole environment, i.e. on any machine which is reachable in the network by all the four-tier clients.

2.2 Overview

The setup of the WebDV comprises five steps:

1. Deployment

2. Direct Teamcenter preferences to XRTs

3. Declare BOM target types

4. Create and modify XRTs

5. Validate result

The following sections describe these steps in more detail.

Note:

- If you have chosen to install any of the T4x demo templates as described in the installation guides for the T4x products you will get a set of Teamcenter preferences and XRTs to start from. All examples in this document are taken from these examples however assuming that none of them was installed. So if you have installed a demo template you may not have to create preferences or XRTs but just modify them.

- The examples in this document are minimized to focus on the crucial points.

- They build upon each other and rely on the mapping delivered with T4x 18.1

- The full set of preferences and XRT modifications of the T4x demo templates can be found in the appendices at the end of this document.

2.3 Deployment

The WebDV comes as a file named `webdv.war`. Get it from the T4x installation directory under `var\template\webdv`.

Copy that file into the application server's deployment directory alongside the `awc.war` file. For the JBOSS application server this could be `standalone\deployments`.

Caution:

- The XRTs reference the WebDV through its URL. If the application server derives the URL from the name of the war file you must not rename the war file or update all the XRTs accordingly.
- If the WebDV is not configured to use channel messaging as described under **Enabling Channel Messaging and Hosted Mode Support** verify that it uses the correct relative URL to call the REST services provided by the Teamcenter Thin Client. If you installed the Active Workspace using the defaults there is no need to change the URL. If not see below for how to change the URL.
- If the WebDV is not configured to use channel messaging as described under **Enabling Channel Messaging and Hosted Mode Support** the WebDV needs to be able to join the HTTP session of the AW. This means that you need to configure your application server to share HTTP sessions between web applications.
- See also chapter **Application Server Peculiarities**.

Configuring the URL for Calling REST Services

If the WebDV is not configured to use channel messaging as described under **Enabling Channel Messaging and Hosted Mode Support** it sends HTTP requests to REST services provided by the Teamcenter Thin Client web application, typically deployed as `tc.war`. The Active Workspace web application redirects the requests to the Thin Client. It is assumed to be reachable at the relative URL `awc`. This means that you should configure your application server such that the WebDV and the Active Workspace share the same base URL and that the Active Workspace is reachable at the `awc` path. For example if the WebDV can be reached under **http://server.example.com:8080/webdv** the Active Workspace should be reachable under **http://server.example.com:8080/awc**. If you go with the defaults you should not need to care about the URLs.

Changing the relative URL used to call the Thin Client 's REST services requires you to open up the `webdv.war` web archive using a ZIP tool. Rename it to `webdv.war.zip` and extract it to a folder `webdv.temp`.

The relative URL is specified in the `configuration/default.xmi` file inside the web archive or the `webdv.temp` folder respectively. Change the `url` attribute in the element that reads as follows:

```
<IctMethod
url="/awc/tc/RestServices/Internal-Core-2011-06-ICT/invokeICTMethod"
contentType="application/x-www-form-urlencoded;charset=UTF-8"/>
```

Recreate the `webdv.war` from the contents of the `webdv.temp` folder and re-deploy the web application. Be careful to maintain the folder structure of the war file.

2.4 Direct Teamcenter Preferences to XRTs

The user interfaces of the Active Workspace as well as of the Rich Client change their appearance depending on the type of the selected object. Teamcenter preferences are used to control which XRT will be used to render the information for a particular type of object. The names of the preferences contain the names of the type and their values are the names of the datasets holding the XRTs. For the WebDV only the preferences that refer to Item Revision types, their subtypes or Dataset types are relevant.

These are the preferences you will find it in an out-of-the-box Teamcenter installation.

- `AWC_ItemRevision.showObjectLocation.SUMMARYRENDERING` pointing to the `Awb0ItemRevSummaryForShowObjectLocation` dataset

- `AWC_Dataset.SUMMARYRENDERING` pointing to the `Awp0DatasetSummary` dataset.

Siemens PLM Software discourages the modification of their out-of-the-box XRTs. Instead administrators are encouraged to create their own XRTs as modified copies of the out-of-the-box XRTs. They should then create or modify preferences to point to their new XRTs.

Caution:

You need to restart the pool manager to make your preference changes effective!

2.4.1 Example: Create a preference to point to an XRT Dataset

Create the AWC_**SAP2_T4S_Item Revision**.showObjectLocation.SUMMARYRENDERING preference of type String and give it the value WebDV_T4S_Demo_XRT.

Note the name of the **SAP2_T4S_Item Revision** type appearing in the preference name.

If the user now selects an object of **SAP2_T4S_Item Revision** type the WebDV_T4S_Demo_XRT will be used to render the data associated with that object.

Find this and more preference examples in one of the **Teamcenter Preferences for AW** appendix.

The **Create and Modify XRTs** section will show how to create a dataset to be found by the Active Workspace rendering facility when resolving the preference.

2.5 Declare BOM Target Types

T4x handles bill-of-material kind of target types in special ways. The question is how the server gets aware that an object is to be treated as a BOM. In the Teamcenter Rich Client users can select BOM lines in the structure manager or BOM view revision objects in My Teamcenter. The RAC Dataview sends their IDs to the server. The T4x extension uses APIs provided by Teamcenter to determine the types of the objects.

In the Active Workspace neither BOM lines nor BOM view revision objects are represented as selectable elements, so the server cannot tell from the selected object whether to treat an object as a BOM or not.

The solution is to declare target types to be of BOM kind using Teamcenter preferences. The names of these preferences are formatted as follows:

> *Product*_*TargetType*IsBOM

Product is one of T4S, T4S4, T4O or T4EA. *TargetType* is the long name of the target type, e.g. `BillOfMaterial`. An example of a preference name would be `T4S_BillOfMaterialIsBOM`. The preference is of logical type and the value can be true or false. Not creating or deleting such a preference is the same as setting it to false.

More examples for IsBOM preferences can be found in the **Teamcenter Preferences for AW** appendix.

2.6 Create and Modify XRTs

Up to now the preferences covered in the previous section point to nowhere. In this section you will learn how to create the XRT datasets that get the WebDV into the Active Workspace.

2.6.1 Find the XRTs to Derive from

At first search for the preferences that point to the out-of-the-box XRTs (see previous section). Use their values to perform searches for the dataset names. Open the named references dialogs and download the named references into files.

Rename the files so they correspond to the values of the preferences defined in the previous section, e.g. `WebDV_T4S_Demo_XRT.xml`.

2.6.2 Modify the XRTs

Edit the XRT files using an XML-aware editor. Note that you can also edit the XRTs in the Rich Client after they have been imported into Teamcenter using the Viewer tab. You need sufficient permissions to do so.

> Note:
>
> We recommend editing XRTs in XML-aware editors with syntax highlighting and to copy&paste the file contents into the Viewer tab using the keyboard shortcuts Ctrl-A, Ctrl-C and Ctrl-V. Ideally the editor should also check for the well-formedness of the XRT.

The WebDV is represented through HTML panels. They are a general means to embed arbitrary HTML content or content from other sites into the Active Workspace. In XRTs HTML panels appear as `htmlPanel` elements. There are two forms, one that embeds HTML elements between its opening and closing tag and another one that uses the `src` attribute to reference other sites.

The WebDV relies on the second form. The Active Workspace renders such HTML panels into `<iframe src="…" />` HTML elements.

You can have multiple HTML panels per XRT. They can be placed into pages, sections or columns.

You need to add `enableresize="true"` to the `htmlPanel` element to allow for more than 150 pixels height.

> Note:
>
> **Notes regarding the syntax of the URLs used to call the WebDV:**
>
> - The character that indicates the start of the parameters passed to the WebDV used to be the hash `#`. This has been changed to the question mark `?` with T4x 11.4.1 because browsers exist which cut off the hash and the parameters. This was perceived with the browser embedded in NX. Note however that the hash is still recognized so there is no compelling necessity to adapt existing XRTs.
> - The character used to separate the parameters from each other is the semicolon `;` in contrast to the ampersand `&` often used in the world wide web for this purpose. This is to avoid having to escape the ampersand characters with the `&amp;` entity to suppress its special meaning in XML and HTML documents.

For both versions of the AW provide the `src` attribute as follows:

`src="/webdv?tcobj={{selected.uid}};`*Parameter1*`;`*Parameter2*`;…"`

The `src` attribute contains all the information required to display the WebDV inside the Active Workspace. Let’s look at its parts a bit closer:

`/webdv` is a relative path that tells the Active Workspace to display the WebDV. It must correspond to the name of the WAR file.
`?` The question mark separates the path from the parameters
`tcobj={{selected.uid}}` is always needed to connect the WebDV to the selected Teamcenter object

`;` The semicolon separates parameters from each other
Parameter1`;`*Parameter2*`;`... is a semicolon-separated list of parameters. Each parameter is of the form *Name*=*Value*.
The following parameters can be used to configure the WebDV:
`product=`*Value* is mandatory. It switches the Dataview to the variation of the T4x product suite that is able to query data from the enterprise application system. Possible values are `T4S`, `T4O` and `T4EA`.

> Note:
>
> Note that for the T4S4 product you need to set the `product` parameter to the value `T4S`.

`eaobjtype=`*LongValue* and `eaobjtypeshort=`*ShortValue* tell the WebDV which target type to query. The latter provides the short form of the target type's name. For the following set of target types you only need to provide either one or the other because the WebDV can translate between them:

- T4S, T4S4:
  - MaterialMaster(short MM)
  - DocumentInfoRecord(short DIR)
  - BillOfMaterial(short BOM)
  - ChangeMaster(short ECM)
  - EquipmentMaster(short EQUI)
  - FunctionalLocation(short FUNCLOC)
  - Vendor(short VENDOR)
- T4O:
  - Item(short ITEM)
  - BillOfMaterial(short BOM)
  - ChangeOrder(short ECO)

For target type names that are not listed above and whose long and short names equal it is sufficient to either provide the long or the short name.
`eaot=`*ShortValue* is an alias for `eaobjtypeshort=`*ShortValue*.
Note that the target type must be specified in either of the above forms.

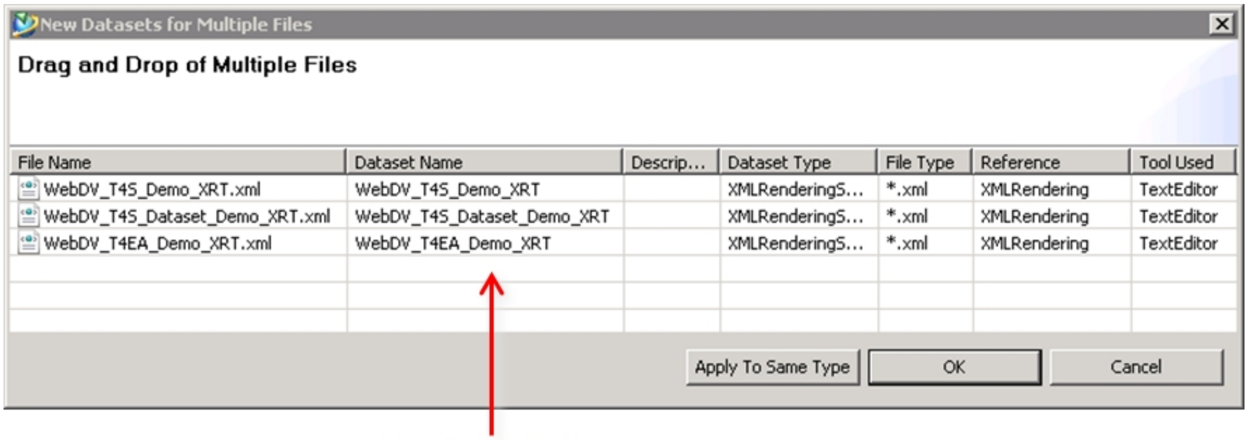
`eacon=`*Value* specifies the connection over which to retrieve the data from the external system. If you repeat this parameter the user can choose among the connections given as values. If this parameter is omitted the WebDV tries to connect to the EA system using the preferred (also called active) connection.
`ealang=`*Value* is used for T4S, T4S4 and T4EA to provide the possible values for the language chooser of the login dialog. It can be repeated as well.
`locale=`*Value* tells the WebDV which locale to use to display its control elements and messages. At the time of this writing the possible values are `DE` and `EN`.
`controlpanel=on` tells the WebDV to show the control panel in the upper right corner of its visible area. If this parameter is omitted the control panel will not be shown. Read more about the control panel in The Control Panel.
Following an example of a WebDV HTML panel embedded in a page:

```
        […]
    </page>
    <page title="SAP Material Master">
        <htmlPanel enableresize="true"
            src="/webdv?tcobj={{selected.uid}};product=T4S;eaot=MM;↵
eacon=ET1@800;eacon=ET2@800;eacon=ET3@800;ealang=EN;ealang=DE" />
    </page>
    <page titleKey="tc_xrt_viewer" […]
```

Find this and other examples in the **XML Rendering Templates** appendix.

