

CREATING/EXPORTING/IMPORTING SCDOT BrR LR TEMPLATES – BrR 7.0

March 2021

This document explains the process for defining, exporting, or importing and using the agency (SCDOT) truck definitions and load rating templates from/into the BrR 7.0 library.

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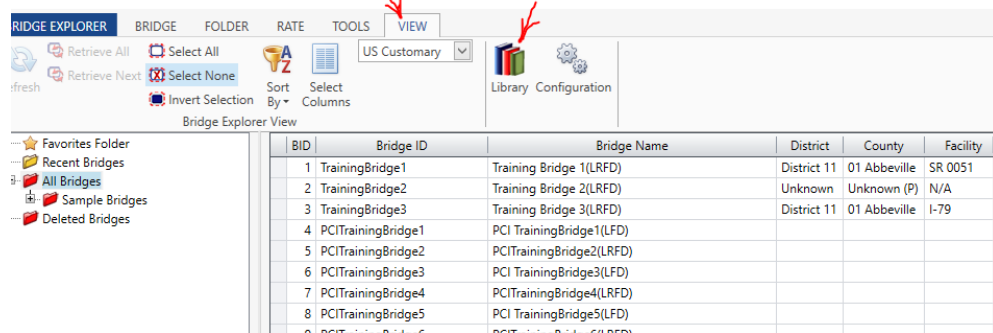
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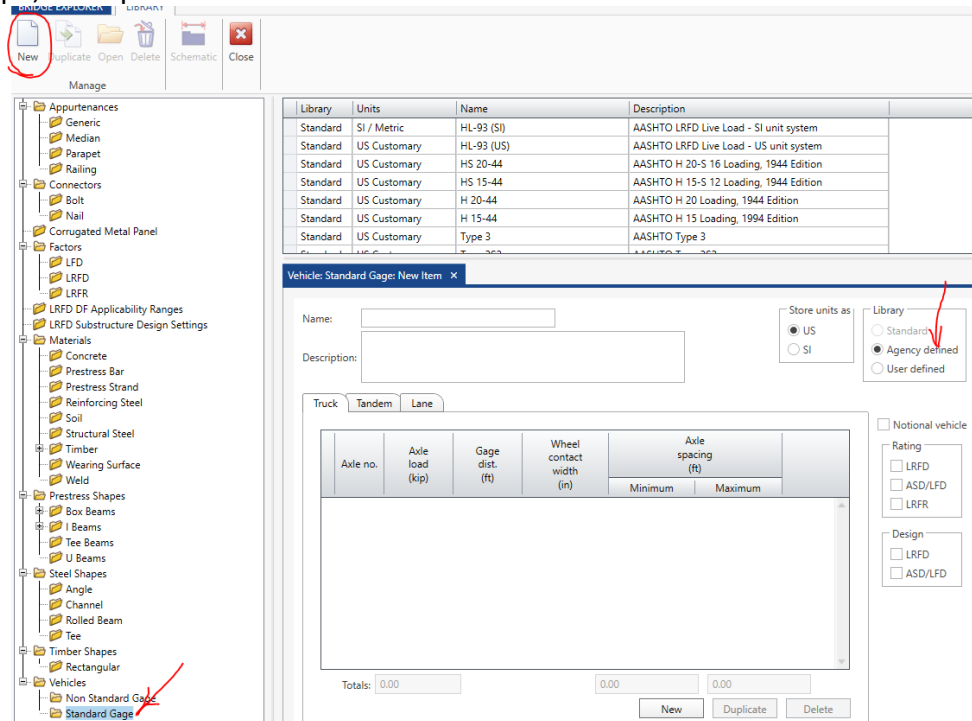
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Define a Vehicle

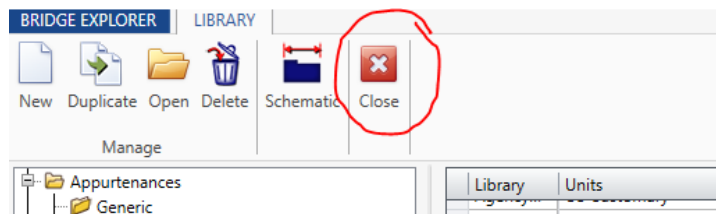
1. Open BrR workspace and choose the “View” tab then click “Library”



2. Select “Vehicles” – “Standard Gage”, then click “New” and define the vehicle details and type, as required



3. After completing the vehicle definition, click “Save” to add it to the BrR Library. Click “Close” to exit the Library Explorer.



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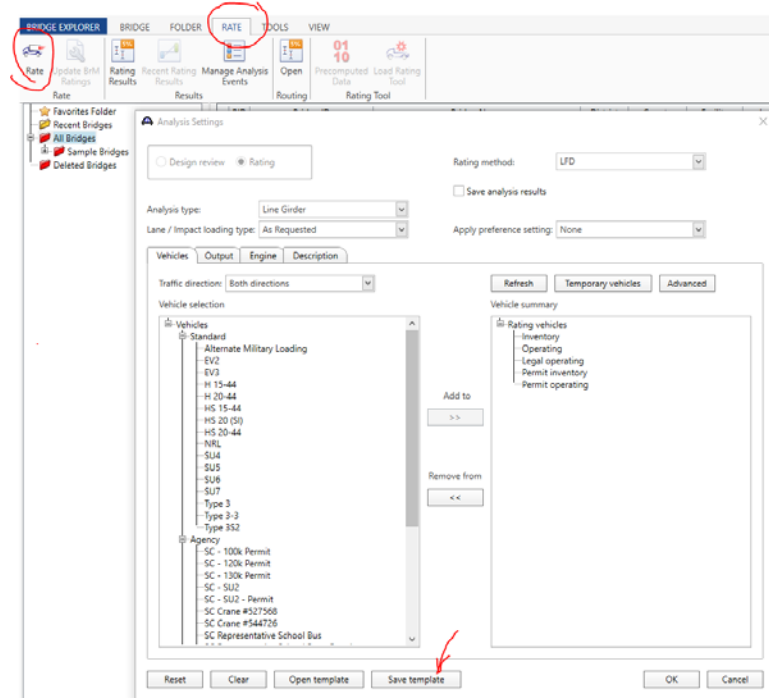
Define a LR Template

To capture the full suite of load rating cases for SCDOT, there are a total of 10 load rating templates split into 2 analysis types: Line Girder and 3D FEM. Each analysis type contains 5 templates: 1 for performing LFR/ASR ratings and 4 for performing LRFR ratings (depending on the span configuration):

- SCDOT LFR Rating
- SCDOT LFR Rating FEM
- SCDOT LRFR Multi Span < 200 ft
- SCDOT LRFR Multi Span > 200 ft
- SCDOT LRFR Multi Span < 200 ft FEM
- SCDOT LRFR Multi Span > 200 ft FEM
- SCDOT LRFR Simple Span < 200 ft
- SCDOT LRFR Simple Span > 200 ft
- SCDOT LRFR Simple Span < 200 ft FEM
- SCDOT LRFR Simple Span > 200 ft FEM

To define the LR templates:

1. From the BrR workspace, navigate to the **“Rate”** tab and click the **“Rate”** button. Define the template by selecting the appropriate **“Rating method”**, selecting the appropriate **“Analysis type”**, and adding the appropriate vehicles to the **“Vehicle summary”** window. Be sure to also update the advanced analysis settings by clicking the **“Advanced”** button. Once the template parameters are complete, click the **“Save template”** button to save the template to the BrR library.

