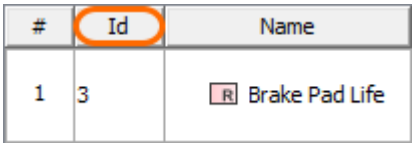
Exchanging data between tables and Excel or CSV files

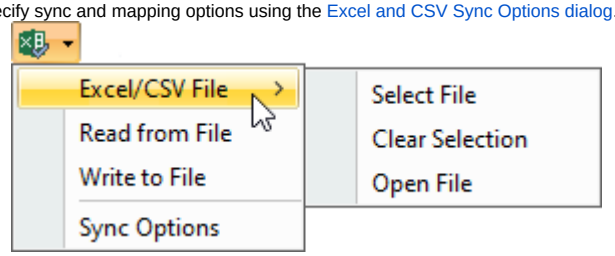
You can exchange data between the tables on your modeling tool and Excel/CSV files. Depending on the expected end result, choose the most appropriate data exchange method from those listed below:

- Copy and Paste (import/export)
- Excel/CSV Sync (import/export)
- Excel Import Plugin (import/export)
- Data Hub (import/export)
- CSV Import Plugin (import)
- Report Wizard (export)
- Export button (export)

Data Exchange Method	Description	Key Benefits	Details
Copy and Paste	You can transfer information from any textual resource, including HTML, by simply **copying and pasting** data. Data should be in a tabular format to be pasted correctly.	• No additional tools or plugins are required. • Data can be copied from external resources to modeling tool tables, from modeling tool tables to other resources, and between the cells in the modeling tool table. • New elements are created in the model upon copying and pasting data from the external resource to the modeling tool table. • Elements already existing in the model are automatically updated upon copying. • ID prefixes are set automatically after pasting data into the modeling tool table. 	**Copy/paste destination** • Rows • Columns **Pasting data to the Excel file** • Text • Booleans • Numbers • Model elements (converted to textual data) • Data in an HTML format (converted to the style used by Excel) **Pasting data to the CSV file** • Text • Booleans • Numbers • Model elements (converted to textual data) • Data in an HTML format

			Pasting data to the modeling tool table • Text • Booleans • Numbers • Excel data with the applied style (converted to HTML on the modeling tool)
			Pasting data to the specific table cells • Text • Booleans • Numbers

			Limitations • Merged cells in the Excel /CSV file. • Non-editable cells. • If the number of columns in the Excel /CSV file and the modeling tool table does not match, some columns are left out. • No data mapping. • ID prefixes can only be imported /exported as plain text. • Images are unsupported.

Excel/CSV Sync	You can sync information in tables and Excel /CSV files using the **Excel/CSV Sync** feature that comes packed with the modeling tool. The mechanism is bidirectional and ensures the continuity between Excel/CSV files and modeling tool tables.	Excel/CSV Sync enables you to: • link an existing Excel/CSV file with a modeling tool table for a quicker and more convenient data import/export. • create a new Excel/CSV file directly from the modeling tool table and link it at the same time. • open the linked Excel/CSV file directly from the modeling tool table. • import data from a selected sheet in the Excel file into a modeling tool table. • conveniently track data import status. • specify sync and mapping options using the Excel and CSV Sync Options dialog. 	**Import /Export destination** • Rows • Columns **Exporting data to the Excel/CSV file** • Text • Booleans • Numbers • Model elements (converted to textual data) • Data in an HTML format (converted to the style in the Excel file only) **Importing data from CSV to the modeling tool table** • Text • Booleans • Numbers • Excel data with the applied style (converted to HTML on the modeling tool)

		Data Mapping • During data import, elements in the model are searched by the following criteria: a. **stereotype tag value**. It must be of a *String* type and have the *IsID* property values set to *true*. b. **name**.
		Customization Possibility to:

			• specify the Excel /CSV file location: file system or model. • specify mapping options, including the sheet number (Excel files) to import data from, the first cell to start the data import from, and the delimiter type (CSV file). • display /hide row headings. • specify how the modeling tool table is updated when elements are deleted from the source file, i.e., Excel /CSV. • customize data mapping between Table columns and Excel /CSV file columns.

			Limitations • Syncs only one data unit (table) from a single sheet at a time. • Non-editable cells (data import only). • Impossible to import/export relationships between elements. • ID prefixes can only be imported/exported as plain text. • Images are unsupported.
Excel Import Plugin	**Excel Import Plugin** is a useful tool for importing data from any Excel (*.xls* and *.xlsx*) or CSV (*.csv* and *.txt*) format files to the modeling tool and exporting data from the modeling tool project into an Excel or a *CSV* file. Before you can use it, you need to install it via the **Resource/Plugin Manager**.	Excel Import Plugin enables you to: • import table headings from an Excel/CSV file into the modeling tool as schema classes. • import data in each row from the file as instance specifications of the schema classes. • import composite headers as multiple schema classes. • create a mapping diagram. • import individual entries via API during the dynamic simulation of runtime objects. • reuse mapping on multiple files of the same structure.	**Import/Export destination** • Rows • Columns **Importing data from the Excel file** • Text • Booleans • Numbers • Elements in a textual format (e.g., SysML requirements) • Composite headers • Supports data import from multiple sheets.

			Importing data from the CSV file • Textual data • Numbers • One heading per file. • Every heading must be located in the first row. • Every column must have a unique column name. • Every row must have the same number and names of columns.
			Customization • Once data is imported, a mapping diagram can be created by selecting imported properties and mapping them with properties of a UML element, a SysML element, or a user model.

