How to create a new repository node?

Now, I shall introduce the steps or how to create a new repository node. I think, it should be better for the OEM or other non-Talend's developers.

In order to understand more, I assume that:

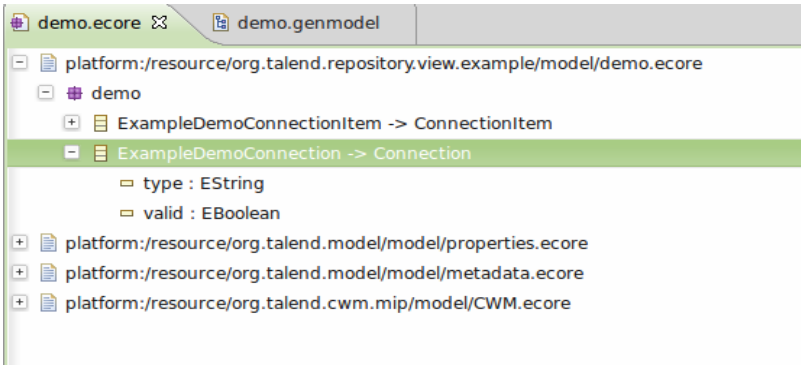
- Based on **Talend v5.1.x**.
- Add a new type of repository node under “Metadata” in “DI” product.
- Enable create ExampleDemoConnectionItem in “metadata/example_demo” folder.
- Created in the example plugin “org.talend.repository.view.example”.

Steps:

1) Create a EMF ecore model “demo.ecore”in the folder “model” of the example plugin.

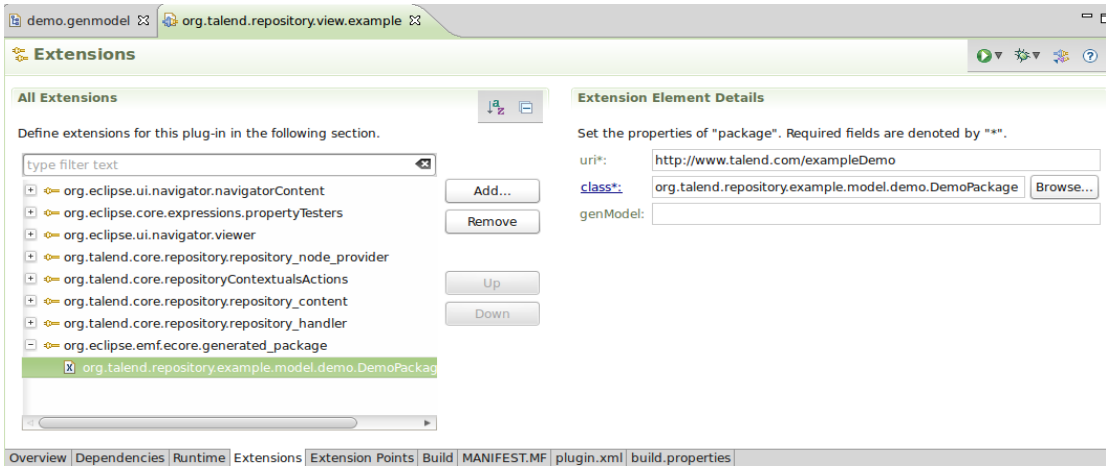
   a. ExampleDemoConnectionItem
      Will be saved into the “*.properties” file. And contained the “ExampleDemoConnection” model too.

   b. ExampleDemoConnection with two attributes. for example:“type” and “valid”.
      This model will be saved into the “*.item” files.



Then, create the “demo.genmodel”. And set the base package “org.talend.repository.model”. Also, it's better to set the runtime version to 2.6.

It's better to register the demo package by extension point “`org.eclipse.emf.ecore.generated_package`” explicitly.