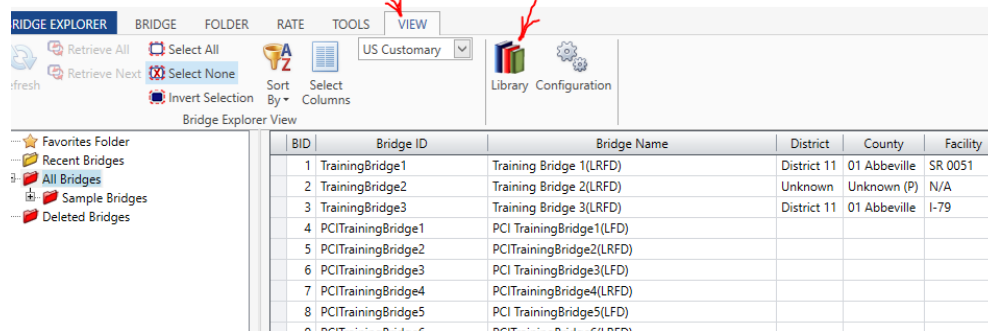


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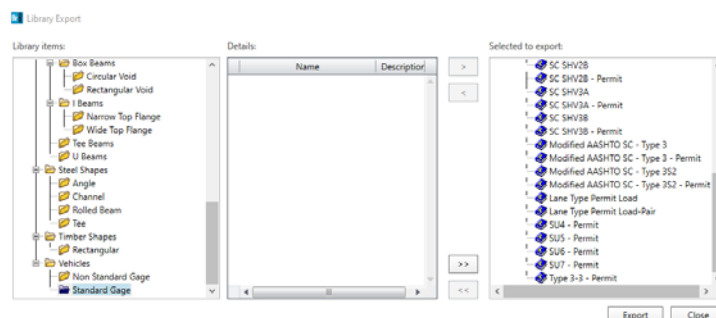
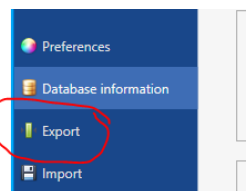
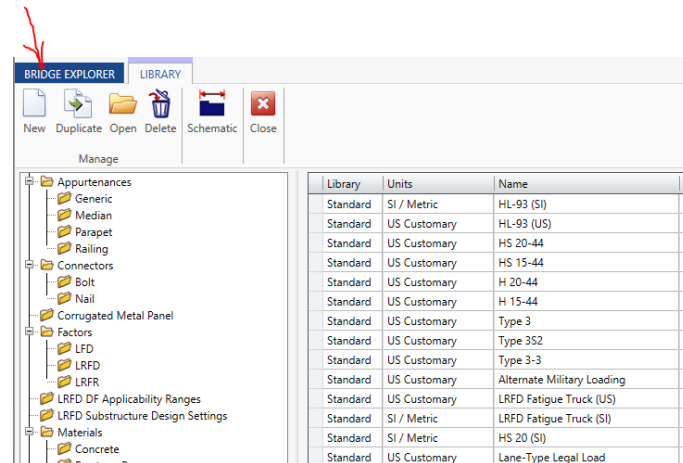
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Export a Truck Definition

1. Open BrR workspace and choose the “View” tab then click the “Library” button



2. Select “BRIDGE EXPLORER”, then click “Export”, and choose the vehicle(s) you wish to export. Click the single arrow to move that vehicle(s) to the “selected to export” window. Click the “Export” button and navigate to the desired location to save the .brlx truck library file.

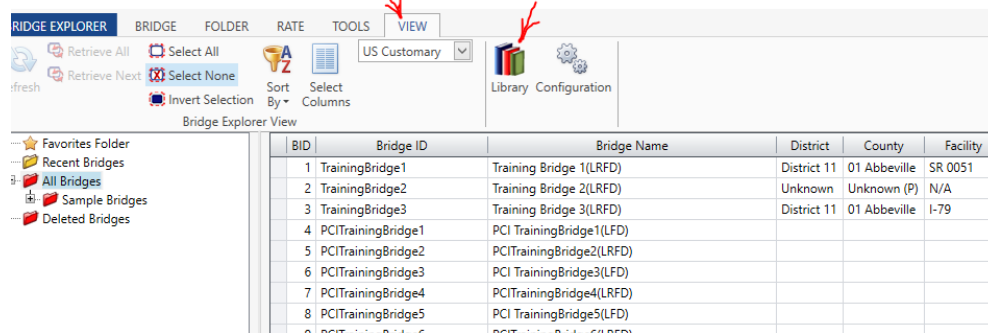


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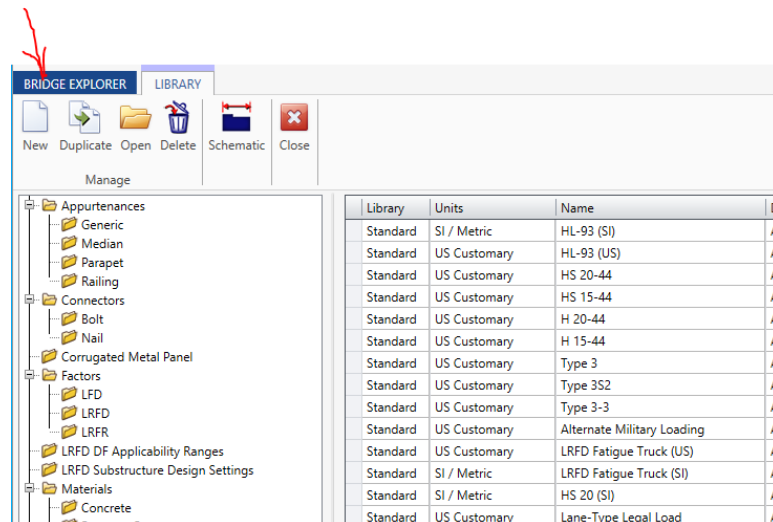
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Import SCDOT Truck Library

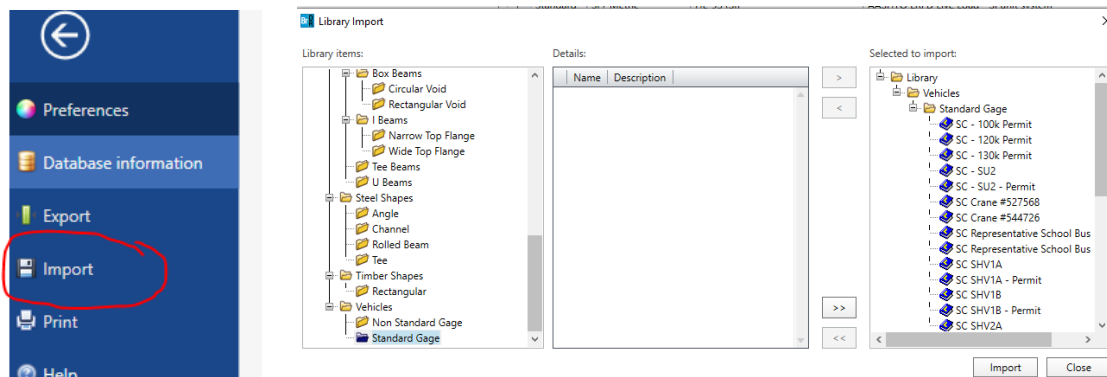
1. Open BrR workspace and choose the “View” tab then click the “Library” button



2. Select “BRIDGE EXPLORER”, then click “Import”.



3. Navigate to “Vehicles” – “Standard Gage” in the “Library Items” window and choose the desired vehicle definition(s) to import by Highlighting them in the “Details” window and then selecting the single arrow to move them to the “select to import” window. Click the “Import” button to save them to the BrR library.

