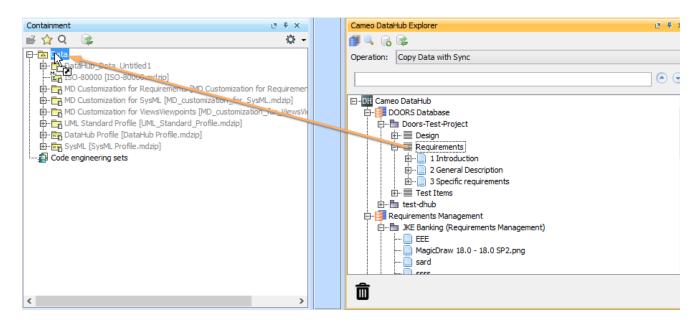# Copy Data with Sync operations

When you select this operation, a DHLink for synchronization is added to the data. It maintains the structure and data of the elements within the node. During data synchronization, DataHub searches for any new nodes and deleted nodes. If it finds any new nodes or deleted nodes within the scope on one side, DataHub copies them to the other side and create a synchronization relation between them or deletes them from the other side.
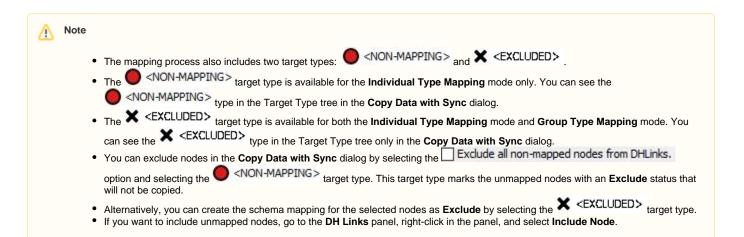
To Copy Data with Sync

1. From the **Operation** drop-down list in **Cameo DataHub Explorer**, select **Copy Data with Sync**.
2. Drag a source node to a target node.

3. The **Copy Data with Sync** dialog opens. When the nodes and their attributes have been mapped to their respective target types, click **OK**.

Copy Data with Sync

Copy Data with Sync

Select all unmapped target types from the list and resolve them by defining the schema map. DataHub will create the DHLinks to maintain the nodes in the scope hierarchy.

Sync Direction: ⦿ Two-way Sync ◯ One-way Sync from MagicDraw ◯ One-way Sync to MagicDraw

Mapping Mode: Group Type Mapping ∨

IBM Rational DOORS Next Generation Side

- Folder::/JKE Banking (Requirements Management)
- Term::/JKE Banking (Requirements Management)

MagicDraw Side

🔍 class

- Class
- ClassifierTemplateParameter
- ReadIsClassifiedObjectAction
- ReclassifyObjectAction
- StartClassifierBehaviorAction
- Customization
- Drag&Drop Specification
- Legend

☐ Set as default target type

☐ Exclude all non-mapped nodes from DHLinks.

☐ Define Target Type from Attribute Value

Attribute: Created On ∨

Default	Priority	Value	Target

Select Attribute to Sync

	Term::/JKE Banking (Requir...	Class [MagicDraw::JAR File ...	Conversion Rule
☐	Alternative Spelling		
☐	Contributor(Readonly)		
☐	Created On(Readonly)		
☐	Creator(Readonly)		
☐	Description		
☐	Identifier(Readonly)		
☐	Modified On(Readonly)		
☐	Parent(Readonly)		
☐	Primary Text		
☐	Service Provider(Readonly)		
☐	Status		
☐	Title		

Edit

OK   Cancel

⚠ **Note**

- The mapping process also includes two target types: 🔴 `<NON-MAPPING>` and ✖ `<EXCLUDED>` .
- The 🔴 `<NON-MAPPING>` target type is available for the **Individual Type Mapping** mode only. You can see the 🔴 `<NON-MAPPING>` type in the Target Type tree in the **Copy Data with Sync** dialog.
- The ✖ `<EXCLUDED>` target type is available for both the **Individual Type Mapping** mode and **Group Type Mapping** mode. You can see the ✖ `<EXCLUDED>` type in the Target Type tree only in the **Copy Data with Sync** dialog.
- You can exclude nodes in the **Copy Data with Sync** dialog by selecting the ☐ Exclude all non-mapped nodes from DHLinks. option and selecting the 🔴 `<NON-MAPPING>` target type. This target type marks the unmapped nodes with an **Exclude** status that will not be copied.
- Alternatively, you can create the schema mapping for the selected nodes as **Exclude** by selecting the ✖ `<EXCLUDED>` target type.
- If you want to include unmapped nodes, go to the **DH Links** panel, right-click in the panel, and select **Include Node**.