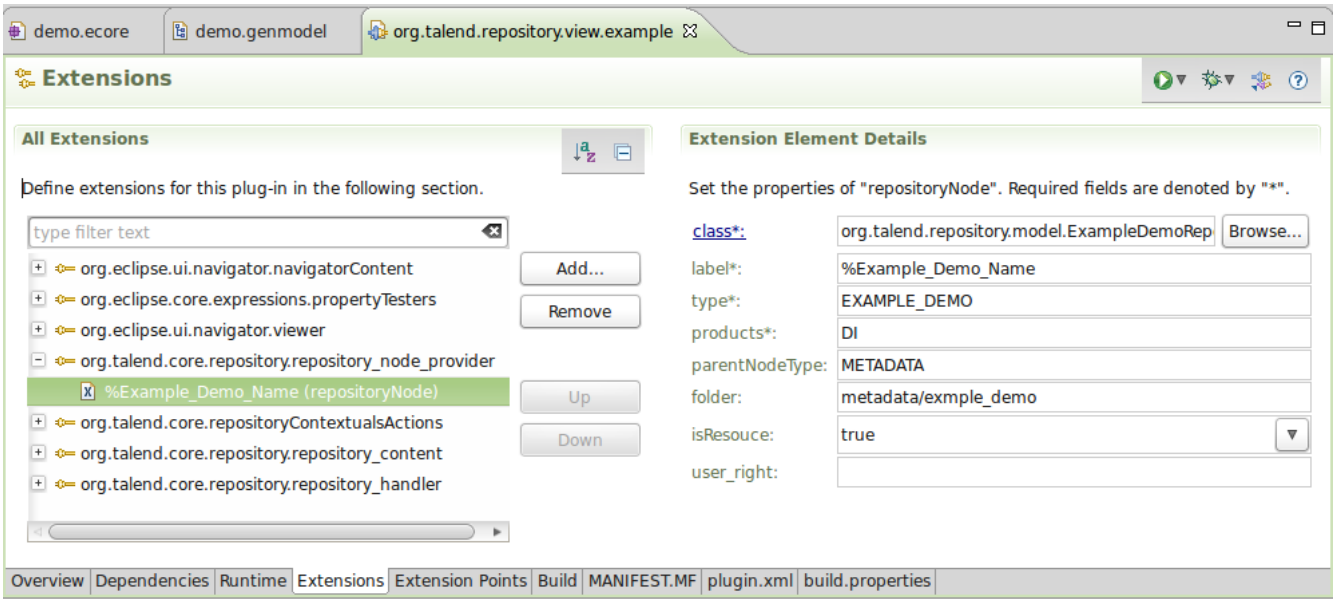


NOTE:

a. Make sure add the dependencies for TOS plugin “org.talend.model” and “org.eclipse.emf.ecore.xmi”.

b. In order to re-use the TOS models, need load some emf models from the plugin “org.talend.model” or “org.talend.cwm.mip”, like Properties, Metadata, CWM, TalendFile, Component, etc.

2) Add extension point “org.talend.core.repository.repository_node_provider” to define the root node for new repository node. Of course, need add the depended plugin “org.talend.core.repository” in the tab “Dependencies”.



class: “ExampleDemoRepositoryNode”. Must implement the interface: “org.talend.core.repository.IExtendRepositoryNode”

label: Will display in the repository view as root node.
type: will be used in the class "ExampleDemoRepositoryNodeType"(introduce it later).
products: set "DI" by default. Can be set like "CAMEL", "DQ". If support multi product, those value are split by "|". For example, can set it like "DI|DQ".
parentNodeType: here, because want to add the new node under the "Metadata", so need set the "Metadata" type which is "METADATA".
folder: it related to the attribute "isResource", if set the "isResource" true, should provide a folder. Here, because it's under the "Metadata" and save all items in subfolder of metadata. So set the value like "metadata/exmaple_demo".
isResource: If false, and no folder setting, it's only a type of repository node. There is no related EMF Item to be created.
user_right: Used in remote for User Authorization. If there is no right for the user, will hide this root node.

About the methods of class ExampleDemoRepositoryNode:

a. Method "*getNodeImage*":
need create the "EexampleDemoImage".

b. Method "*getOrdinal*":
the order of node in repository view.

c. Method "*getChildren*":
add some children nodes by manually.
(normally, return empty array).