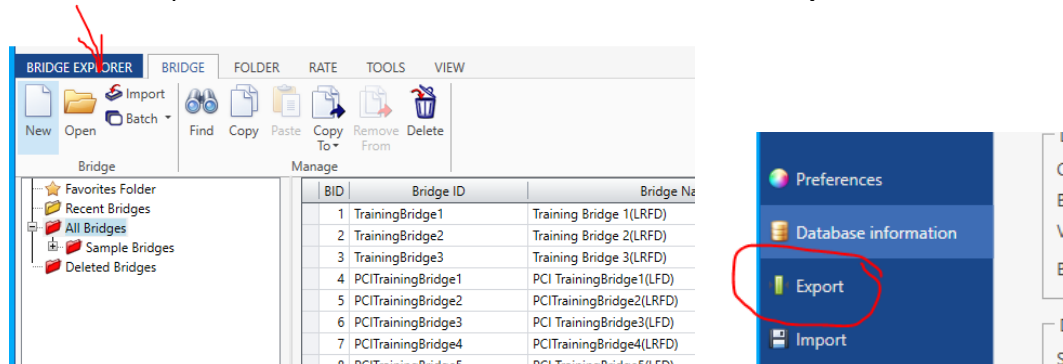


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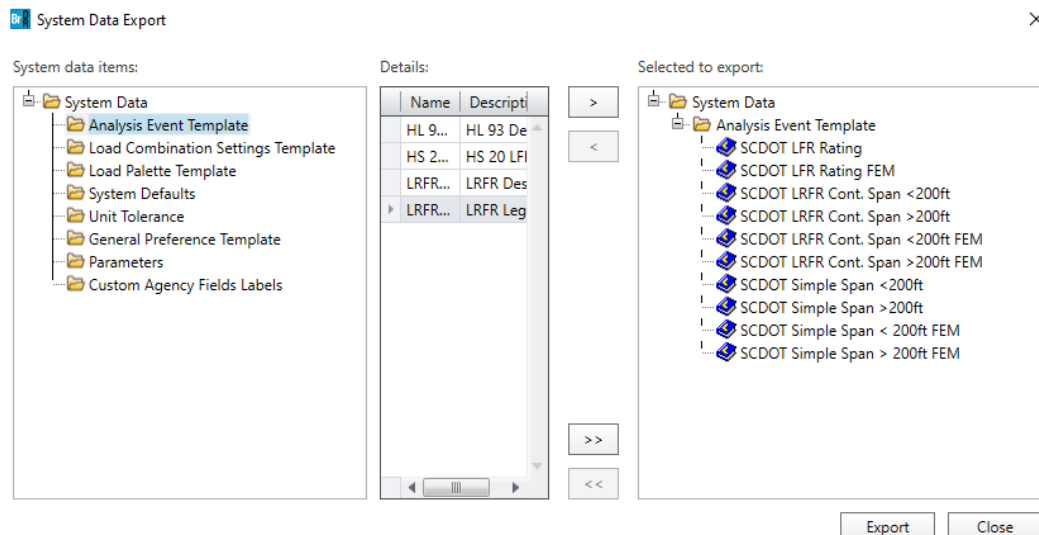
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Export a LR Template

1. Open BrR workspace, choose “**BRIDGE EXPLORER**”, then click “**Export**”



2. In the “System data items” window, click “Analysis Event Template” and choose the desired LR template(s) to export by selecting them from the “Details” window and clicking on the arrow to move them to the “Selected to export” window. When all LR template(s) have been added, click the “**Export**” button, and navigate to the desired location to save the .brsx system data file.

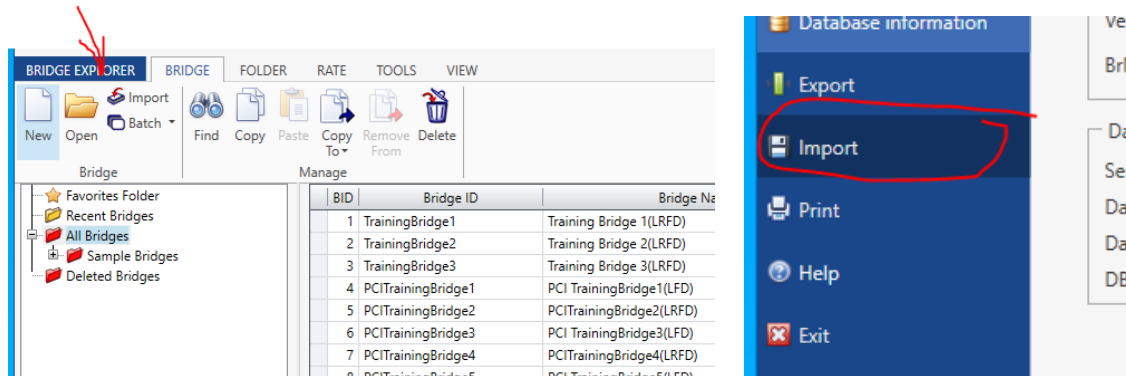


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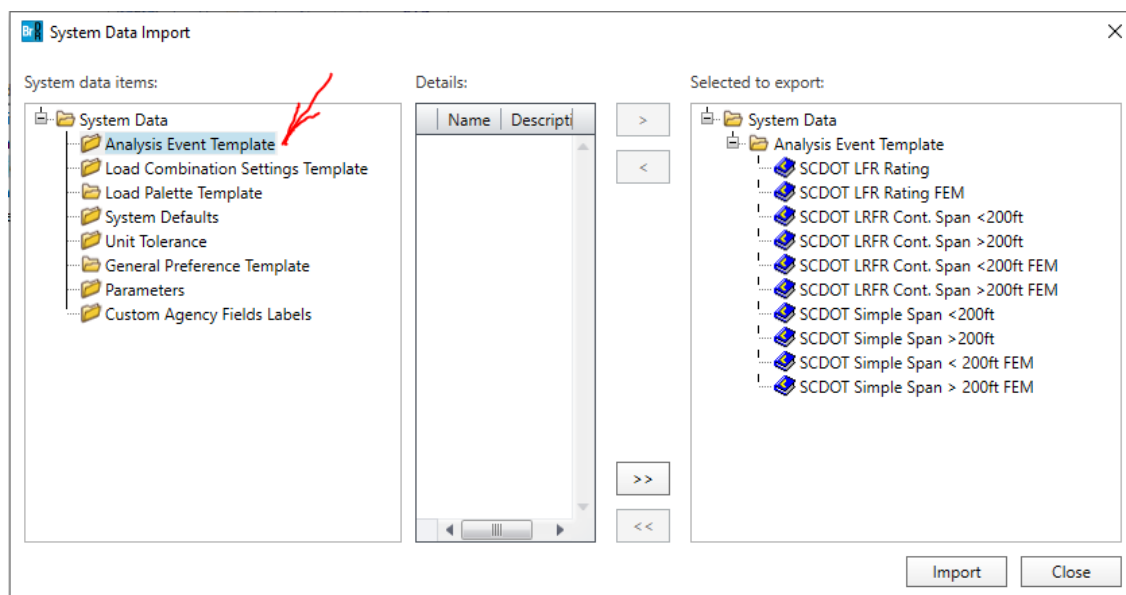
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Import SCDOT LR Templates

1. Open BrR workspace, choose “**BRIDGE EXPLORER**”, select the Template file from your computer that you wish to import, then click “**Import**”



2. In the “System data items” window, click “Analysis Event Template” and choose the desired LR template(s) to import by moving them from the “Details” window to the “Selected to export” window. Import all SCDOT LR templates using the “>>” button. Then click the “**Import**” button to save them to the BrR library.