2.6.3 Import the XRTs into Teamcenter

We recommend that you create a folder for the XRTs within your Home folder. Drag&drop the new XRT files into the folder. You will see a dialog asking you for the names of the files and datasets. Be sure to remove the .xml extension from the dataset names.



New Datasets for Multiple Files

Drag and Drop of Multiple Files

File Name	Dataset Name	Descrip...	Dataset Type	File Type	Reference	Tool Used
WebDV_T4S_Demo_XRT.xml	WebDV_T4S_Demo_XRT		XMLRenderingS...	*.xml	XMLRendering	TextEditor
WebDV_T4S_Dataset_Demo_XRT.xml	WebDV_T4S_Dataset_Demo_XRT		XMLRenderingS...	*.xml	XMLRendering	TextEditor
WebDV_T4EA_Demo_XRT.xml	WebDV_T4EA_Demo_XRT		XMLRenderingS...	*.xml	XMLRendering	TextEditor

Remove filename extensions

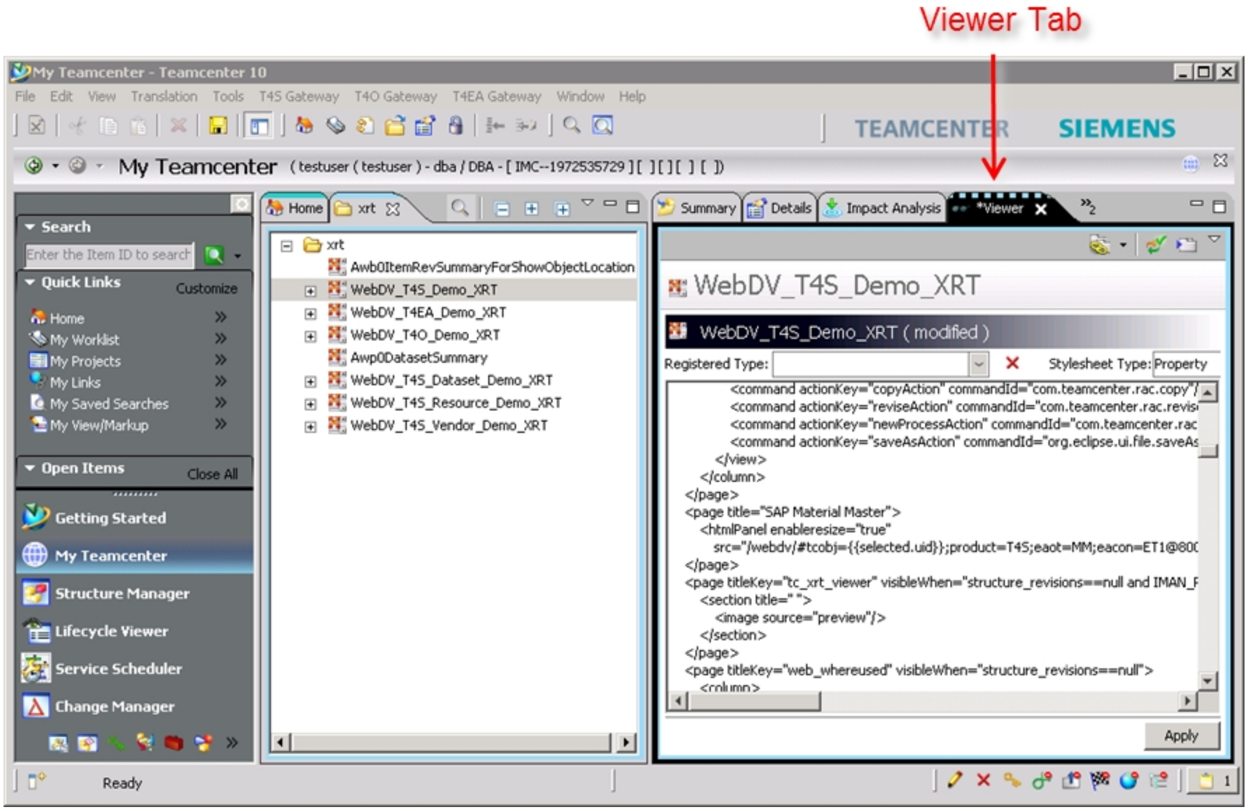
Note that you can also edit the XRTs in the Rich Client after they have been imported into Teamcenter using the Viewer tab. You need sufficient permissions to do so.

> Note:
>
> We recommend editing XRTs in XML-aware editors with syntax highlighting and to copy&paste the file contents into the Viewer tab using the keyboard shortcuts Ctrl-A, Ctrl-C and Ctrl-V. Ideally the editor should also check for the well-formedness of the XRT.

Click **Apply** or type Ctrl-S to save your changes.

> Note:
>
> When you are viewing the results in a browser refresh the browser window in order to see your changes. This is normally done by typing the F5 key.

Viewer Tab


My Teamcenter - Teamcenter 10
File Edit View Translation Tools T4S Gateway T4O Gateway T4EA Gateway Window Help
TEAMCENTER SIEMENS
My Teamcenter (testuser (testuser) - dba / DBA - [IMC--1972535729][ ][ ][ ] [ ])
Search
Enter the Item ID to search
Quick Links
Customize
Home
My Worklist
My Projects
My Links
My Saved Searches
My View/Markup
Open Items
Close All
Getting Started
My Teamcenter
Structure Manager
Lifecycle Viewer
Service Scheduler
Change Manager
Home
xrt
xrt
Awb0ItemRevSummaryForShowObjectLocation
WebDV_T4S_Demo_XRT
WebDV_T4EA_Demo_XRT
WebDV_T4O_Demo_XRT
Awp0DatasetSummary
WebDV_T4S_Dataset_Demo_XRT
WebDV_T4S_Resource_Demo_XRT
WebDV_T4S_Vendor_Demo_XRT
Summary
Details
Impact Analysis
*Viewer
WebDV_T4S_Demo_XRT
WebDV_T4S_Demo_XRT (modified)
Apply
Ready

Registered Type:

Stylesheet Type: Property

```
            <command actionKey="copyAction" commandId="com.teamcenter.rac.copy"/
            <command actionKey="reviseAction" commandId="com.teamcenter.rac.revis
            <command actionKey="newProcessAction" commandId="com.teamcenter.rac
            <command actionKey="saveAsAction" commandId="org.eclipse.ui.file.saveAs
        </view>
    </column>
</page>
<page title="SAP Material Master">
    <htmlPanel enableresize="true"
      src="/webdv/#tcobj={{selected.uid}};product=T4S;eaot=MM;eacon=ET1@800
</page>
<page titleKey="tc_xrt_viewer" visibleWhen="structure_revisions==null and IMAN_F
    <section title=" ">
        <image source="preview"/>
    </section>
</page>
<page titleKey="web_whereused" visibleWhen="structure_revisions==null">
    <column>
```

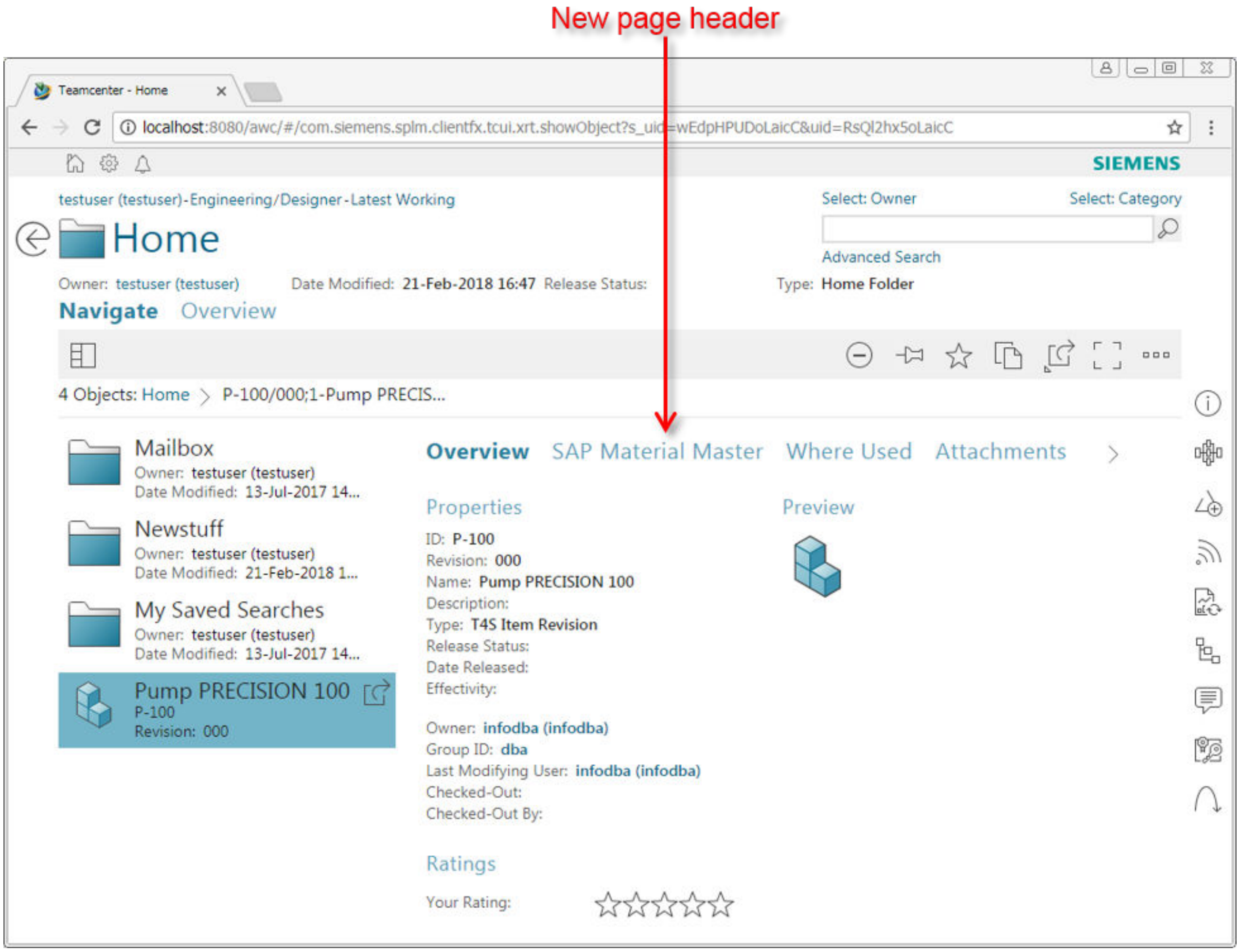
2.7 Validate Result

2.7.1 Verify That Your XRT Changes Are Effective

Log into the Active Workspace and navigate to the Item Revision or Dataset object for which you created the stylesheet.

Refresh the browser window using the F5 key if you did so before adding the XRTs to Teamcenter.

You should see a picture similar to this:



New page header

localhost:8080/awc/#/com.siemens.splm.clientfx.tcui.xrt.showObject?s_uid=wEdpHPUDoLaicC&uid=RsQl2hx5oLaicC

testuser (testuser)-Engineering/Designer-Latest Working

Home

Owner: testuser (testuser) Date Modified: 21-Feb-2018 16:47 Release Status: Type: Home Folder

4 Objects: Home > P-100/000;1-Pump PRECIS...

Mailbox
Owner: testuser (testuser)
Date Modified: 13-Jul-2017 14...