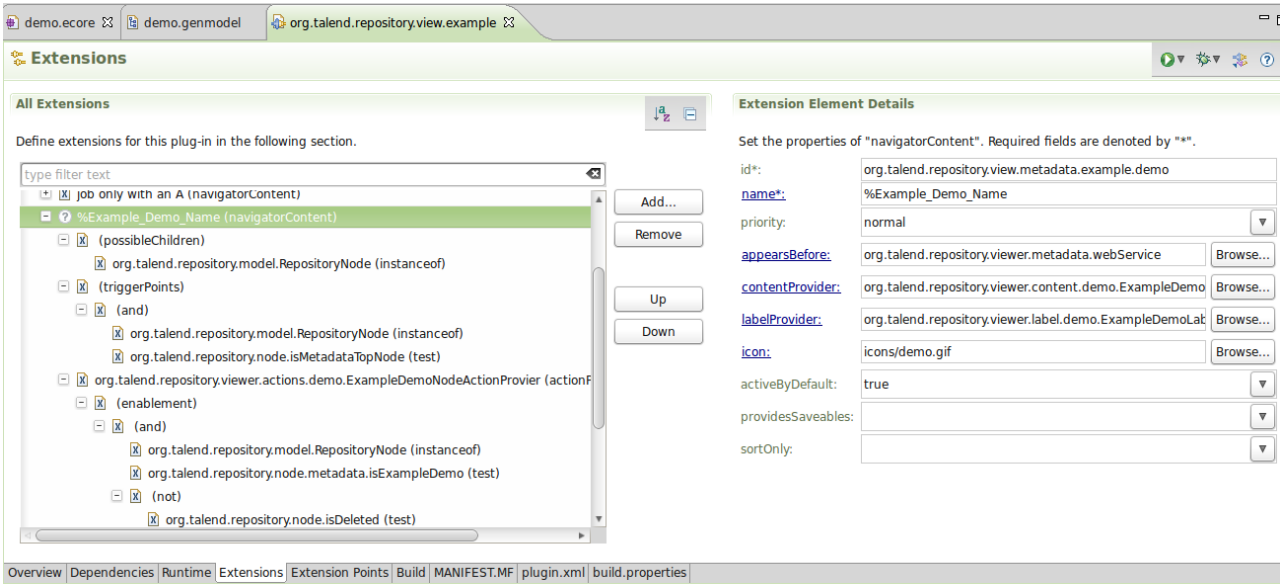
Additional:
a. Create the enum "EExampleDemoImage" and implement the interface "IImage". The icons should be in the folder "/icons" of example plugin.

b. Create the class "ExampleDemoRepositoryNodeType" to get the ERepositoryObjectType from the extension point by the type name(in my case, it's "EXAMPLE_DEMO").

NOTE: need add the dependencies for plugins:
- org.talend.common.ui.runtime
- org.talend.commons.runtime
- org.talend.core.runtime
- org.talend.core.repository
- org.talend.repository.view
- org.talend.repository.metadata

Also see the plugin: "org.talend.camel.designer".

3) Add the extension point “org.eclipse.ui.navigator.navigatorContent” for the demo node.



Need implement the “ContentProvider” and “LabelProvider”. And config the “possibleChildren” and “triggerPoints”, “actionProvider” also.

- **ContentProvider** (ExampleDemoContentProvider):
  If it's under the Metadata, extend from “AbstractMetadataContentProvider”.
  If it's like “Job Designer”, extend from “ProjectRepoDirectChildrenNodeContentProvider”.

  Will return the root node for the demo type in method “getTopLevelNodeFromProjectRepositoryNode”.