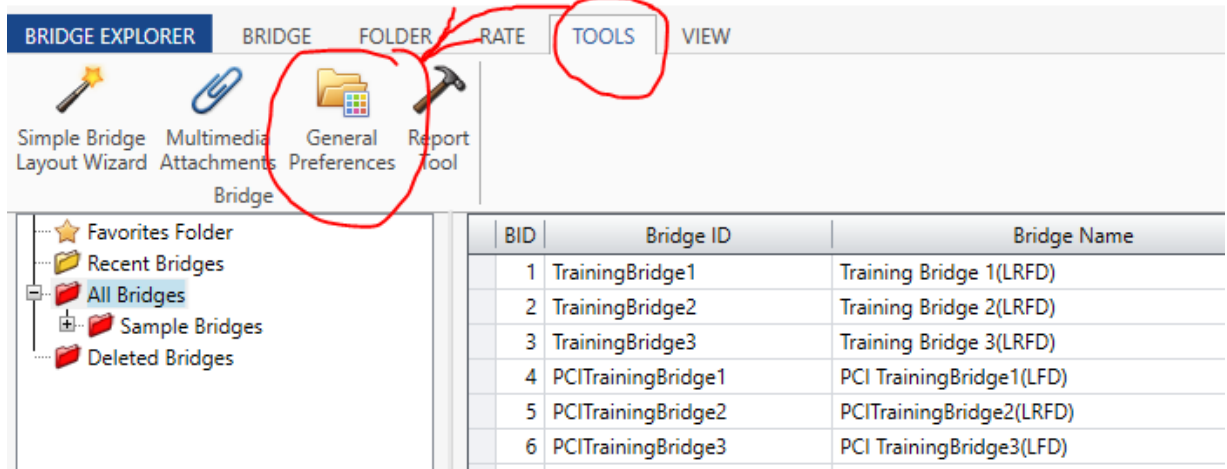


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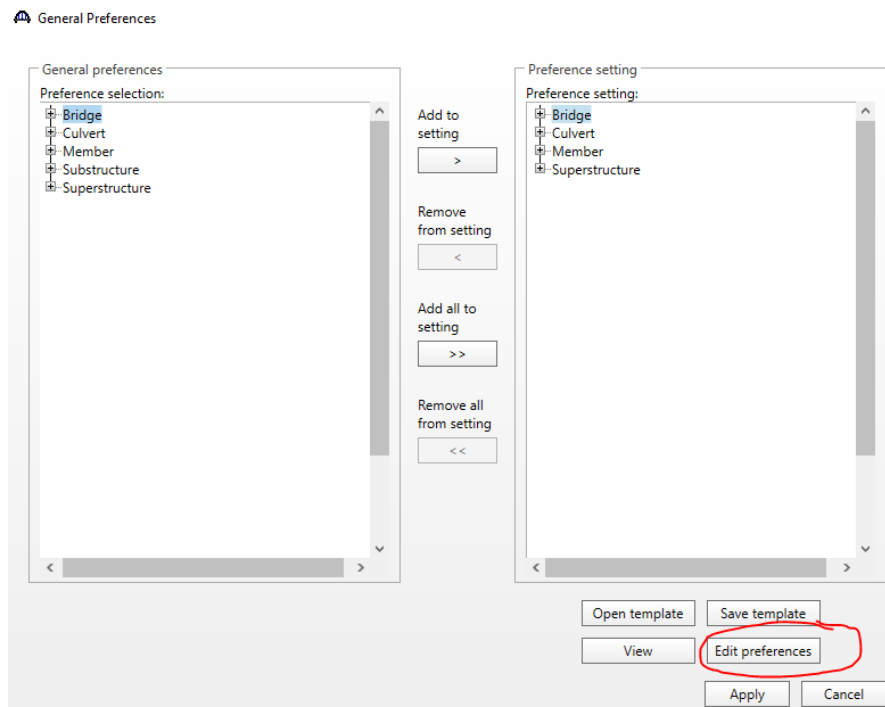
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Define and Export a General Preferences Template

1. Open BrR workspace, go to the “**Tools**” tab, then click the “**General Preferences**” button



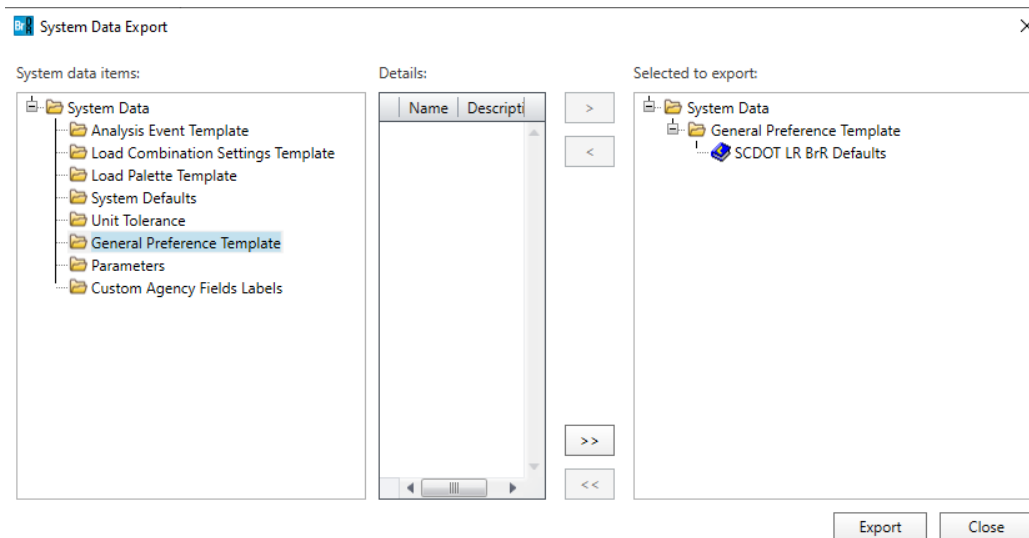
2. Select the desired preferences by moving them from the “General preferences” window to the “Preference setting” window. Modify the preference settings, as needed, using the “**Edit preferences**” button. Once all settings have been modified, click the “**Save template**” button to save it to the BrR library.



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3. To export the saved template, go to “**BRIDGE EXPLORER**”, then click “**Export**”. In the “System data items” window, click “General Preference Template”. Move the desired template(s) from the “Details” window to the “Selected to export” window and click the “**Export**” button. Navigate to the desired location to save the *.brsx* general preference file.