Newstuff
Owner: testuser (testuser)
Date Modified: 21-Feb-2018 1...

My Saved Searches
Owner: testuser (testuser)
Date Modified: 13-Jul-2017 14...

Pump PRECISION 100
P-100
Revision: 000

Properties

ID: P-100
Revision: 000
Name: Pump PRECISION 100
Description:
Type: T4S Item Revision
Release Status:
Date Released:
Effectivity:

Owner: infodba (infodba)
Group ID: dba
Last Modifying User: infodba (infodba)
Checked-Out:
Checked-Out By:

Ratings

Your Rating: ☆☆☆☆☆

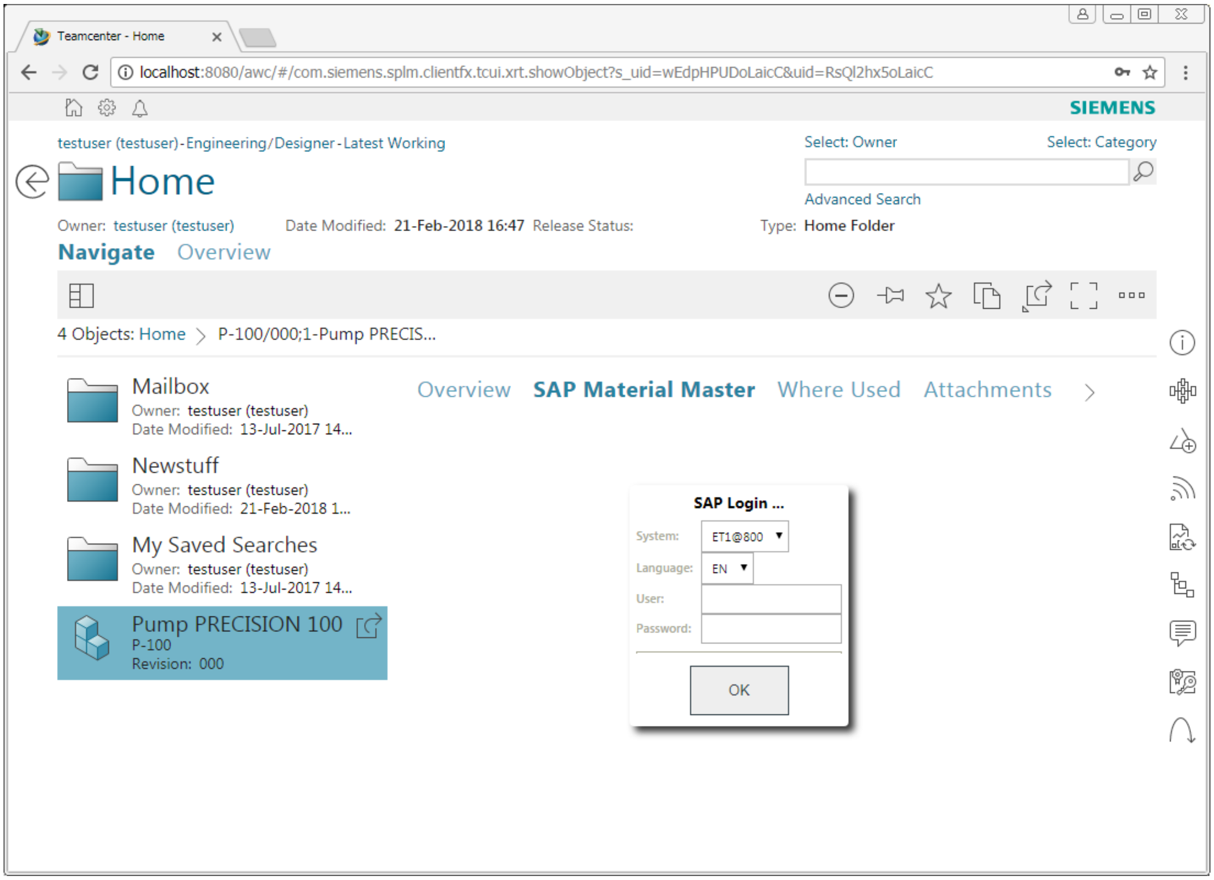
Note the new page header that results from the changes of the XRT.

If your changes to the XRT do not show up in the Active Workspace make sure that you restarted the pool manager to make preference changes becoming effective and check the names and values of the preferences that are supposed to point to your XRT.

2.7.2 Verify That the HTML Panel Gets Displayed

Open the page that is supposed to contain the WebDV.

You should see a picture similar to this:



Teamcenter - Home

localhost:8080/awc/#/com.siemens.splm.clientfx.tcui.xrt.showObject?s_uid=wEdpHPUDoLaicC&uid=RsQl2hx5oLaicC

SIEMENS

testuser (testuser)-Engineering/Designer-Latest Working

Select: Owner Select: Category

Home

Advanced Search

Owner: testuser (testuser) Date Modified: 21-Feb-2018 16:47 Release Status: Type: Home Folder

Navigate Overview

4 Objects: Home > P-100/000;1-Pump PRECIS...

Mailbox
Owner: testuser (testuser)
Date Modified: 13-Jul-2017 14...

Newstuff
Owner: testuser (testuser)
Date Modified: 21-Feb-2018 1...

My Saved Searches
Owner: testuser (testuser)
Date Modified: 13-Jul-2017 14...

Pump PRECISION 100
P-100
Revision: 000

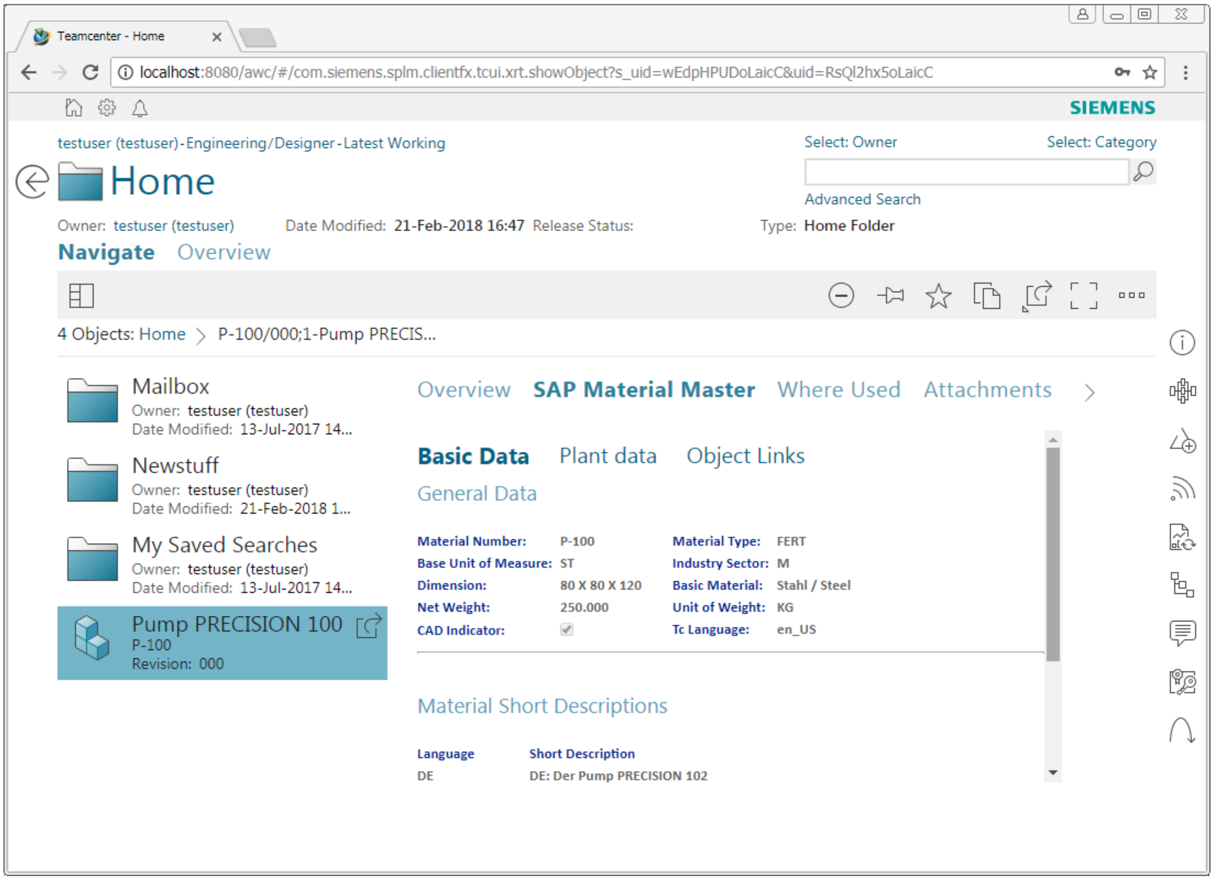
Overview **SAP Material Master** Where Used Attachments

SAP Login ...

System: ET1@800
Language: EN
User:
Password:

OK

After you logged into the EA system or if you have configured automatic login this is what you should see if you followed the example:



testuser (testuser)-Engineering/Designer-Latest Working

Home

Owner: testuser (testuser) Date Modified: 21-Feb-2018 16:47 Release Status: Type: Home Folder

4 Objects: Home > P-100/000;1-Pump PRECIS...

Mailbox
Owner: testuser (testuser)
Date Modified: 13-Jul-2017 14...

Newstuff
Owner: testuser (testuser)
Date Modified: 21-Feb-2018 1...

My Saved Searches
Owner: testuser (testuser)
Date Modified: 13-Jul-2017 14...

Pump PRECISION 100
P-100
Revision: 000

General Data

Material Number:	P-100	Material Type:	FERT
Base Unit of Measure:	ST	Industry Sector:	M
Dimension:	80 X 80 X 120	Basic Material:	Stahl / Steel
Net Weight:	250.000	Unit of Weight:	KG
CAD Indicator:	☑	Tc Language:	en_US

Material Short Descriptions

Language	Short Description
DE	DE: Der Pump PRECISION 102

3. WebDV Compared to RAC Dataview

3.1 Dataview Mark-Up

The WebDV strives to maintain compatibility with existing mappings. At the same time it has to adopt the style of the Active Workspace to provide the user with a seamless user experience.

Both these goals are in parts contradictory. As an example let us take a look at section widgets. They exist in XRTs as well as in Dataview mark-up. Sections have a one-line header and a body normally spanning multiple lines. In the RAC users can toggle sections between a collapsed and expanded state. When collapsed only the header is visible, when expanded the header as well as the body can be viewed. This allows the user to focus on the parts of the data he is interested in and to save vertical space in the view.

The Active Workspace does not allow sections to be collapsible and the WebDV follows this restriction.

Another example is font attributes e.g. size, colors of the displayed characters. Admins typically use them to highlight important information, e.g. negative numbers. We believe that these features outbalance style considerations so the WebDV also supports them.

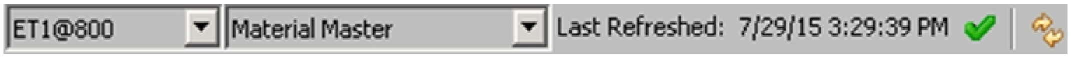
Following a list of features supported by the RAC Dataview but not the WebDV:

- Collapsing of sections
- Indentation: Placing widgets with a horizontal offset
- Spacing: Placing widgets with a vertical offset
- Borders around widgets
- Expanding widgets to the available width
- Placing the names of properties above their values
- Chooser styles
- Any separator attributes
- Resizable columns

If we get asked for features that are available in the RAC Dataview but not in the WebDV we might consider adding them to the WebDV.

3.2 The Control Panel

The RAC Dataview has a control panel as shown below:



ET1@800

Material Master

Last Refreshed: 7/29/15 3:29:39 PM

It consists of the following elements:

1. The EA connection chooser as a drop-down box. It allows the user to change the connection to the EA system.

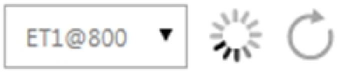
2. The target type chooser as a drop-down box. It allows the user to select the target type for which to query data from the EA system.