The table below summarizes the components of the **Copy Data with Sync** Dialog.

| Component	Function
Sync Direction	Selects which direction to synchronize data from, either unidirectional or bidirectional: ○ [⦿ Two-way Sync] : Synchronizes data in both directions. ○ [○ One-way Sync to MagicDraw] : Synchronizes the other Data Source with the MagicDraw Data Source. This option appears only when one of the sides is a MagicDraw Data Source. ○ [○ One-way Sync from MagicDraw] : Synchronizes the MagicDraw Data Source with the other Data Source.
Mapping Mode	Switches between **Individual Type** Mapping and **Group Type** Mapping. The **Mapping Mode** drop-down list always shows the default type that you have selected through the **Cameo DataHub Options** dialog.
Source Type tree	Specifies a data tree of the source that is to be copied. You must specify a target type for every source type.
status icon	Identifies a node whose source type has already been resolved.
status icon	Identifies a node whose source type needs to be resolved before copying. It refers to either a node that needs to be mapped or a node that needs to be excluded from the DHLink.
status icon	Identifies the following ○ A node that will not be copied since the target type does not support adding any children. ○ A link that will not be copied since the source and/or the target type does not support creating links.
🔒	Identifies the copied node having its parent copied as a node that has already been mapped and is now locked since it has a DHLink sync relation.
Define Target Type from Attribute Value	Maps by using the **Define Target Type from Attribute Value** mode. If you select this mode, you must define the property values and specify the target types of each value in the provided table. ⚠ **Note** The **Define Target Type from Attribute Value** mode is enabled in Group Type Mapping only.
Attribute	Selects an attribute of a source node to define its values and a target type. ⚠ **Note** The selected attribute is not available to be mapped for the Source Attribute in the provided schema map table.
Define Value table (below the **Attribute** drop-down list)	Defines the values of the selected attribute and the target type of each value. The table has four columns as follows: ○ **Default** Specifies the default target type. If an attribute value does not match any mapped values when copying data or creating relations, DataHub uses the default target type. ○ **Priority** Prioritizes the selection order in the mapping process. It is used when a defined attribute has multiple values. The first target type on the list has the highest priority and is always selected first in the mapping process. ○ **Value** Selects a value for a target type. If the selected attribute is an Enumeration, you can choose the values from the provided drop-down list. ○ **Target** Defines a target type for the selected value.
Exclude all non-mapped nodes from DHLinks	Excludes all nodes that you select from data synchronization.
Quick search text box	Finds a particular type containing specific text.
Target Type tree	Shows all types allowed to be added according to the type you have selected in the Source Type tree. The tree comes from the driver and a Cameo DataHub client shows the tree accordingly.
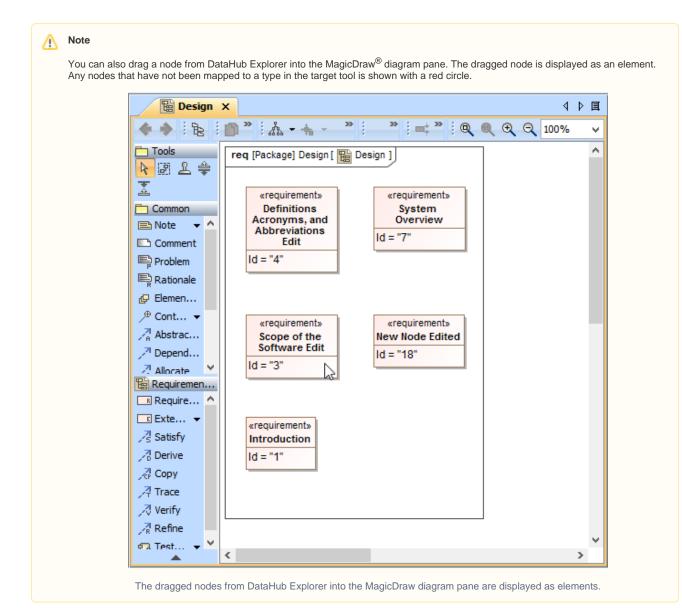
🔴 <NON-MAPPING>	Unmaps the selected nodes in the Source Type tree. Unmapped nodes is displayed in red.
✖ <EXCLUDED>	Skips and creates the schema mapping for the selected nodes as **Exclude**.
Set as default target type	Allows a Cameo DataHub client to create the same type of the target when a source type is selected. ⚠️ **Note** If the mapping has already existed in the system, the new target type overwrites the old one, and the **Schema Map** dialog does not open.
Edit	Edits a schema mapping by selecting the attributes in the provided schema map table.
OK	Starts copying with the selected target type and schema mapping.
Cancel	Cancels the copying operation.