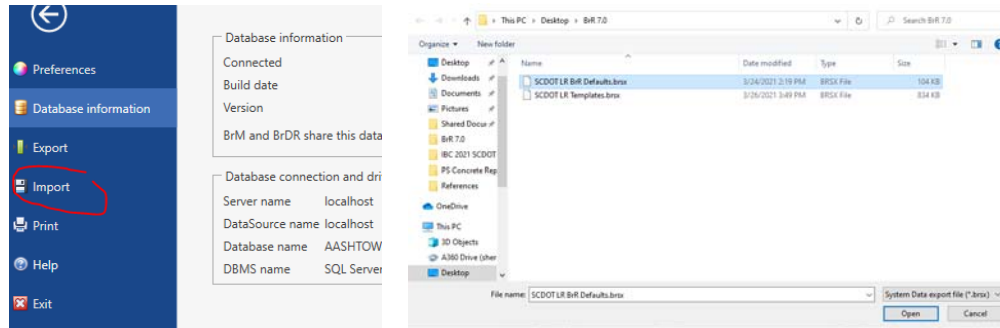


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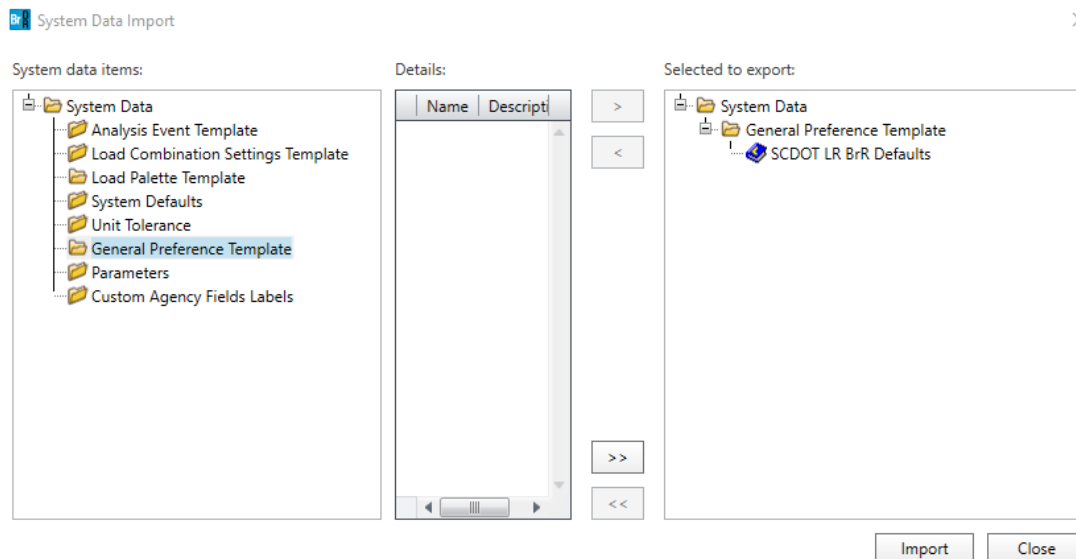
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Import SCDOT LR General Preferences Template

1. Open BrR workspace, go to “**Bridge Explorer**” then click “**Import**”. Select the general preferences file on your computer to import



2. In the “System data items” window, click “General Preference Template”. Move the desired template(s) from the “Details” window to the “Selected to export” window and click the “**Import**” button add to the BrR library.



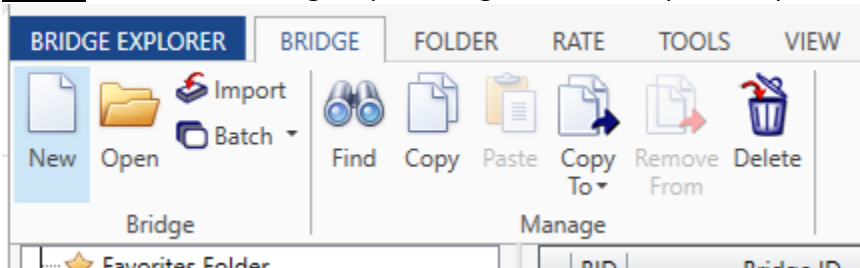
3. To apply the SCDOT General Preferences to a bridge file, click to select the bridge in the bridge explorer, click the “**Tools**” tab, then click “**General Preferences**”. From the “General Preferences” window, click the “**Open template**” button and select the “SCDOT LR BrR System Defaults” template to open these settings. Click the “**Apply**” button to apply these settings to the selected bridge.

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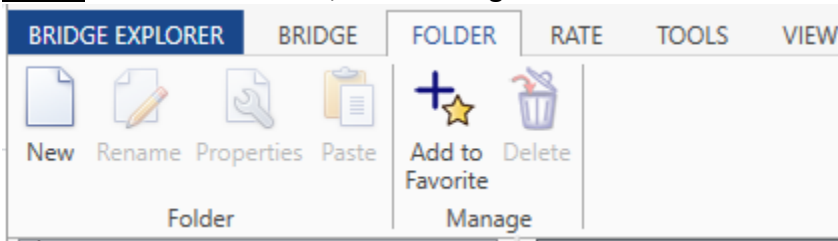
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BrR 7.0 BRIDGE EXPLORER tabs

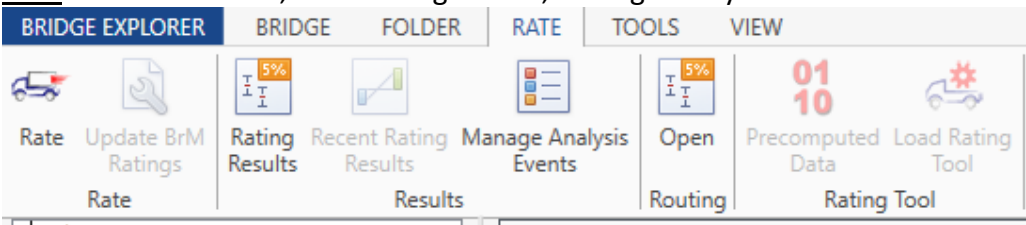
- Bridge: create new bridge, open bridge from workspace, import bridge, copy or delete.



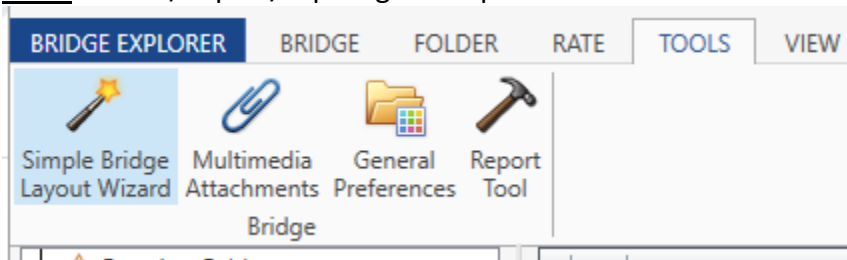
- Folder: create new folder, edit existing folders.



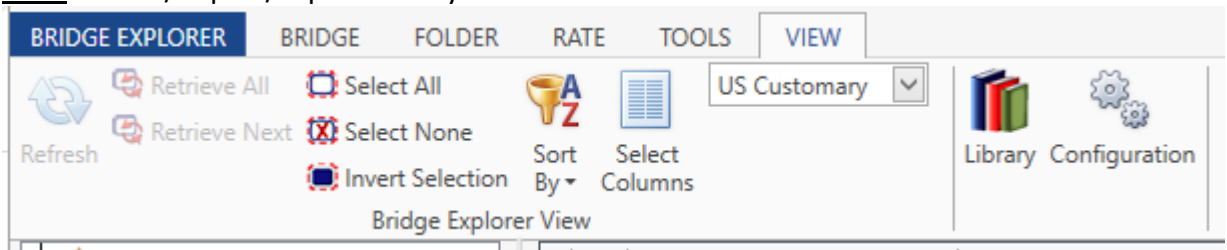
- Rate: rate a structure, show rating results, manage analysis events.