3. The last refreshed date shows the last point in time at which the Dataview has received data from the EA system

4. The status indicator shows whether the Dataview is currently fetching data from the server, has successfully fetched data from the server or has received an error.

5. The refresh button allows the user to refresh the Dataview. It is also needed to submit changes made by the user in the Dataview if the input elements are not configured to initiate the submit operations on their own.

If enabled with `controlpanel=on` the control panel of the WebDV is made up of three parts as shown below:



ET1@800

Like the RAC Dataview it has

1. the EA connection chooser

2. the status indicator

3. the refresh button

With the WebDV each HTML panel is bound to a single target type through URL parameters so a target type chooser is not required.

A WebDV HTML panel can be bound to one or more EA connections. Only in the latter case an EA connection chooser is required.

A status indicator might be useful if fetching data from the EA system is expected to take a while.

The refresh button is useful while adapting the mapping to the customer's needs. Alternatively admins can also right click into the WebDV and instruct the browser to reload the frame.

The refresh button is required if the user is supposed to edit multiple widgets without submitting each change to the server. If he has made his edits he can use the refresh button to submit the changes to the server. Instructing the browser to reload the frame does not perform the submit operation.

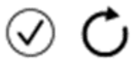
Because the style guidelines of the Active Workspace generally discourage the use of drop-down boxes and other widgets that do not represent content the control panel is disabled by default.

Using the controlpanel parameter with other values than just "on" allows changing the appearance of the control panel. You can combine the following keywords with the plus or minus sign to enable or disable elements of the control panel:

eaconn	The EA connection chooser
state	The status indicator
refresh	The refresh button
on	All of the above
date	The last refreshed date
url	An icon that allows to open the Dataview in a separate browser tab
all	all of the above

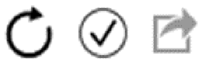
The following list gives some useful examples

- `controlpanel=on-eaconn` shows the status indicator (which in this case indicates successful completion of the Dataview operation) and the refresh button:

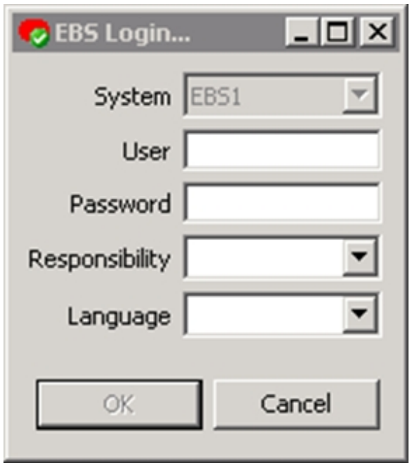


- `controlpanel=refresh+state` shows the same but in reverse order

- controlpanel=refresh+state+url adds the URL icon to the above. This is useful while playing with the URL parameters as it saves you from having to go through the edit XRT, save XRT, refresh AW cycle (See the Tips and Tricks chapter):



3.3 T4O Log-In


EBS Login...

System EBS1

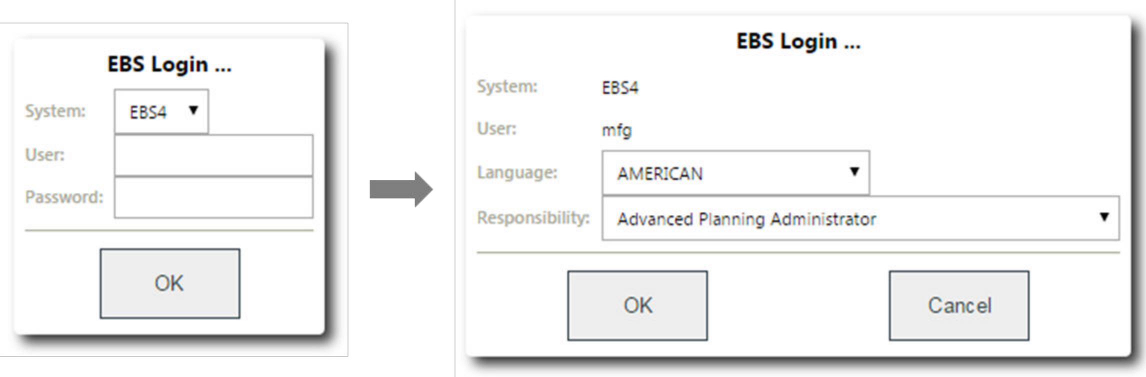
User

Password

Responsibility

Language

The figure above shows the log-in dialog as presented by the T4O RAC extension. Note that the drop-down boxes for the responsibility and the language are empty. After the user enters the username and the password the user interface will pause for a moment while it updates the responsibility and language fields from data it gets from the server. Users may find this confusing so in the WebDV the T4O log-in procedure has been divided into two dialogs as shown below:


EBS Login ...

System: EBS4

User:

Password:

EBS Login ...

System: EBS4

User: mfg

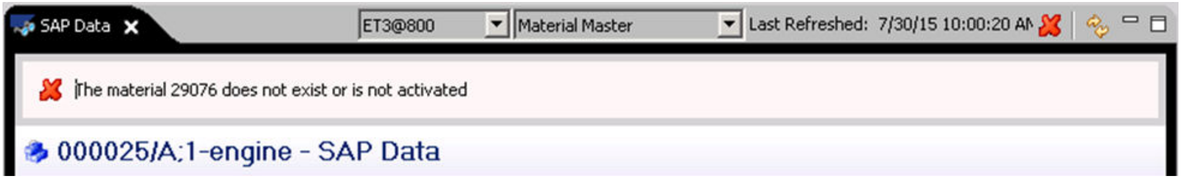
Language: AMERICAN

Responsibility: Advanced Planning Administrator

The user fills in the credentials asked for in the first dialog and after clicking OK or hitting the Enter key the dialog closes and the second one appears. He now selects the responsibility and language and clicks OK to complete the log-in procedure. The second dialog has a Cancel button to allow the user to revert his decision regarding the username or connection (= system).

3.4 Error Messages

In the T4x RAC extension error messages are displayed using pop-up windows or if they are related to the Dataview in an area at the top of the Dataview as shown below:

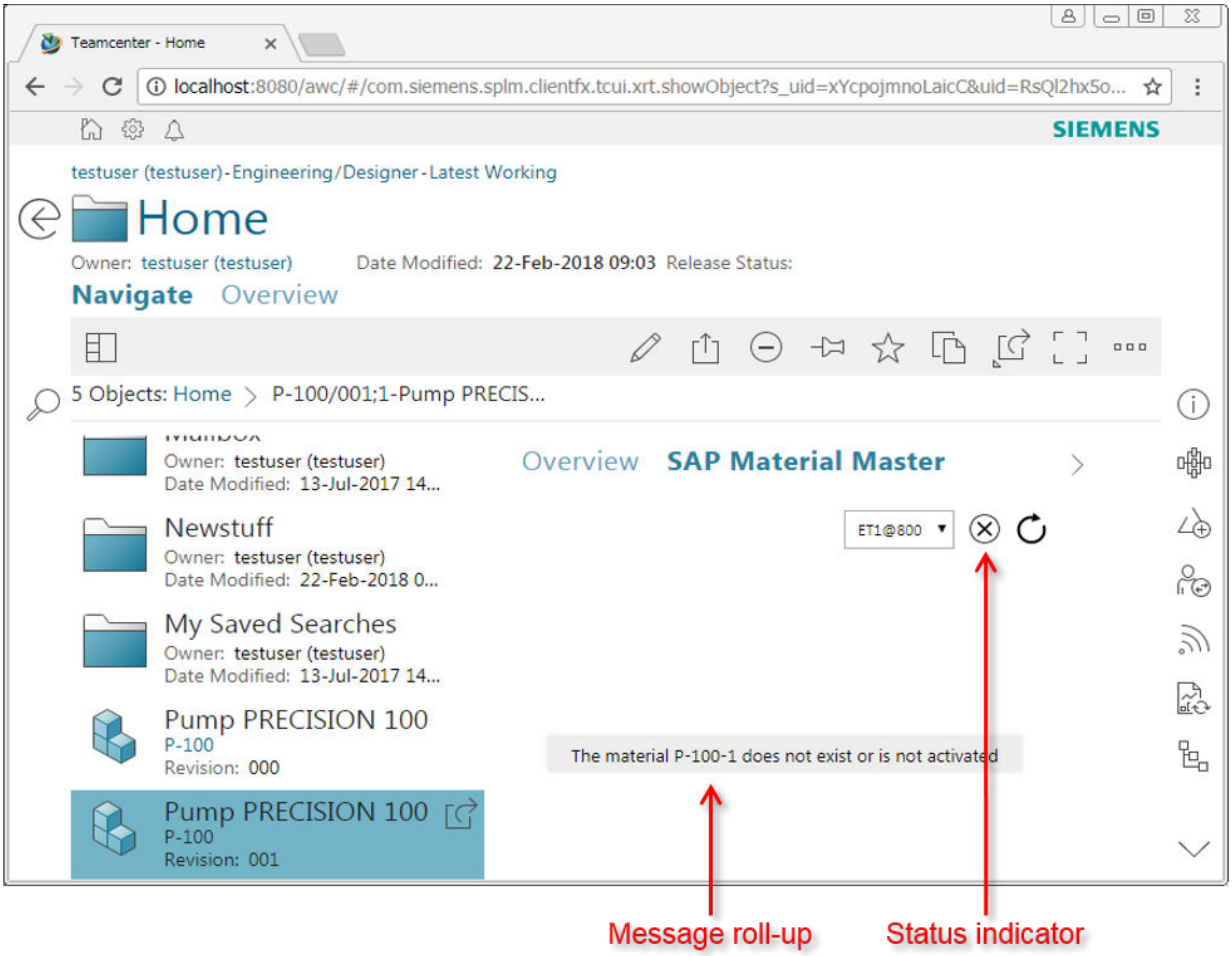

SAP Data

ET3@800 | Material Master | Last Refreshed: 7/30/15 10:00:20 AM

The material 29076 does not exist or is not activated

000025/A;1-engine - SAP Data

Following the Active Workspace style the WebDV shows all error messages in a panel that rolls up from the bottom of the visible area as shown below:


The material P-100-1 does not exist or is not activated
Teamcenter - Home
localhost:8080/awc/#/com.siemens.splm.clientfx.tcui.xrt.showObject?s_uid=xYcpojmnoLaicC&uid=RsQl2hx5o...
SIEMENS
testuser (testuser)-Engineering/Designer-Latest Working
Home
Owner: testuser (testuser)
Date Modified: 22-Feb-2018 09:03
Release Status:
Navigate
Overview
5 Objects: Home
P-100/001;1-Pump PRECIS...
Owner: testuser (testuser)
Date Modified: 13-Jul-2017 14...
Newstuff
Owner: testuser (testuser)
Date Modified: 22-Feb-2018 0...
My Saved Searches
Owner: testuser (testuser)
Date Modified: 13-Jul-2017 14...
Pump PRECISION 100
P-100
Revision: 000
Pump PRECISION 100
P-100
Revision: 001
Overview
SAP Material Master
ET1@800
Message roll-up
Status indicator

The error message disappears if the user clicks somewhere outside of the message roll-up. If user interaction may solve the problem, e.g. in case of a log-in error, the WebDV remains active, e.g. reopens the log-in dialog.

In other cases the user needs to reload the WebDV after fixing the problem. This can be done by typing F5 or right clicking into the WebDV and instructing the browser to refresh the frame.

4. Application Server Peculiarities

4.1 Channel Messaging to the Rescue

If you got here you may be facing issues with connecting the WebDV to the T4x server. Possible reasons are that services cannot be reached at the URLs assumed by the WebDV or HTTP session sharing not being available.