To copy data from **DataHub Explorer** to the MagicDraw® Containment tree

1. From the **Operation** drop-down list in DataHub Explorer, do one of the following
   - Select **Copy Data** to copy data only.
   - Select **Copy Data with Sync** to copy data and create synchronization.
2. Drag a node from DataHub Explorer to an element in the MagicDraw Containment tree. The **Copy Data** dialog opens and shows the mapping mode and options for mapping the source and target types.

⚠️

⚠ **Note**

You can also drag a node from DataHub Explorer into the MagicDraw® diagram pane. The dragged node is displayed as an element. Any nodes that have not been mapped to a type in the target tool is shown with a red circle.

The dragged nodes from DataHub Explorer into the MagicDraw diagram pane are displayed as elements.

ⓘ **Information**

If you want to copy a DHLink (a MagicDraw® relation or a DOORS link), you must copy all the parent nodes in this relation. If only one parent node is copied, the DHLink will not appear.

✅ **Tip**

You can get a properly arranged diagram by using the MagicDraw® **Layout** menu. From the MagicDraw main menu, click **Layout** > **Quick Diagram Layout** to rearrange or reorganize the diagram.
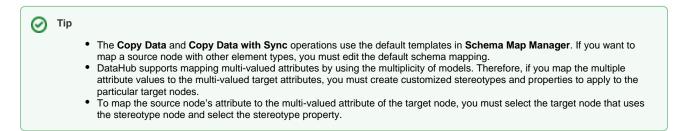
3. To resolve an unmapped node (a node with a red circle), select it from the Source Type tree and choose a target type that is available on the list on the right side of the dialog.

✅ **Tip**

- Due to the DataHub support of stereotypes, if you have the same MagicDraw® data type with different stereotypes, you can map these two nodes using a different schema.
- You can also map customized stereotypes. When you have created the nodes, reload the Data Sources. The customized stereotypes becomes visible in DataHub Explorer.

4. Select the [ ] Set as default target type check box if you want your nodes to be automatically mapped to target types for the same type of data, without mapping them again in the **Copy Data** dialog.
5. Click any cells of the target attribute and select the target attribute from the provided drop-down list to be mapped with the source attribute. When the type and attributes are mapped, the color of the circle on the source node changes from red to green.
6. Continue mapping all the types of the source node, and then click **OK** to copy them.

> ✅ **Tip**
>
> - The **Copy Data** and **Copy Data with Sync** operations use the default templates in **Schema Map Manager**. If you want to map a source node with other element types, you must edit the default schema mapping.
> - DataHub supports mapping multi-valued attributes by using the multiplicity of models. Therefore, if you map the multiple attribute values to the multi-valued target attributes, you must create customized stereotypes and properties to apply to the particular target nodes.
> - To map the source node's attribute to the multi-valued attribute of the target node, you must select the target node that uses the stereotype node and select the stereotype property.