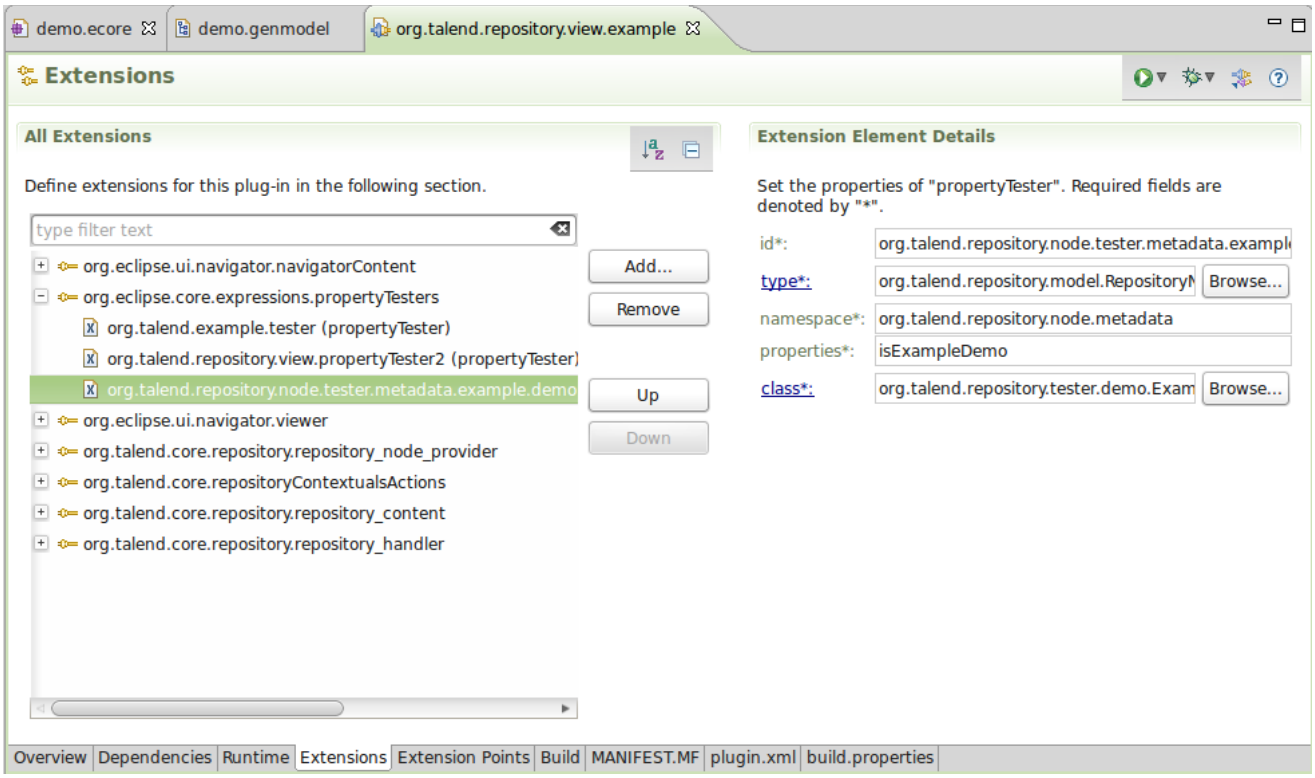
- **LabelProvider** (ExampleDemoLabelProvider):
  It extends from class “RepositoryViewLabelProvider”.
  If want do some specially. Do it in the two methods “getText” and “getImage”.

- **ActionProvider** (ExampleDemoNodeActionProvier):
  It extends from class “MetedataNodeActionProvier”.
  If general nodes, can extend from class “RepoNodeActionProvider”.

NOTE:
If want to i18n some strings in extension point, need add the following value in the “MANIFEST.MF”:

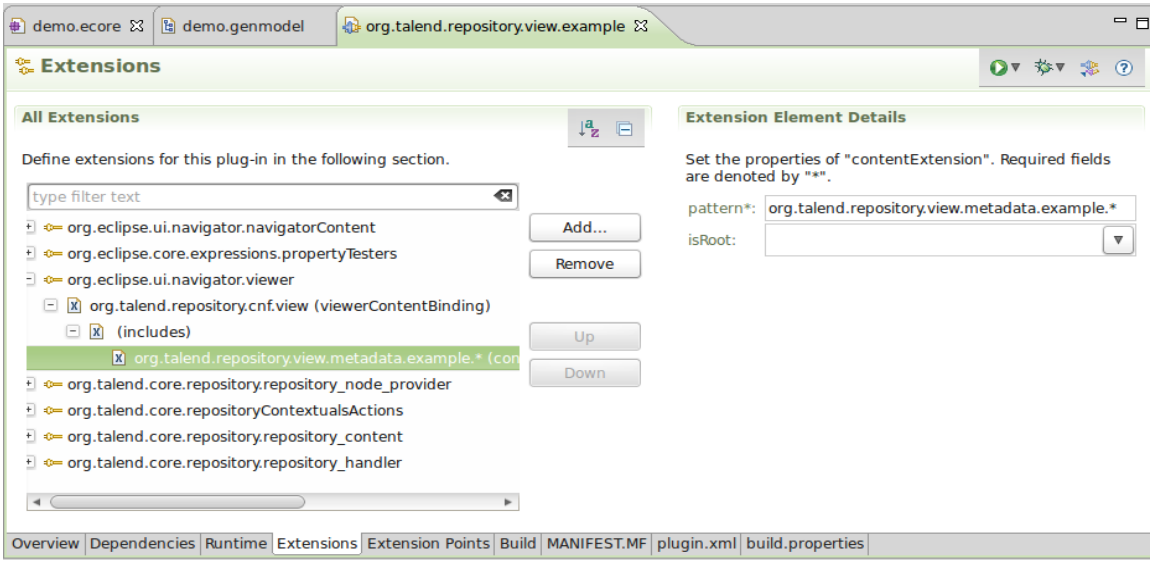
Bundle-Localization: plugin

4) In order to make sure the action provider to work well by “enablement”. Will add the extesion point “org.eclipse.core.expressions.propertyTesters”.