Whatever the reason consider enabling channel messaging described in chapter **Enabling Channel Messaging and Hosted Mode Support**

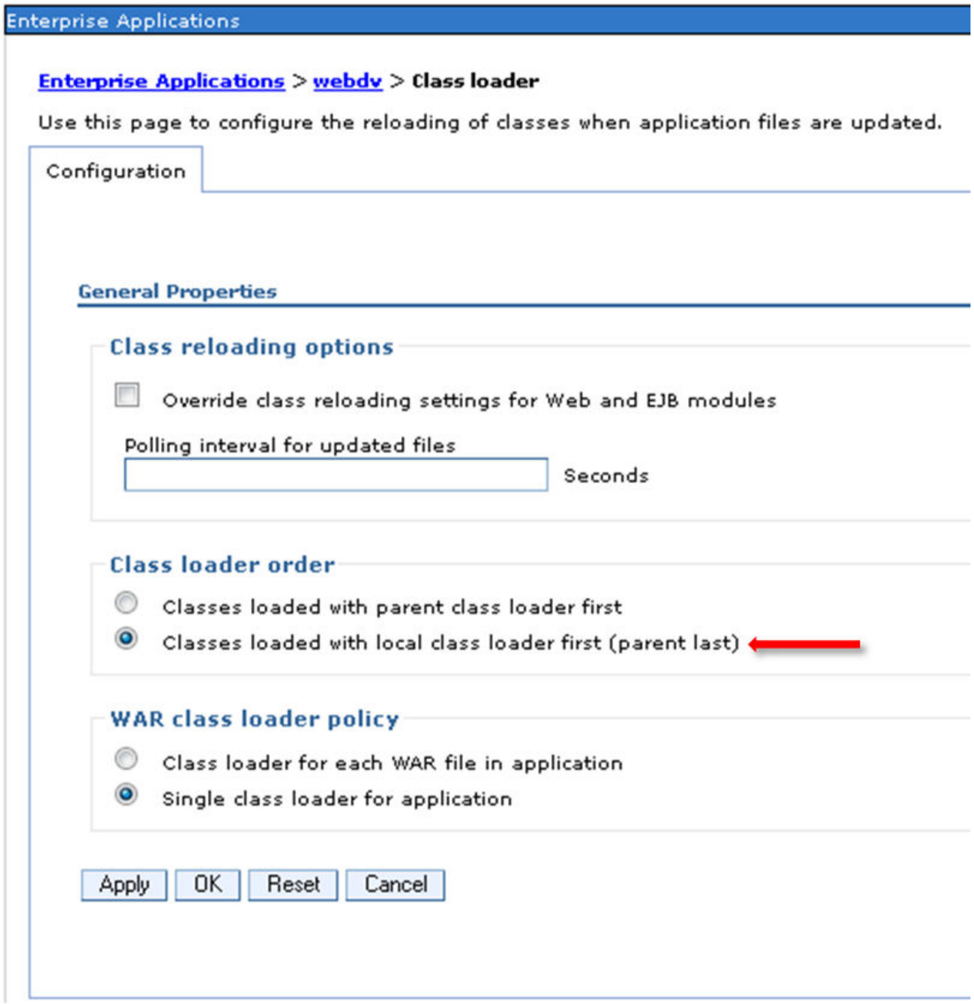
4.2 IBM WebSphere Application Server

4.2.1 The Class Loader Delegation Mode

Parts of the WebDV depend on Java classes that are provided by WebSphere but are also shipped with the webdv.war file. If the WebDV loads the classes provided by WebSphere methods overridden by the WebDV will get canceled out.

As a consequence accessing the WebDV results in a **500 Internal Error** HTTP status. If you search the server logs you will notice a java.lang.UnsupportedOperationException.

You need to change the configuration of WebSphere. Switch the class loader delegation mode (also called class loader order) to **parent last** as shown below:



Enterprise Applications

Enterprise Applications > webdv > Class loader

Use this page to configure the reloading of classes when application files are updated.

Configuration

General Properties

Class reloading options

□ Override class reloading settings for Web and EJB modules

Polling interval for updated files

Seconds

Class loader order

○ Classes loaded with parent class loader first

● Classes loaded with local class loader first (parent last)

WAR class loader policy

○ Class loader for each WAR file in application

● Single class loader for application

5. Enabling Channel Messaging and Hosted Mode Support

5.1 Installation and Deployment

In order to enable channel messaging and to allow the WebDV to be used with the Active Workspace executed in hosted mode the following additional features need to be installed using the Teamcenter Environment Manager:

ai0activeintegration

> The full name of this feature is *Active Integration*. It contains implementations of SOA services to mediate remote function calls from the WebDV between the Teamcenter server and the T4x server.

webdv4awrepo

> The full name of this feature is *Active Workspace Module for the T4x WebDV going to TC_ROOT/aws2/stage/repo/gwt*. It contains an Active Workspace module that mediates function calls between the WebDV and the Active Workspace using HTML 5 channel messaging. The Teamcenter Environment Manager will install it into the `aws2/stage/repo/gwt/webdv-glue` folder inside your Teamcenter installation.
> (There is another feature named webdv4awsource or *Active Workspace Module for the T4x WebDV going to TC_ROOT/aws2/stage/src/solution* which serves the same purpose but goes to the `aws2/stage/src/solution/webdv-glue` folder. This could be installed alternatively if there were a need to adapt the JavaScript code of the module.)

> Caution:
>
> The `gwtcompile` command is only available on the Windows platform. If you are deploying the `awc.war` file to another platform you have to create that file on a Windows computer and copy it to the target platform. This also means that you have to install the `webdv4awrepo` feature on the Windows computer using the Teamcenter Environment Manager.

Follow these steps to install and deploy these features:

1. Install the aforementioned features using the Teamcenter Environment Manager. You will find them in your T4x installation under `var/template/ai0activeintegration/BMIDE/full_update` and `var/template/webdv4awrepo/BMIDE/full_update` respectively.

2. Open the `aws2/stage` folder inside your Teamcenter installation.and execute the `gwtcompile` command. This will produce the `aws2/stage/out/awc.war` file.

3. Deploy the aforementioned `awc.war` file to your web application server.

5.2 XML Rendering Templates

In order to enable channel messaging you need to adapt the XML rendering stylesheets containing references to the WebDV. The Active Workspace framework has to be instructed to load the WebDV glue component from the webdv4awrepo or webdv4awsource feature. It comes as an Active Workspace module being referred to as `js/webdv/glue`. There are two methods each of which has its pros and cons:

Inline HTML panel

You write the HTML that embeds the WebDV into the Active Workspace right into the XRT. The HTML needs to be put into CDATA sections so it does not get interpreted as XML. The down-side is that CDATA sections cannot be syntax highlighted by XML or HTML-aware editors. Because the HTML for the WebDV is small and simple we still recommend this method. It avoids additional HTML datasets.

Inject Element

You use the `<inject>` element that points to an HTML file stored in a dataset and a JavaScript file. This way XML and HTML pieces are separate so they can be edited by specialized editors. However this comes at the cost of having to maintain additional HTML datasets.

Please mind the following when writing the HTML code for either method:

- The WebDV will be embedded into the Active Workspace by using an `<aw-frame>` element.

- The `<aw-frame>` must be contained in a `<div>` element with the `id` attribute set to **webdv**

- You need to append **com=glue** to the URL pointing to the WebDV.

Caution:

The value of the `src` or `url` attributes is always a continuous character string without space or newline characters although this document may display it on multiple lines.

At this point we are assuming that you have already created the XRT snippets that bring the WebDV to your Active Workspace or installed the T4x demo feature. The follwing sections provide examples for both methods. They are based on the following XRT example:

```
<htmlPanel enableresize="true"
 src="/webdv?
tcobj={{selected.uid}};product=T4S;eaot=MM;eacon=ET1@800;ealang=EN"
/>
```

Inline HTML panel

```
<htmlPanel enableresize="true" module="js/webdv/glue">
 <![CDATA[
  <div id="webdv">
```

```
   <aw-frame
url="/webdv?
tcobj={{selected.uid}};product=T4S;eaot=MM;eacon=ET1@800;ealang=EN;com=gl
ue"
   />
  </div>
 ]]>
</htmlPanel>
```

Inject Element

```
<inject type="dataset" src="WebDV_T4S_Demo_HTML"
module="js/webdv/glue" />
```

The `<htmlPanel>` element is replaced with the `<inject>` element. You need to add an HTML file to Teamcenter as a dataset and provide the name of the dataset in the `src` attribute. Make sure you choose unique names for the datasets.

The HTML file would have to look like this:

```
<div id="webdv">
 <aw-frame
  url="/webdv?
tcobj={{selected.uid}};product=T4S;eaot=MM;eacon=ET1@800;ealang=EN;com=gl
ue"
 />
</div>
```

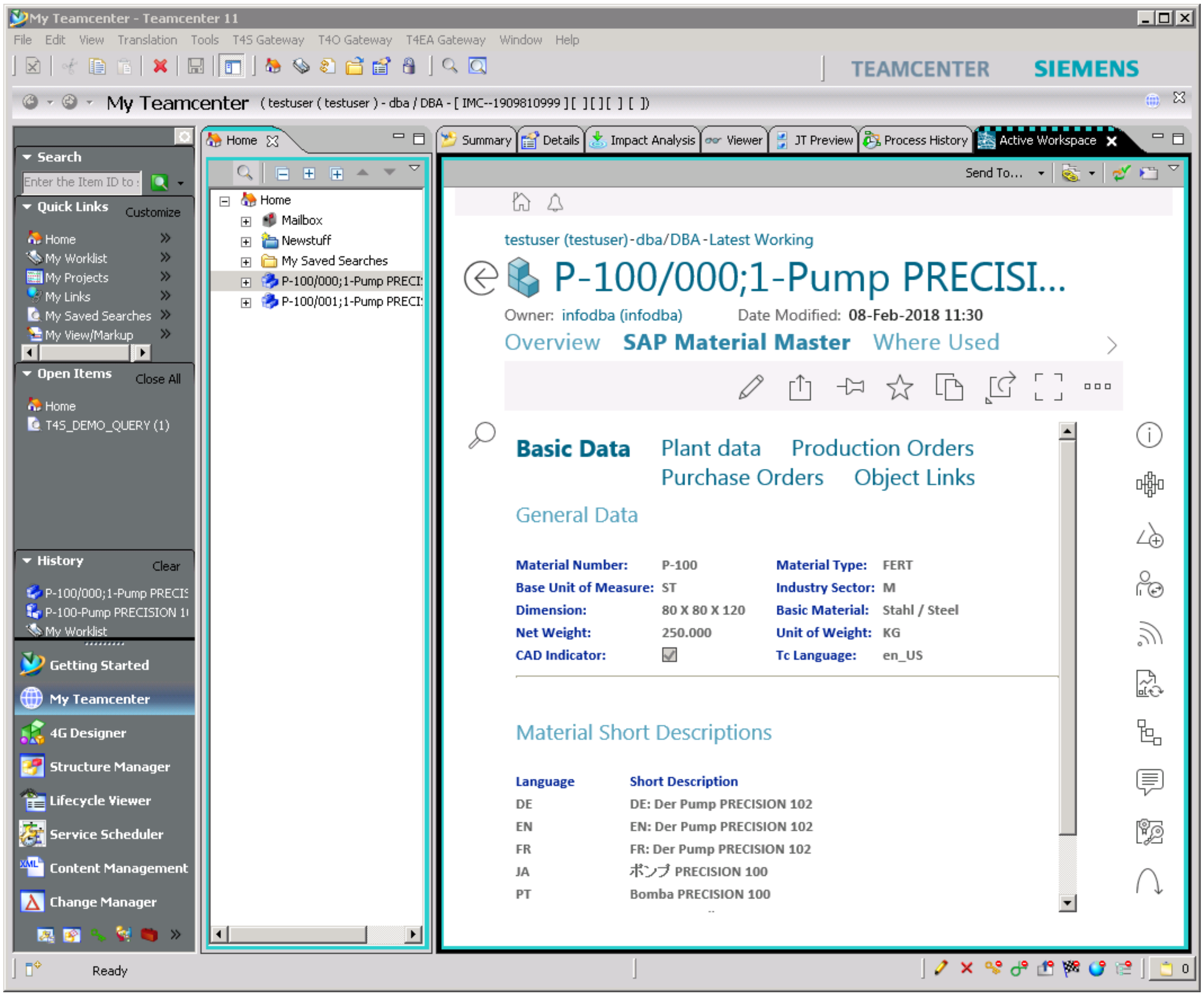
5.3 Trying out the Channel Messaging

The Active Workspace's hosted mode allows it to be viewed in a browser that is embedded into an application such as NX or the Teamcenter Rich Client. The latter you certainly will have at hand so it will be used to show how to try out hosted mode support as well as channel messaging which is the technology behind the hosted mode support.