- Tools: define/import/export general preferences.



- View: define/import/export Library items.



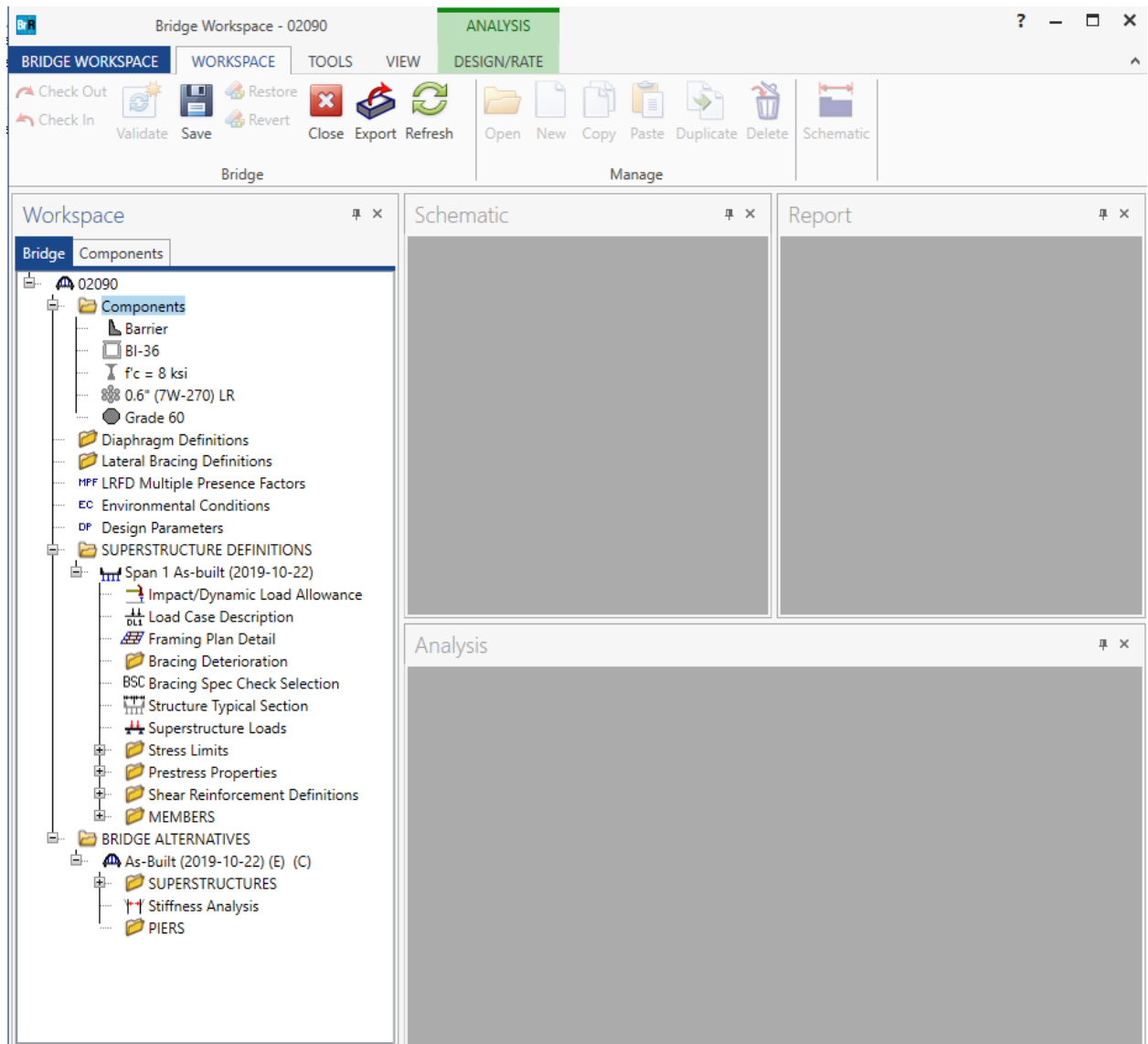
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BrR 7.0 BRIDGE WORKSPACE tabs

The “Bridge Workspace” interface is opened after creating a new bridge, opening an existing bridge from the “Bridge Explorer” interface or importing a bridge to BrR.

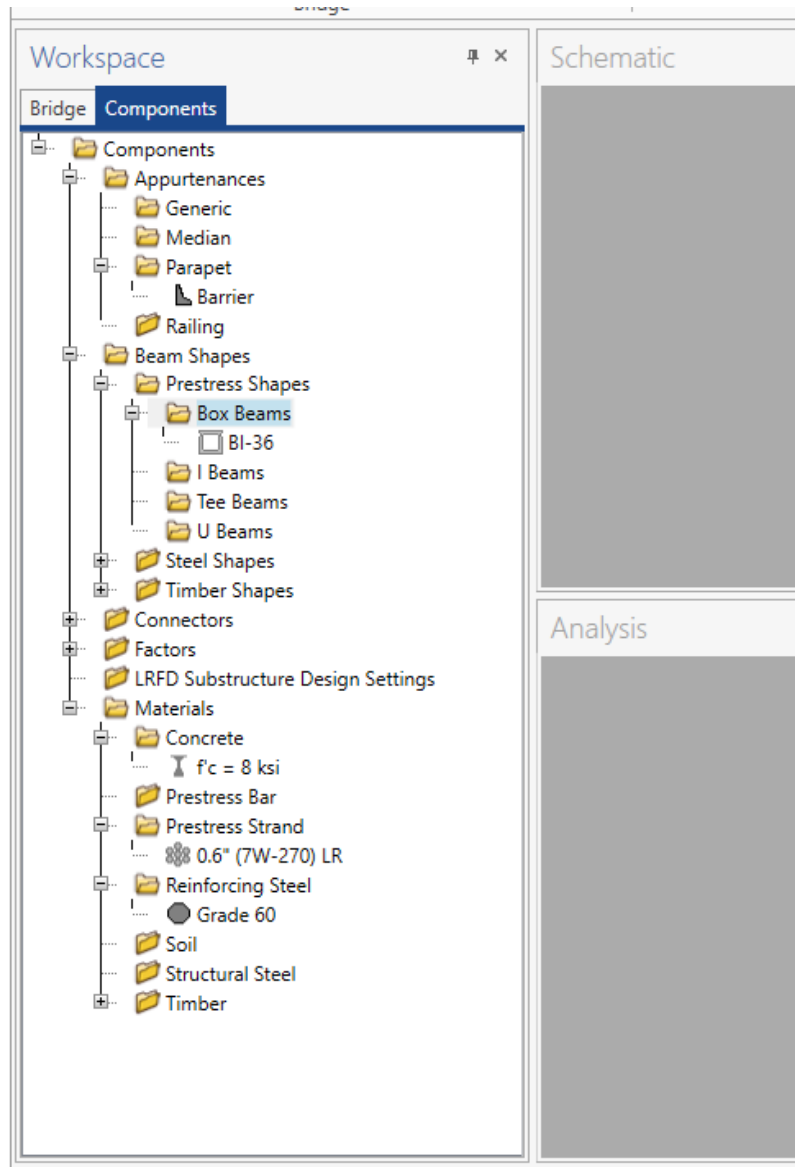
- Bridge: displays main components, edit and create superstructure definitions, edit and create bridge alternatives.