Need create a tester class “ExampleDemoMetadataNodeTester”.
About the value of attribute “properties” is “isExampleDemo” which must be same as the settings in the step 3) for the navigator content.

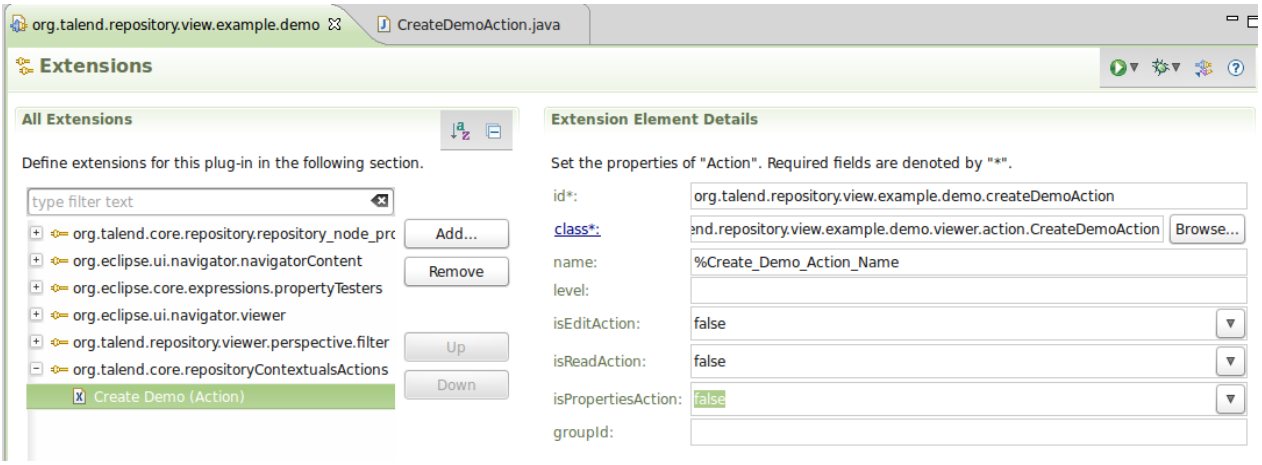
5) Also need add the extension point “org.eclipse.ui.navigator.viewer” for “viewerContentBinding” .



Make sure the related CNF view enable the “navigatorContent” with pattern “org.talend.repository.view.metadata.example.*” the navigator content id in step 3) for the extension point “org.eclipse.ui.navigator.navigatorContent”.

6) If neeed and don't want this node to display in other perspective, for example, after switch to “Mediation” Perspective. Need add the extension point “org.talend.repository.viewer.perspective.filter”. And set the “includes” and “excludes”.

7) If want to add some actions on the repository node by right context menu. Need add the extension point “org.talend.core.repositoryContextualsActions” for your items.



Because this extension was defined in plugin “org.talend.core”, so make sure to add the dependencies for the plugin “org.talend.core”. And must implement the abstract class “AcontextualAction”

a. Method “*init*”:
Check that it's enable or visible for this action.

b. Method “*doRun*”:
For example. Open a wizard to set the details of demo item.

Also, if want to add some actions manually, can do it in the method “fillContextMenu” of atcion provider class “ExampleDemoNodeActionProvier”.

8) In order to create some ExampleDemoItem(s). Need create some classes, for example:

a. “CreateDemoAction” which extends from “AbstractCreateAction”(Because it's created in metadata, so do the action is more like the “File Delimited”).

b. “ExampleDemoWizard”, and some related “ExampleDemoWizardPage” or some step forms “ExampleDemoStep*Form”.