Even if you do not plan to run the Active Workspace in hosted mode, channel messaging can be useful to avoid issues around the application server setup, e.g. if HTTP session sharing is not available.

Open the **Active Workspace** view in the Teamcenter Rich Client. Ensure you have set the `ActiveWorkspaceHosting.URL` preference to the URL of the Active Workspace, e.g. to `http://localhost:8080/awc` if you test on the computer that also runs the application server. Navigate to the object whose external data you want to see using My Teamcenter in the Rich Client. The Active Workspace synchronizes itself with the Rich Client. Select the page that is supposed to show the external data. You should now be able to see the data, be presented with a logon dialog or an error message related to the selected object.

The figure below shows the WebDV embedded in the Teamcenter Rich Client:



testuser (testuser)-dba/DBA-Latest Working

P-100/000;1-Pump PRECISI...

Owner: infodba (infodba) Date Modified: 08-Feb-2018 11:30

Overview | SAP Material Master | Where Used

Basic Data | Plant data | Production Orders | Purchase Orders | Object Links

General Data

Material Number:	P-100	**Material Type:**	FERT
Base Unit of Measure:	ST	**Industry Sector:**	M
Dimension:	80 X 80 X 120	**Basic Material:**	Stahl / Steel
Net Weight:	250.000	**Unit of Weight:**	KG
CAD Indicator:	☑	**Tc Language:**	en_US

Material Short Descriptions

Language	Short Description
DE	DE: Der Pump PRECISION 102
EN	EN: Der Pump PRECISION 102
FR	FR: Der Pump PRECISION 102
JA	ポンプ PRECISION 100
PT	Bomba PRECISION 100

6. Installation and Setup of the Logon Task Support

6.1 Installation and Deployment

In order to enable the Logon task support the following features need to be installed using the Teamcenter Environment Manager:

ai0activeintegration

> The full name of this feature is *Active Integration*. It contains implementations of SOA services to mediate remote function calls from the WebDV between the Teamcenter server and the T4x server.

activeintegration4awsource

> The full name of this feature is *Active Integration Add-ons for the Active Workspace*. It contains implementations of SOA services to mediate remote function calls from the WebDV between the Teamcenter server and the T4x server.

> Caution:
>
> The `gwtcompile` command is only available on the Windows platform. If you are deploying the `awc.war` file to another platform you have to create that file on a Windows computer and copy it to the target platform. This also means that you have to install the `activeintegration4awsource` feature on the Windows computer using the Teamcenter Environment Manager.

Follow these steps to install and deploy these features:

1. Install the aforementioned features using the Teamcenter Environment Manager. You will find them in your T4x installation under `var/template/ai0activeintegration/BMIDE/full_update` and `var/template/activeintegration4awsource/BMIDE/full_update` respectively.

2. Open the `aws2/stage` folder inside your Teamcenter installation.and execute the `gwtcompile` command. This will produce the `aws2/stage/out/awc.war` file.

3. Deploy the aforementioned `awc.war` file to your web application server.

6.2 Adaption of the Active Workspace module

General workflow

1. Open the module folder named `aws2/stage/src/solution/activeintegration4aw`.

2. Open the view model file in a text editor, `src/viewmodel/ai4aw_querySAPLogonDataViewModel.json` for T4S and T4S4 or `src/viewmodel/ai4aw_queryEAXLogonDataViewModel.json` for T4EA.

3. Open the module file in a text editor. It is named `module.json`.

4. Make backup copies of the files as they are now and whenever your changes yield success.

5. Apply your changes to the files according to the sections below.

6. Open the `aws2/stage` folder inside your Teamcenter installation.and execute the `gwtcompile` command. This will produce the `aws2/stage/out/awc.war` file.

7. Deploy the aforementioned `awc.war` file to your web application server and refresh the browser.

> Caution:
>
> Be careful about the syntax of the JSON files. In particular:
>
> - Do not add comments.
> - Avoid trailing commas at the end of lists.
> - Separate the items of lists with commas.

Specify the type of the Logon Task

In the module file search for occurrences of `ctx.selected.type`. There are two as shown below:

```
"selectedObjectIsSAPLogonTask": {
  "expression": "ctx.selected.type === 'EPMTesisSAPLogon'"
},
"selectedObjectIsEAXLogonTask": {
  "expression": "ctx.selected.type === 'EAX2LogonTask'"
}
```

The first is for T4S and T4S4 and the second for T4EA. Adapt the names of the types on the right side of the conditional expression.

In order to obtain the names of the task navigate to the task objects in the Rich Client. You will find them under your worklist. Type **Alt-P** or select **Properties** from the context menu. Get the name of the type from the **Task Type** property.

Specify the Connections to the External Systems

The task panel associated with the Logon task allows the user to select a connection out of a list of available connections. A particular selection is pre-selected when the panel opens. This is called the *default selection*. To modify the list of available connections as well as the default connection follow these steps assuming paths are relative to the Teamcenter installation folder (TC_ROOT):

1. In the view model file search for the `eaConnectionValues` string. Under `dbValue` you will find a list of connections that will be presented to the user to choose one to connect to. Each connection is represented as a pair of names:

   ```
   {
       "propDisplayValue": "ET1@800",
       "propInternalValue": "ET1@800"
   }
   ```

   `propDisplayValue` denotes the name presented to the user and `propInternalValue` the name used by the server to identify the connection. They are typically the same. Edit the list to add or remove connections.

2. In the view model file search for the `eaConnection` string. You will see a list of key-value pairs. Change the value associated with the `dbValue` key to one of the values used in the `eaConnectionValues` list. Use the value associated with the `propInternalValue` key.

6.3 Trying out the Logon Task Support

To try out the Logon task support follow these steps:

1. In the RAC or the Active Workspace create a workflow process containing the Logon workflow task for an item revision. The type of the item revis of the object and the process must match the product under test. The preferred connection must not be configured for automatic logon so the workflow stops at the logon task.

2. Open or refresh the Active Workspace and navigate to the **Inbox**.

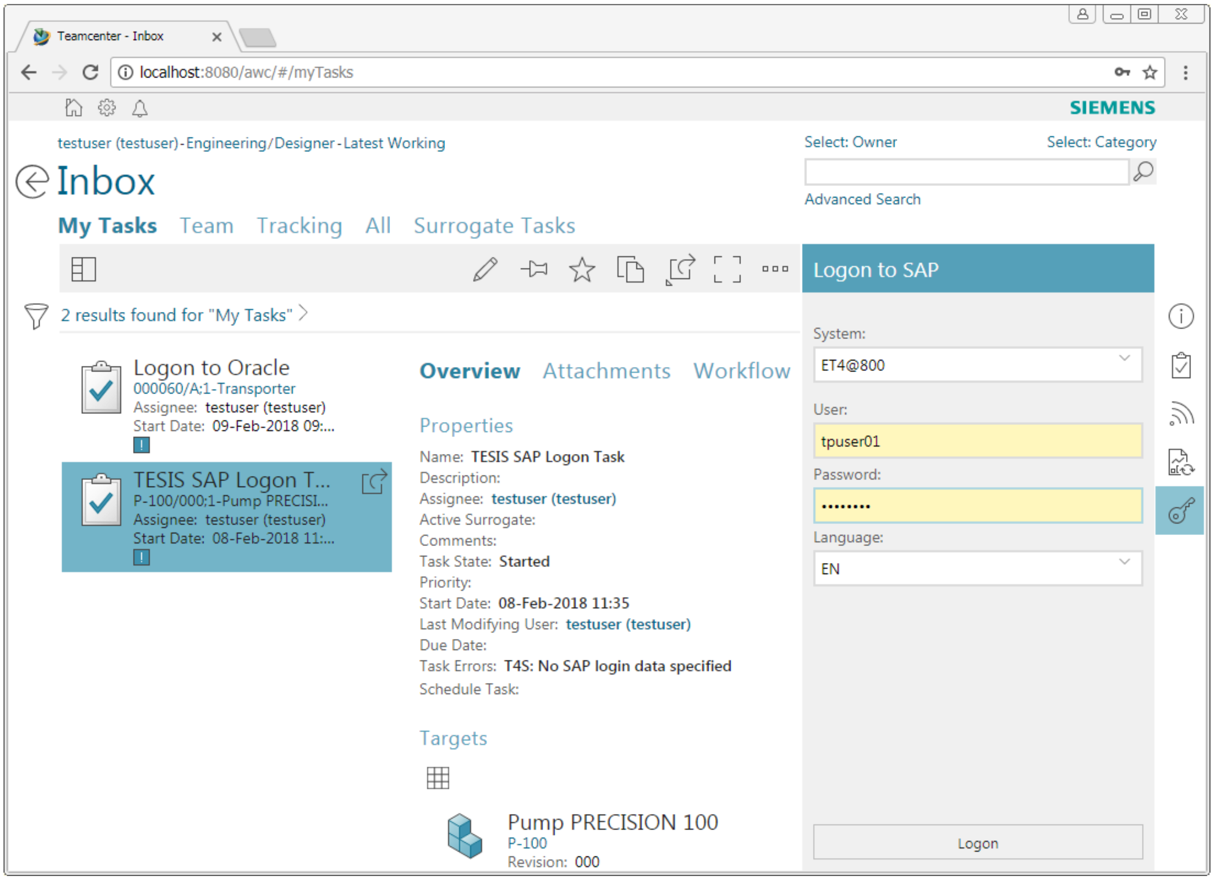
3. Select the logon task object. Notice the column of icons appearing on the right. If you don't see them click somewhere else and select the task again. Click on the 🔑 icon. If you don't see it you need to adjust the type of the task.

4. Select a connection and enter your credentials into the panel that slides in from the right. As soon as you provide a username and a password the **Logon** button appears at the bottom of the panel as shown in the figure below.

5. Click on the **Logon** button. If the log-on succeeds the panel disappears, if not you will see an error message and the panel remains open to receive your corrections.

6. With Active Workspace 3.4 and older you need to complete the task as explained in the Active Workspace documentation. With Active Workspace 4.0 and above this happens automatically.

The figure below shows the **Logon to SAP** panel after filling in the user's credentials:



Logon to Oracle
000060/A;1-Transporter
Assignee: testuser (testuser)
Start Date: 09-Feb-2018 09:...

TESIS SAP Logon T...
P-100/000;1-Pump PRECISI...
Assignee: testuser (testuser)
Start Date: 08-Feb-2018 11:...