			Limitations • Spreadsheets with graphs, histograms, charts, and graphics • Multiple row headings in one column • Mapping one source to multiple targets at a time • Exporting Excel composite schema to a CSV file • Blank or empty rows/columns cannot be imported as elements • Importing or exporting elements from a mapping class is impossible when either the connector or the diagram itself is deleted using **Delete Symbol(s)** or **Delete Diagram** commands.
Data Hub			**Exporting data to the CSV file**

	Data Hub provides a complete solution for requirement management. It can be used to copy, link to one another, and synchronize requirements with system design models, e. g., Use Cases, artifacts, and test cases. Before you can use it, you need to install it via the **Resource/Plugin Manager**.	• Elements can be transferred to and from CSV file repositories. • Supports almost all types of MagicDraw model elements. • Supports external requirement management tools, including IBM® Rational® DOORS®, IBM® Rational® DOORS® Next Generation, and HP Application Lifecycle Management. • Provides unidirectional and bidirectional synchronization capabilities between target and source nodes. • Allows creating and maintaining DHLink and DHTrace links between requirements and SysML use cases and test cases.	• Text • Numbers • Booleans • Model elements (they are converted to textual data) **Importing data to the modeling tool table** • Text • Numbers • Booleans • Delimiters (indicates separate table columns) • Elements in textual data (e.g., SysML requirements) • Each column in the CSV file represents a column in the modeling tool table. **Data Mapping** • Two modes are used:

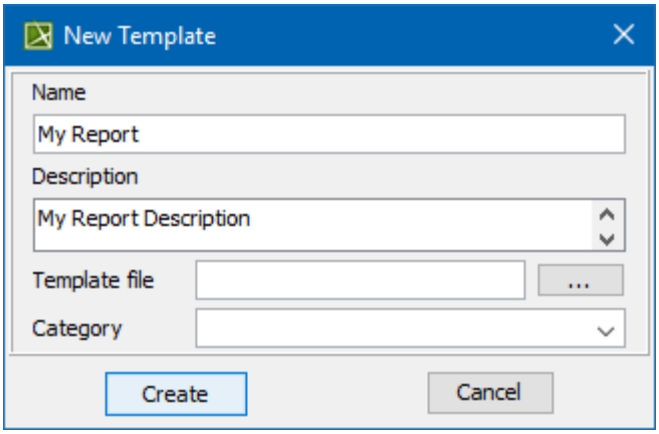
a. Group type mapping mode (imported nodes are arranged into groups and can be mapped to the selected model element all at once).

			b. Individual type mapping mode (imported nodes are arranged into a tree-view structure and can be mapped to different model element types). **Customization**

			• Attribute mapping is customizable via the Schema Map Manager. **Limitations** • The Excel file is not supported by the plugin. • CSV file with columns is needed before DataHub can be used to export model to the CSV file. • DataHub does not support the direct data import into the table, i.e. the CSV file is imported as model elements.
CSV Import Plugin	**CSV Import Plugin** allows importing comma separated values files (CSV) into the modeling tool as diagrams, (e.g., Class diagram and State Machine diagram) or elements, (e.g., Requirements). Before you can use it, you need to install it via the **Resource/Plugin Manager**.	• CSV Import settings can be customized via the **CSV: Setup dialog**. • Allows creating and managing map groups. • Allows creating model elements, diagrams, and relationships from the imported data. • Prevents duplication of elements if the *Key* attribute is specified. • Does not validate the syntax or semantics of the imported objects.	**Importing data to the modeling tool table**

			• Elements in textual data (e.g., SysML requirements) • Numbers • Relationships • Since the plugin does not check the syntax or semantics of imported objects, data should be imported in the following order: **a.** Diagrams **b.** Model elements **c.** Relationships **Customization** Possibility to:

			• select the specific package to store imported objects in. • save the mapping from the most recent import. • map properties with the columns in the imported CSV file • combine multiple saved maps as a group. The Map Group can then be used to run multiple saved maps all at once. **Limitations** • No validation of syntax or semantics of imported data. • Imports only one element type at a time.
	Report Wizard is a report engine that supports text-based templates to generate report documents from the models.		**Exporting data to the Excel file**

Report Wizard		• Reports can be generated from a predefined template. • The format of the generated report file depends on the selected template. • Custom templates can be created (some Velocity scripting language knowledge is required).  • The template style can be easily formatted. For instance, you can add page numbers, headers and footers, and a table of contents. • A template can be "attached" to the project to share it with other users who open the same project. • You can set up an automatic report generating and uploading to a predefined remote server using the Command line (CMD).	• Rows • Columns • Headings • Text • Model elements (converted to textual data) • The applied style, e.g., colors. • Images • Data is exported using text-based templates. **Customization** Possibility to: • create a new or modify existing template variables, e.g., title, author, and purpose. • create a new customized template. • specify the report file output location. • specify how empty values will be displayed.
Export button (based on the Report Wizard framework)			

			• specify the desired scope for generating a report, for example, export several tables at the same time. • Five keyboard shortcuts that allow generating reports with the last used options from the most recent template are assigned automatically. • Reports can be automatically generated using the Command line. **Limitations** • Generates only one report at a time. • No default template for the data export to the CSV file.
The **Export** button allows exporting tables from the modeling tool to a *.csv* or *.xlsx* file with a single click.	• Enables to export data from the modeling tool without creating a reference, i.e., without linking the table and the exported file. 		**Exporting data to the Excel**

			• Data from the modeling tool table is exported using the style specified in the template file. • Rows • Columns • Headings • Text • Model elements (converted to textual data) • The applied style, e.g., colors • Images **Customization** • Possibility to specify the specific diagram to export and the location of the exported file. **Exporting data to the CSV file** • Text • Numbers • Booleans • Model elements (they are converted to textual data) **Limitations** • Exports only one diagram at a time.