9) Then, must create a repository handler class “ExampleDemoRepositoryHandler” which implement the “IRepositoryContentHandler” to create/save item. And it's the extension point “org.talend.core.repository.repository_content”.

a. Method “*create*”:
Will be used to create the item/properties in the repository factory to persistence the metadatas.

b. Method “*save*”:
When save the item/properties in the repository factory, will call this method.

c. Method “*createNewItem*”:
When duplicate a item by repository action “DuplicateAction”.

d. Method “*getRepositoryObjectType*”:
Return the type of item.

e. Method “*isRepObjType*”:
Check the type to be supported or not.

f. Method “*getIcon*”:
The two methods will used by repository view and the export dialog to display the icon.

g. Method “*addNode*”:
Add the children nodes. About the structure of chidren. Can do it as you want. For example, more like “`Queries` ”, “`Table schemas`”, “`View schemas`”, etc for DB connections, or only like File delimited. (@see, the example codes: *`ProjectRepositoryNode.createTables(...)`*)

10) About the metadata connection for drag&drop. Need add the extension point “org.talend.core.repository.repository_handler” for the class “ExampleDemoDragAndDropHandler” which implement the interface “IDragAndDropServiceHandler”.

a. Method “*canHandle*”:
Enable this handler.

b. Method “*getComponentValue*”:
When drag and drop one repository node to job designer editor. Will fill the parameters of related node according to this attributes of node item.

c. Method “*setComponentValue*”:
When click the saving button behind the parameter “Property Type” with “Built-In” mode. And save the parameters of nodes to create one repository node

item. Will use this method to fill the attributes of item.

d. Method “*getType*”:
When change the combo value from “Built-In” to “Repository” for the parameter “Property Type”. And choose one repository metadata to link this node. After choose, will switch to “Repository” and set the value of parameters and use the method “*getComponentValue*”.to fill values.

e. Method “*getCorrespondingComponentName*”:
Define current input, output, default components for current item.

f. Method “*filterNeededComponents*”:
Filter the components for current item.

g. Method “*handleTableRelevantParameters*”:
When the parameter “Schema Type” is in “Repository”. If need, will do something for the node according to the metadata table(schema).

Also, if need can use interface “IRepositoryComponentDndFilter” with the extension point “org.talend.core.runtime.repositoryComponent_provider” for the dnd.

a. Method “getRepositoryType”:
According to the item to get the type of item.

b. Method “*valid*”:
If return true, the components will be added in the list of choosing components dialog , when drag&drop the repository node to job designer editor to create new node.
Else, won't be added.

c. Method “*except*”:
If return true, the components won't be added into the list of choosing components dialog.

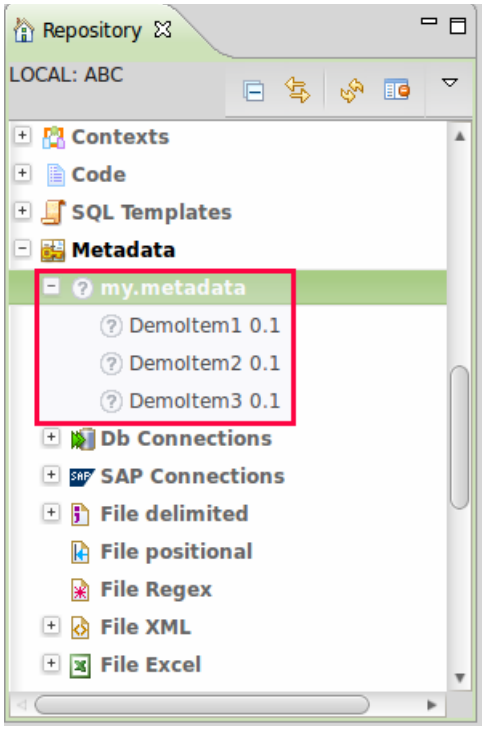
11) **Optional** :

- “Detect dependencies”: If want to do the update manager to work well , need check the class “RepositoryUpdateManager” and do some relationship in class “RelationshipItemBuilder” (in plugin:) also in plugin : org.talend.core.runtime.

- “Impact analysis”(Enterprise Edition): If want to do the analysis the related item. Need check the class “DataLineageManager” in the plugin org.talend.designer.datalineage.

BTW, Have tested the export and import function. They work well. But don‘t test the dnd and update manager, because there is no related components to test for this.

Demo Screenshot :



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