Properties

Name: TESIS SAP Logon Task
Description:
Assignee: testuser (testuser)
Active Surrogate:
Comments:
Task State: Started
Priority:
Start Date: 08-Feb-2018 11:35
Last Modifying User: testuser (testuser)
Due Date:
Task Errors: T4S: No SAP login data specified
Schedule Task:

Targets

Pump PRECISION 100
P-100
Revision: 000

System: ET4@800
User: tpuser01
Password: ••••••••
Language: EN

Logon

7. Tips and Tricks

Caution:

- The measures below must be taken only in the course of configuring the Dataview. Do not apply them to a production system

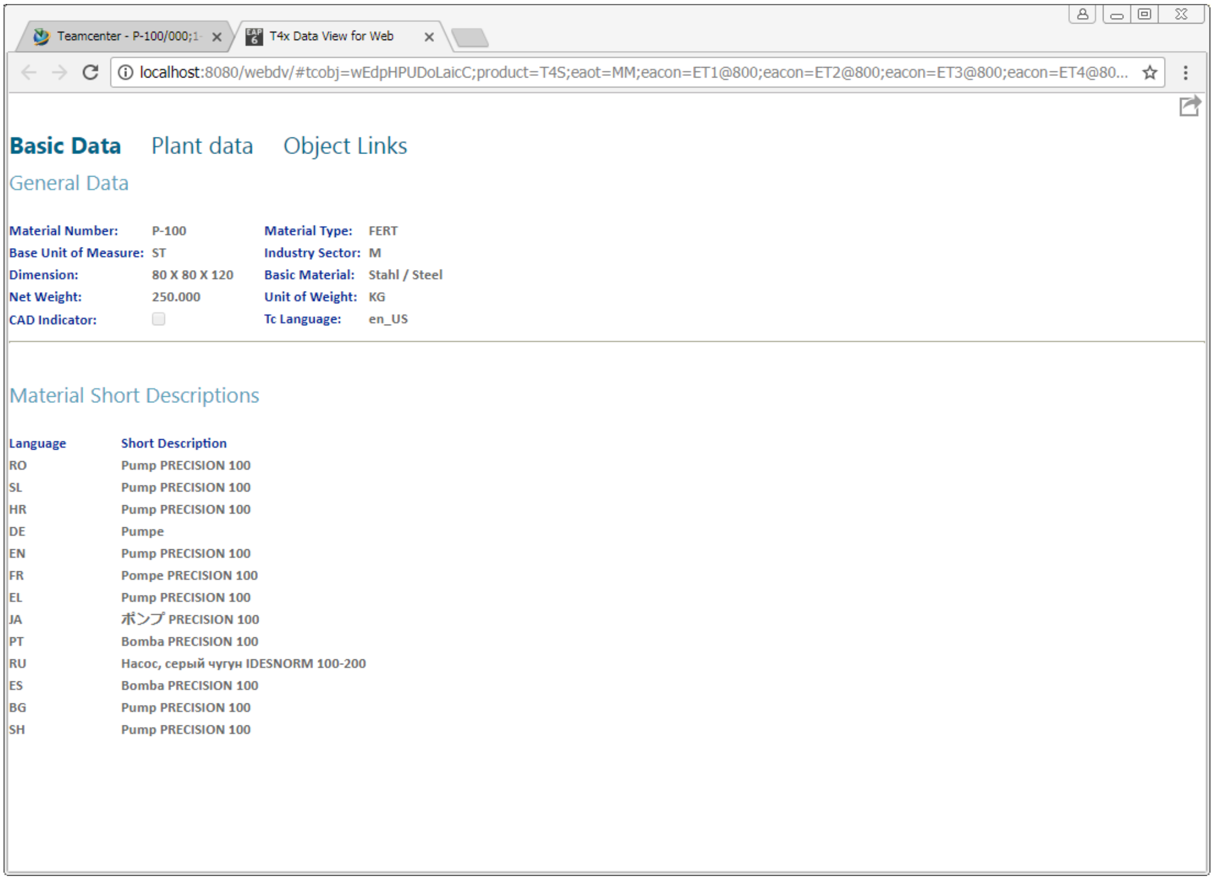
- You need to be logged-in to the Active Workspace so you can use the WebDV stand-alone.

7.1 Open the WebDV Stand-Alone

Add the `url` option to the `controlpanel` parameter as described in **The Control Panel**. After refreshing the WebDV you will notice the ↗ icon in the upper right corner of the WebDV. Click on that icon to open the WebDV in a separate page outside of the Active Workspace. Some browsers, Mozilla Firefox for example, allow opening frames in new tabs after right-clicking into the frames. If you use such a browser you do not necessarily need the `url` option.

You may also compose the URL of the WebDV manually by replacing the `{{selected.uid}}` placeholder with the ID of the selected object. You can grab that from the URL of the Active Workspace.

The figure below shows the stand-alone WebDV:


Teamcenter - P-100/000;1-
T4x Data View for Web
localhost:8080/webdv/#tcobj=wEdpHPUDoLaicC;product=T4S;eaot=MM;eacon=ET1@800;eacon=ET2@800;eacon=ET3@800;eacon=ET4@80...

Basic Data Plant data Object Links

General Data

Material Number:	P-100	Material Type:	FERT
Base Unit of Measure:	ST	Industry Sector:	M
Dimension:	80 X 80 X 120	Basic Material:	Stahl / Steel
Net Weight:	250.000	Unit of Weight:	KG
CAD Indicator:	☐	Tc Language:	en_US

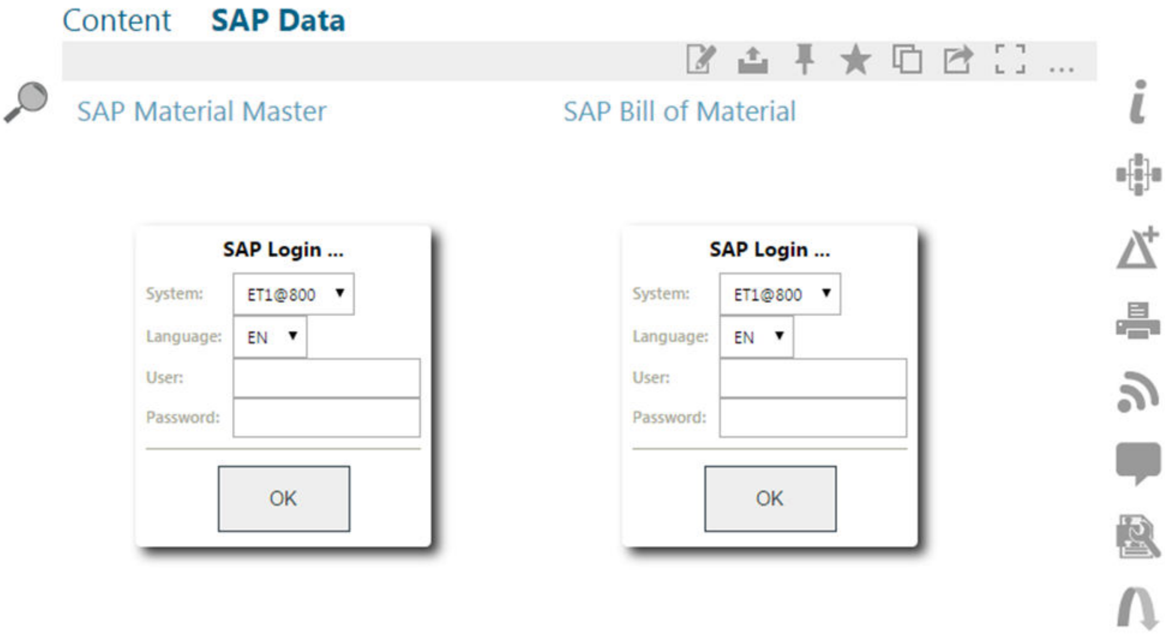
Material Short Descriptions

Language	Short Description
RO	Pump PRECISION 100
SL	Pump PRECISION 100
HR	Pump PRECISION 100
DE	Pumpe
EN	Pump PRECISION 100
FR	Pompe PRECISION 100
EL	Pump PRECISION 100
JA	ポンプ PRECISION 100
PT	Bomba PRECISION 100
RU	Насос, серый чугун IDESNORM 100-200
ES	Bomba PRECISION 100
BG	Pump PRECISION 100
SH	Pump PRECISION 100

8. Known Issues

8.1 Multiple EA Log-In Dialogs

If an XRT has a page containing more than one WebDV that require a log-in into the same enterprise application system each of them will show their own log-in dialog like shown below:



System: ET1@800
Language: EN
User:
Password:

System: ET1@800
Language: EN
User:
Password:

When a user logs into the EA system with one of the dialogs the other ones will still be shown. The reason is that the HTML panels cannot communicate with each other.

After logging into one EA system the user may reload the browser window causing the WebDVs to be restarted. They will now use the connection established through the first log-in and not open a dialog.

If the HTML panels are placed in different pages the issue does not appear as changing pages in the Active Workspace implicitly causes the frames in the new page being reloaded.

> Note:
>
> Place HTML panels for the WebDV in different pages if the user needs to log into the EA system.

8.2 Theme Switching

The user interface of the Active Workspace allows users to switch between a light and a dark theme.

A change of the Active Workspace's theme does not affect the WebDV as there is no mechanism that would allow notifying the WebDV of the change.

Moreover we currently do not provide a dark theme for the WebDV. You may however adapt the CSS files of the WebDV to your liking.

8.3 Preservation of Widget State

When the WebDV gets refreshed it re-renders the Dataview mark-up it receives as an XML document from the T4x server. It destroys all previously rendered widgets and builds them up again. The states of the widgets get lost when they are destroyed returning the user to the initial layout of the Dataview. For example a user who had selected a page from a set of pages will be returned to the first page of the set or a chooser will be displayed in its initial state.

The RAC Dataview does preserve the states of its widget in its internal memory. This feature is not yet available for the WebDV.

Regarding the input widgets there is a simple work-around: Just explicitly instruct the input widget to show the values of the previous refresh operation or default values. These can be found in the Tcl variables whose values are derived from the Parameters argument.

The following example demonstrates this with the `var/mmap/t4s_prop_mapping_template.sd` file as it is shipped with T4S. There you find the following line:

```
create […] chooser […] -parameter plant -submitOn DEFAULT_EVENT
```

It creates a drop-down box allowing the user to select a plant out of a list of plants given in the `lPlants` (first letter is a lowercase L) list variable. (`[…]` stands for code we have omitted for the sake of shortness.)

Turn that into

```
create […] chooser […] -parameter plant -submitOn DEFAULT_EVENT -value
$Plant
```

i.e. add the `-value` attribute with the value of the Tcl variable holding the current state of the widget to the command.

This work-around is compatible with the RAC Dataview so you do not have to take further measures if you prepare the Dataview for both types of clients.

A. Teamcenter Preferences for AW

A.1 Preferences for T4S and T4S4

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<preferences version="10.0">
 <category name="SAP Gateway">
    <category_description></category_description>
    <preference
      name="AWC_SAP2_T4S_Item
Revision.showObjectLocation.SUMMARYRENDERING"
      type="String" array="false" disabled="false"
      protectionScope="Site" envEnabled="false">
      <preference_description>
        [WebDV] Registration of summary stylesheet for T4S Item Revision
for
        ShowObject Location.
      </preference_description>
      <context name="Teamcenter">
        <value>WebDV_T4S_Demo_XRT</value>
      </context>
    </preference>
    <preference name="T4S_BillOfMaterialIsBOM"
      type="Logical" array="false" disabled="false"
      protectionScope="Site" envEnabled="false">
      <preference_description>
        [WebDV] Let T4x treat BillOfMaterial as a bill of material kind
        of target type.
      </preference_description>
      <context name="Teamcenter">
        <value>true</value>
      </context>
    </preference>
    <preference name="AWC_Dataset.SUMMARYRENDERING"
      type="String" array="false" disabled="false"
      protectionScope="Site" envEnabled="false">
      <preference_description>
        Description not provided during import.
        [WebDV] Changed to point to the XRT that includes the T4x
Dataview
        for Web.
        The default value is Awp0DatasetSummary.
      </preference_description>
      <context name="Teamcenter">
        <value>WebDV_T4S_Dataset_Demo_XRT</value>
      </context>
    </preference>
    <preference
      name="AWC_SAP2_T4S_MfgItem
Revision.showObjectLocation.SUMMARYRENDERING"
      type="String" array="false" disabled="false"
      protectionScope="Site" envEnabled="false">
      <preference_description>
        [WebDV] Registration of summary stylesheet for T4S Resource
        Revision for ShowObject Location.
      </preference_description>
      <context name="Teamcenter">
        <value>WebDV_T4S_Resource_Demo_XRT</value>
      </context>
    </preference>
    <preference
name="AWC_VendorRevision.showObjectLocation.SUMMARYRENDERING"
      type="String" array="false" disabled="false"
      protectionScope="Site" envEnabled="false">
      <preference_description>
        [WebDV] Registration of summary stylesheet for Vendor Revision
for
        ShowObject Location. This preference does not exist
out-of-the-box.
      </preference_description>
      <context name="Teamcenter">
        <value>WebDV_T4S_Vendor_Demo_XRT</value>
      </context>
    </preference>
  </category>
</preferences>
```

A.2 T4O Preferences

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<preferences version="10.0">
  <category name="EBS Gateway">
    <category_description></category_description>
    <preference
      name="AWC_EBS2T4O_Item
Revision.showObjectLocation.SUMMARYRENDERING"
      type="String" array="false" disabled="false"
      protectionScope="Site" envEnabled="false">
      <preference_description>
        [WebDV] Registration of summary stylesheet for EBS2T4O_Item
        Revision for ShowObject Location.
      </preference_description>
      <context name="Teamcenter">
        <value>WebDV_T4O_Demo_XRT</value>
      </context>
    </preference>
    <preference name="T4O_BillOfMaterialIsBOM"
      type="Logical" array="false" disabled="false"
      protectionScope="Site" envEnabled="false">
      <preference_description>
        [WebDV] Let T4x treat BillOfMaterial as a bill of material kind
of
        target type.
      </preference_description>
      <context name="Teamcenter">
        <value>true</value>
      </context>
    </preference>
  </category>
</preferences>
```