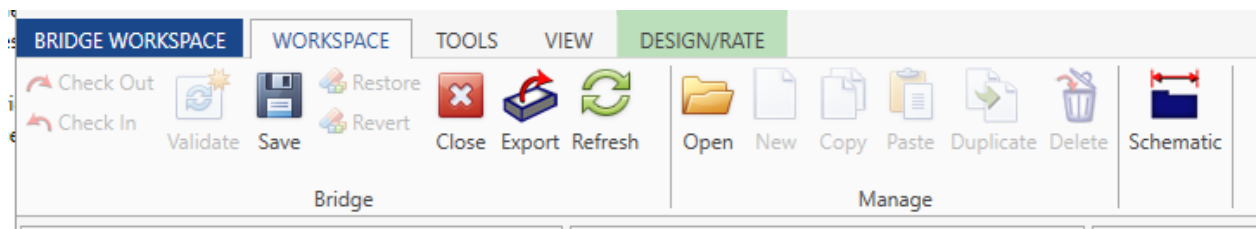
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- Components: edit and create parapets, beam shapes, materials... etc., which are to be used in the Bridge workspace.



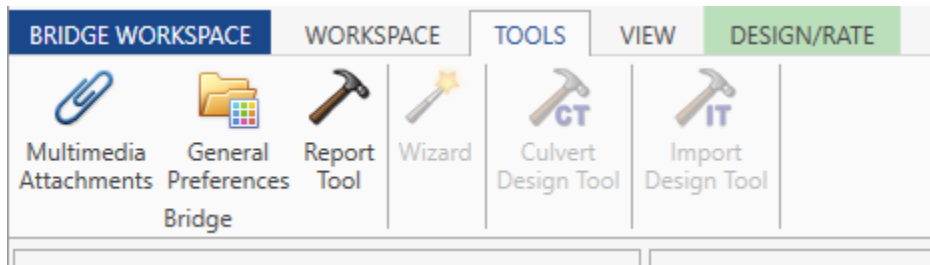
- Workspace: save bridge changes, export, edit bridge elements, show schematic.



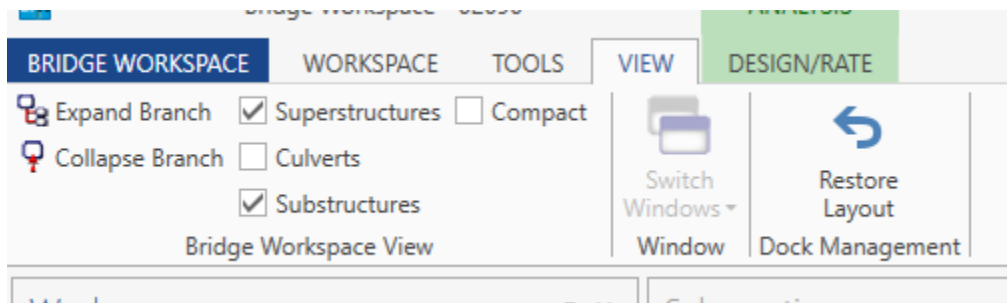
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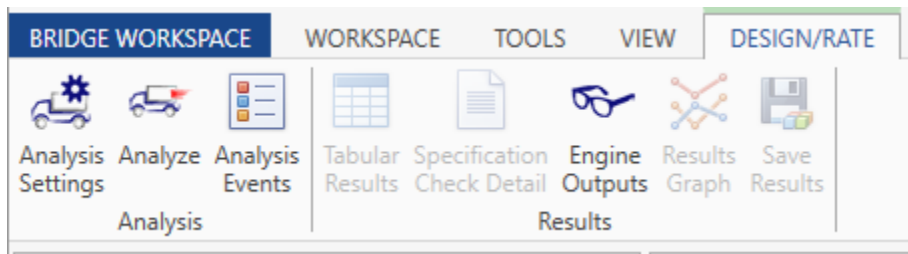
- Tools: apply general preferences.



- View: add/remove bridge superstructure or substructure, culvert, expand or collapse branch.



- Design/rate: define analysis settings, run analysis, display analysis results, plot results.



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Rating a Bridge from the Bridge Explorer

1. Select the bridge you wish to rate in the “**BRIDGE EXPLORER**” workspace. Navigate to the “**Rate**” tab, then click the “**Rate**” button

The screenshot shows the BRIDGE EXPLORER application window. The top menu bar includes 'BRIDGE EXPLORER', 'BRIDGE', 'FOLDER', 'RATE', 'TOOLS', and 'VIEW'. The 'RATE' tab is active. The toolbar contains several icons, with the 'Rate' icon (a truck) circled in red. A red arrow points to the 'RATE' tab. The left sidebar shows a tree view with 'All Bridges' selected. The main table lists various bridges, with the last row (ID 31, '02090') circled in red.

BID	Bridge ID	Bridge Name	Di
1	TrainingBridge1	Training Bridge 1(LRFD)	Dist
2	TrainingBridge2	Training Bridge 2(LRFD)	Unk
3	TrainingBridge3	Training Bridge 3(LRFD)	Dist
4	PCITrainingBridge1	PCI TrainingBridge1(LRFD)	
5	PCITrainingBridge2	PCI TrainingBridge2(LRFD)	
6	PCITrainingBridge3	PCI TrainingBridge3(LRFD)	
7	PCITrainingBridge4	PCI TrainingBridge4(LRFD)	
8	PCITrainingBridge5	PCI TrainingBridge5(LRFD)	
9	PCITrainingBridge6	PCI TrainingBridge6(LRFD)	
10	Example7	Example 7 PS (LFD)	
11	RCTrainingBridge1	RC Training Bridge1(LRFD)	
12	TimberTrainingBridge1	Timber Tr. Bridge1 (ASD)	
13	FSys GFS TrainingBridge1	FloorSystem GFS Training Bridge 1	Dist
14	FSys FS TrainingBridge2	FloorSystem FS Training Bridge 2	Dist
15	FSys GF TrainingBridge3	FloorSystem GF Training Bridge 3	Dist
16	FLine GFS TrainingBridge1	FloorLine GFS Training Bridge 1	Dist
17	FLine FS TrainingBridge2	FloorLine FS Training Bridge 2	Dist
18	FLine GF TrainingBridge3	FloorLine GF Training Bridge 3	Dist
19	TrussTrainingExample	Truss Training Example	
20	LRFD Substructure Example 1	LRFD Substructure Example 1	
21	LRFD Substructure Example 2	LRFD Substructure Example 2	
22	LRFD Substructure Example 3	LRFD Substructure Example 3	
23	LRFD Substructure Example 4	LRFD Substructure Example 4 (NHI Hammer Head)	
24	Visual Reference 1	Visual Reference 1	Dist
25	Culvert Example 1	Culvert Example 1	
26	LFD Curved Guide Spec	LFD Curved Guide Spec Example	
27	MultiCell Box Examples	Multi Cell Box Examples	
28	Gusset Plate Example	Gusset Plate Example	Dist
29	Splice Example	Splice Example	
30	Simple DL Splice	Simple DL Splice	Unk
31	02090	02090	Dist

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- From the Analysis Settings window, click the **“Open template”** button if you wish to load a saved template, or create a rating scenario by adding vehicles from the “Vehicle selection” box to the “Vehicle summary” and click **“OK”**

- Check the rating progress in the “Analysis Progress” window and check the results in the “Bridge Rating Results” window.