7. When the data has been copied successfully, the **Copy Data with Sync Summary** dialog opens and shows a list of all the copied data.
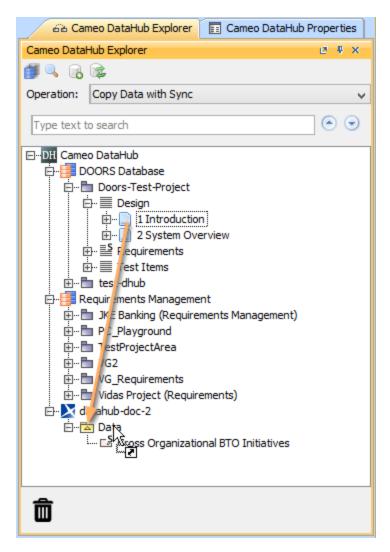

> ⊘ **Warning**
>
> - If you select the **Copy Data** operation, DataHub allows you to leave unresolved nodes when copying data.
> - If you select the **Copy Data with Sync** operation, you must map all nodes to maintain the data hierarchy, or select the **Exclude all unmapped nodes from DHLinks** option to ignore any unmapped nodes.

To copy data or create a DHLink from a Data Source within DataHub Explorer

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1. From the **Operation** drop-down list in DataHub Explorer, do one of the following
   - Select **Copy Data** to copy data only.
   - Select **Copy Data with Sync** to copy data and create synchronization links.
2. Drag a node from any Data Source to a node within **DataHub Explorer**. Either the source or target node must be a MagicDraw® node.
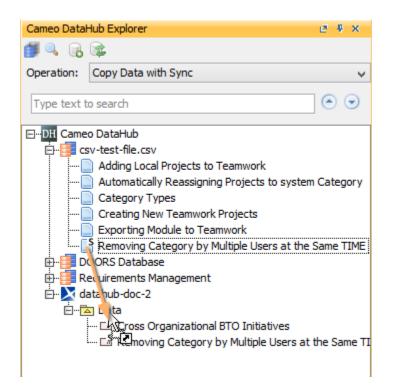
3. The **Copy Data** dialog opens, prompting you to choose either Individual or Group Type Mapping mode. Choose a mode and map the source types to appropriate target types. Click **OK**.

> ⊘ **Tip**
>
> The following rules apply to the **Copy Data with Sync** operation:
>
> - All nodes under the dragged source root node must be able to create the synchronization links.
> - A node cannot have more than one Sync relation with one Data Source. For example, node *a* has a Sync relation with Data Source *D1*. Therefore, node *a* cannot create another Sync relation within *D1*, but it can create a Sync relation with any node under Data Source *D2* or other Data Sources.
> - You can drag a node whose child has a Sync relation. However, all the nodes under the Sync node are locked in the **Copy Data with Sync** dialog and the existing Sync relations are moved to a new parent node.
> - You cannot move an object across the Formal Module in DOORS.
> - You cannot change the type of the node that will be moved or has been moved, e.g., from a module to an object and vice versa.

To copy data from a CSV Data Source to MagicDraw Data Source

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1. From the **Operation** drop-down list in DataHub Explorer, do one of the following
   - Select **Copy Data** to copy data only.
   - Select **Copy Data with Sync** to copy data with synchronization.

2. Drag the nodes from the CSV Data Source to MagicDraw Data Source. A dialog appears confirming you want to add the nodes recursively. Select one of the following
   - If you want to copy the selected node with data hierarchy, select **Yes**.
   - If you want to copy only the selected node without data hierarchy, select **No**.
3. The **Copy Data** dialog opens to allow you to choose Individual or Group Type Mapping mode. Choose a mapping mode and map the source types to appropriate target types.

⚠️ **Note**

- A CSV Data Source supports the **Copy Data with Sync** operation, and DataHub excludes all child nodes for CSV automatically since a CSV file has no data hierarchy.
- You cannot copy links (a MagicDraw® or a DOORS link) to a CSV Data Source since links always have data hierarchy with their parent nodes.
- You cannot synchronize relations with a CSV Data Source if you change the attribute synchronized with a CSV key field because DataHub uses the CSV key field to indicate the synchronization target.