A.3 T4EA Preferences

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<preferences version="10.0">
  <category name="EA Gateway">
    <category_description></category_description>
     <preference
name="AWC_ItemRevision.showObjectLocation.SUMMARYRENDERING"
      type="String" array="false" disabled="false"
      protectionScope="Site" envEnabled="false">
      <preference_description>
        Registration of summary stylesheet for Item Revision for
ShowObject
        Location.
        [WebDV] Changed to point to the XRT that includes the T4x
Dataview
        for Web.
        The default value is Awb0ItemRevSummaryForShowObjectLocation.
      </preference_description>
      <context name="Teamcenter">
        <value>WebDV_T4EA_Demo_XRT</value>
      </context>
    </preference>
    <preference name="T4EA_BillOfMaterialIsBOM"
      type="Logical" array="false" disabled="false"
      protectionScope="Site" envEnabled="false">
      <preference_description>
        [WebDV] Let T4x treat BillOfMaterial as a bill of material kind
of
        target type.
      </preference_description>
      <context name="Teamcenter">
```

```
        <value>true</value>
      </context>
    </preference>
      <preference name="T4EA_ProductAssociationIsBOM"
        type="Logical" array="false" disabled="false"
        protectionScope="Site" envEnabled="false">
      <preference_description>
        [WebDV] Let T4x treat ProductAssociation as a bill of material
kind
        of target type.
      </preference_description>
      <context name="Teamcenter">
        <value>true</value>
      </context>
    </preference>
  </category>
</preferences>
```

B. XML Rendering Templates

The examples outlined in this appendix do only cover the XML elements that have to be added to the out-of-the-box XRTs in order to add Dataview functionality to the Active Workspace. All examples add new pages to the XRTs.

Caution:

- Note the ↩ symbols. When you find them at the end of the lines you want to copy&paste to your text editor please remove them together with the line break and white space that follows.
- In general XRTs differ between Active Workspace versions so you will need to adapt them if you want to move them between Active Workspace versions.
- Note that you need to adapt the values of the eacon parameters.

B.1 WebDV_T4S_Demo_XRT Dataset

Covers SAP Material Master, Bill of Material, Document Info Record (Item Revision method), Change Master. Applies to T4S as well as T4S4.

```
[…]
    </page>
    <page title="SAP Material Master">
        <htmlPanel enableresize="true"
            src="/webdv?tcobj={{selected.uid}};product=T4S;eaot=MM;↩
eacon=ET1@800;eacon=ET2@800;eacon=ET3@800;ealang=EN;ealang=DE" />
    </page>
    <page title="SAP Bill of Material">
        <htmlPanel enableresize="true"
            src="/webdv?tcobj={{selected.uid}};product=T4S;eaot=BOM;↩
eacon=ET1@800;eacon=ET2@800;eacon=ET3@800;ealang=EN;ealang=DE" />
    </page>
    <page title="SAP Document Info Record">
        <htmlPanel enableresize="true"
            src="/webdv?tcobj={{selected.uid}};product=T4S;eaot=DIR;↩
eacon=ET1@800;eacon=ET2@800;eacon=ET3@800;ealang=EN;ealang=DE" />
    </page>
    <page title="SAP Change Master">
        <htmlPanel enableresize="true"
            src="/webdv?tcobj={{selected.uid}};product=T4S;eaot=ECM;↩
eacon=ET1@800;eacon=ET2@800;eacon=ET3@800;ealang=EN;ealang=DE" />
    </page>
    <page titleKey="tc_xrt_viewer" […]
```

B.2 WebDV_T4S_Dataset_Demo_XRT Dataset

Covers SAP Document Info Record (Dataset method). Applies to T4S as well as T4S4.

```
[…]
    </page>
    <page title="SAP Document Info Record">
        <htmlPanel enableresize="true"
            src="/webdv?tcobj={{selected.uid}};product=T4S;eaot=DIR;↩
eacon=ET1@800;eacon=ET2@800;eacon=ET3@800;ealang=EN;ealang=DE" />
    </page>
    <page titleKey="tc_xrt_viewer" […]
```

B.3 WebDV_T4S_Resource_Demo_XRT Dataset

Covers SAP Equipment Master, Functional Location. Applies to T4S as well as T4S4.

```
[…]
    </page>
    <page title="SAP Equipment Master">
        <htmlPanel enableresize="true"
            src="/webdv?tcobj={{selected.uid}};product=T4S;eaot=EQUI;↩
eacon=ET1@800;eacon=ET2@800;eacon=ET3@800;ealang=EN;ealang=DE" />
    </page>
    <page title="SAP Functional Location">
        <htmlPanel enableresize="true"
            src="/webdv?
tcobj={{selected.uid}};product=T4S;eaot=FUNCLOC;↩
eacon=ET1@800;eacon=ET2@800;eacon=ET3@800;ealang=EN;ealang=DE" />
    </page>
    <page titleKey="tc_xrt_viewer" […]
```

B.4 WebDV_T4S_Vendor_Demo_XRT Dataset

Covers SAP Vendor. Applies to T4S as well as T4S4.

```
[…]
    </page>
    <page title="SAP Vendor">
        <htmlPanel enableresize="true"
            src="/webdv?tcobj={{selected.uid}};product=T4S;eaot=VENDOR;↩
eacon=ET1@800;eacon=ET2@800;eacon=ET3@800;ealang=EN;ealang=DE" />
    </page>
    <page titleKey="tc_xrt_viewer" […]
```

B.5 WebDV_T4O_Demo_XRT Dataset

Covers EBS Item, Bill of Material, Change Order. Applies to T4O.

```
[…]
    </page>
    <page title="EBS Item">
        <htmlPanel enableresize="true"
            src="/webdv?tcobj={{selected.uid}};product=T4O;↩
eaot=ITEM;eacon=EBS1;eacon=EBS2;eacon=EBS3;eacon=EBS4" />
    </page>
    <page title="EBS Bill of Material">
        <htmlPanel enableresize="true"
            src="/webdv?tcobj={{selected.uid}};product=T4O;↩
eaot=BOM;eacon=EBS1;eacon=EBS2;eacon=EBS3;eacon=EBS4" />
    </page>
    <page title="EBS Change Order">
        <htmlPanel enableresize="true"
            src="/webdv?tcobj={{selected.uid}};product=T4O;↩
eaot=ECO;eacon=EBS1;eacon=EBS2;eacon=EBS3;eacon=EBS4" />
    </page>
    <page titleKey="tc_xrt_viewer" […]
```

B.6 WebDV_T4EA_Demo_XRT Dataset

Covers

- Article and BillOfMaterial of the artificial Demo ERP system
- OFBiz Product and Product Association
- Oracle Product Information

Applies to T4EA.

```
[…]
    </page>
    <page title="Article">
        <htmlPanel enableresize="true"
          src="/webdv?tcobj={{selected.uid}};product=T4EA;↩
eaot=Article;eacon=DemoERP1;ealang=EN;ealang=DE" />
    </page>
    <page title="Bill of Material">
        <htmlPanel enableresize="true"
            src="/webdv?tcobj={{selected.uid}};product=T4EA;↩
eaot=BillOfMaterial;eacon=DemoERP1;ealang=EN;ealang=DE" />
    </page>
    <page title="Product">
        <htmlPanel enableresize="true"
            src="/webdv?tcobj={{selected.uid}};product=T4EA;↩
eaot=Product;eacon=OFBiz1;ealang=EN;ealang=DE" />
    </page>
    <page title="Product Association">
        <htmlPanel enableresize="true"
            src="/webdv?tcobj={{selected.uid}};product=T4EA;↩
eaot=ProductAssociation;eacon=OFBiz1;ealang=EN;ealang=DE" />
    </page>
    <page title="Product Information 1">
        <htmlPanel enableresize="true"
            src="/webdv?tcobj={{selected.uid}};product=T4EA;↩
eaot=ProductInformation;eacon=Oracle1;ealang=EN;ealang=DE" />
    </page>
    <page title="Product Information 2">
        <htmlPanel enableresize="true"
            src="/webdv?tcobj={{selected.uid}};product=T4EA;↩
eaot=ProductInformation;eacon=Oracle2;ealang=EN;ealang=DE" />
    </page>
    <page titleKey="tc_xrt_viewer" […]
```

C. Glossary

A

Admin

is the term used in this document for people who install and configure Teamcenter and its components. This is in contrast to the “user” role.

Apps

See "GS".

B

BGS

Basic Gateway Service.

BMIDE

Teamcenter Business Modeler IDE (Integrated Development Environment).

BOM

A Bill Of Materials is a list of the parts or components and their quantities that are required to build a product.

BOP

The Bill Of Process describes a manufacturing process and lists the operations and steps with all their instructions, consumed materials, resources, work places and machines.

D

Dataview mark-up

is the language understood by the Dataview. The Dataview receives messages written in this language from the T4x server. Such messages can be formatted as XML or JSON. Normally users do not see such messages. They may however appear in log files or error messages. The so called prop mapping (e.g. *t4s_prop_mapping_template.sd*) contains TCL commands that compose messages in the Data View mark-up.

E

EA

stands for Enterprise Application, any software or set of computer programs used by business users to perform various business functions in context of current integration's portfolio with Teamcenter.

ECN

The Engineering Change Notice can also be called an Engineering Change Note, Engineering Change Order (ECO), or just an Engineering Change (EC).

EPM

Enterprise Process Modeling.

G

GRM

The Generic Relationship Management provides a general way in which two objects can be associated via a relationship.

GS

Gateway Service, manages the communication between Teamcenter and the Enterprise Application.

GUI

Graphical user interface.

I

IDGEN

The IDGEN is a mechanism to get an external ID from the ERP system when assigning a Teamcenter ID.

ITK

The Integration Toolkit (ITK) is a set of software tools provided by Siemens PLM Software that you can use to integrate third-party or user-developed applications with Teamcenter.

J

JDBC

Java Database Connectivity is an application programming interface (API) for the programming language Java, which defines how a client may access a database.

L

LOV

List of Values.

M

MFK

Multi-key functionality in Teamcenter.

O

OOTB

Out of the box.

R

RAC

stands for Rich Application Client also referred to as rich client or portal.

S

SSL

Secure Sockets Layer.

T

T4x

The entire Teamcenter Gateway product family.

TC

Teamcenter

TCL

is a high-level, general-purpose, interpreted, dynamic programming language.

TEM

Teamcenter Environment Manager.

U

UOM

UOM stands for Unit of Measure.

URI

Unified Resource Identifier: a generalized from of a resource locator (URL) and resource name (URN), which just identifies a resource, but is not necessarily sufficient to locate (find) the resource. URIs are often used to identify configurations in Java and other languages. See https://en.wikipedia.org/wiki/Uniform_Resource_Identifier for more details.

URL

Unified Resource Locator: a string with a certain format, allowing to load a resource from a network. URLs are a specific form or URNs.

X

XML

Extensible Markup Language is designed to store and transport data in a format that is both human- and machine-readable.

XRT

stands for XML Rendering Template, also known as XML Rendering Stylesheet. These are XML documents stored in datasets that define how parts of the Teamcenter user interface are rendered. They are used for the Rich Client as well as the Active Workspace.

Z

Z-Table

"Z" is the prefix name for custom tables well-known in SAP world.

Siemens Industry Software

Headquarters

Granite Park One
5800 Granite Parkway
Suite 600
Plano, TX 75024
USA
+1 972 987 3000

Americas

Granite Park One
5800 Granite Parkway
Suite 600
Plano, TX 75024
USA
+1 314 264 8499

Europe

Stephenson House
Sir William Siemens Square
Frimley, Camberley
Surrey, GU16 8QD
+44 (0) 1276 413200

Asia-Pacific

Suites 4301-4302, 43/F
AIA Kowloon Tower, Landmark East
100 How Ming Street
Kwun Tong, Kowloon
Hong Kong
+852 2230 3308

About Siemens PLM Software

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