Bridge Rating Results

System of units: ☒ US customary ☐ SI / metric

Lane/impact loading type: ☒ As requested ☐ Detailed

Display format:

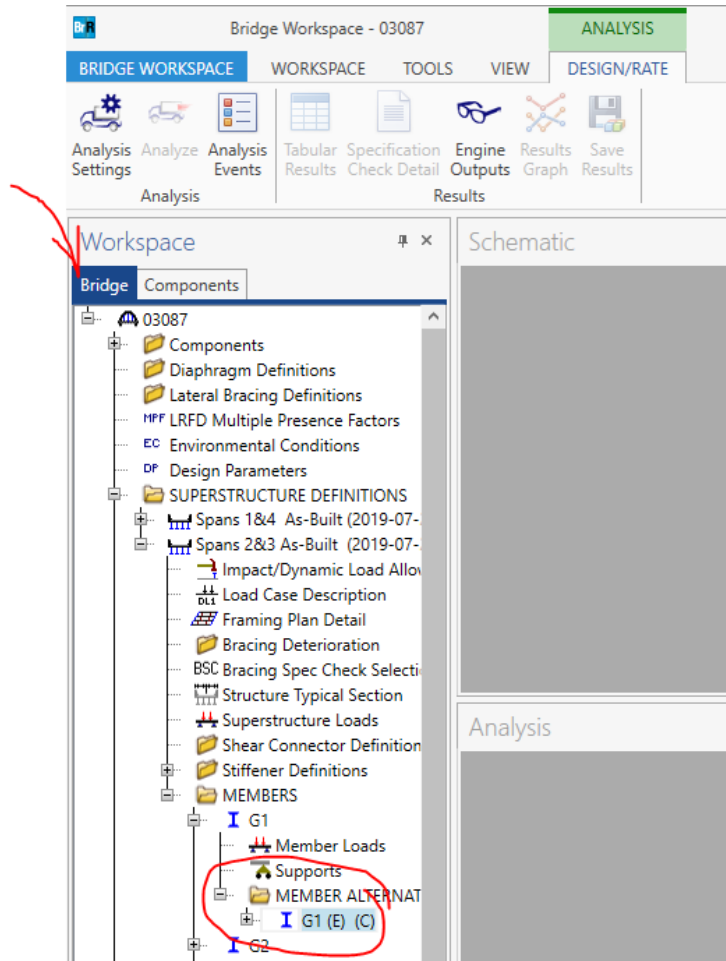
Bridge ID	Vehicle	Rating level	Rating factor	Rating method	Capacity (Ton)	Time stamp	Rated by	Impact	Lane	Up
03087	EV2	Legal	1.723	LRFR	49.528	Thursday...	Brr	As R...	As...	
03087	EV3	Legal	1.116	LRFR	47.967	Thursday...	Brr	As R...	As...	
03087	HL-9...	Inventory	1.154	LRFR	41.554	Thursday...	Brr	As R...	As...	
03087	HL-9...	Operating	1.496	LRFR	53.866	Thursday...	Brr	As R...	As...	
03087	Modi...	Legal	1.940	LRFR	48.498	Thursday...	Brr	As R...	As...	
03087	Modi...	Permit	2.522	LRFR	63.048	Thursday...	Brr	As R...	As...	
03087	Modi...	Legal	1.950	LRFR	71.355	Thursday...	Brr	As R...	As...	
03087	Modi...	Permit	2.498	LRFR	91.419	Thursday...	Brr	As R...	As...	
03087	SC -...	Permit	1.896	LRFR	94.790	Thursday...	Brr	As R...	As...	

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Rating a Member from the Bridge Workspace

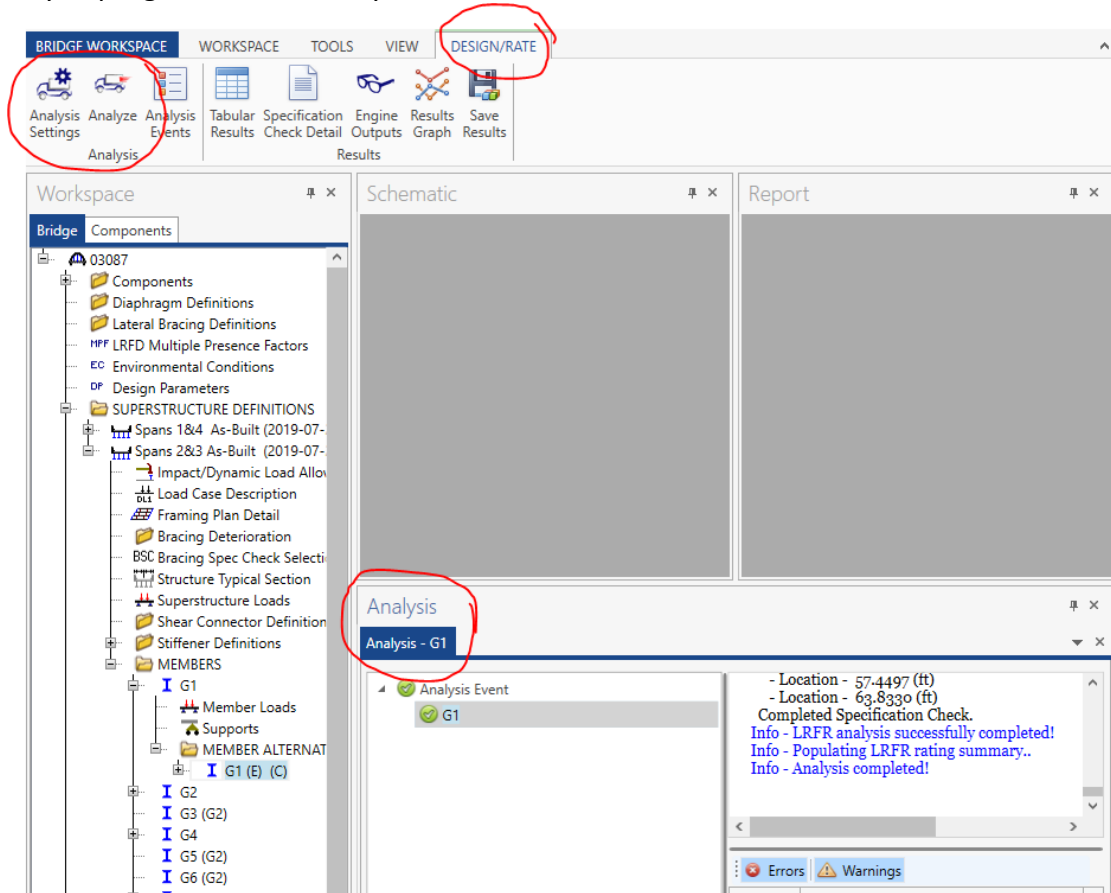
1. In the Bridge Workspace, navigate to the “**Workspace**” box, then to the “**Bridge**” tab and choose the member alternative you wish to rate.



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- Go to the **“Design/Rate”** tab and click the **“Analysis Settings”** button. Load or create the rating template and click OK. Click **“Analyze”** to rate the member. Check the member analysis progress in the **“Analysis”** window.



- Check the member rating results by clicking the **“Tabular Results”** button or clicking the **“Specification Check Detail”** for detailed rating calculations.

