CSiBridge® 2014 Version 16.1.0

Notice Date: 2014-01-03

CSiBridge 2014 v16.1.0 is a minor update from CSiBridge 2014 v16.0.0 through v16.0.2, and is distributed electronically by download from the internet using the CSI Installation Wizard.

PLEASE READ THIS FILE!

It contains important information that may be more current than what is in the Manuals.

Contents

1. Installation Instructions for CSiBridge 2014

CSiBridge 2014 Version 16.1.0 is available electronically as a full installation by download from the internet using the CSI Installation Wizard, or on DVD by request. Installing CSiBridge 2014 will not uninstall CSiBridge versions 15.2.0 and older.

Whether you are using a standalone license or a network license, the full application must be installed on each workstation where CSiBridge 2014 will be used.

Use the Installation Wizard to guide you step-by-step through the process of installation and licensing. If you choose instead to use the DVD, follow the instructions provided in the installation browser that automatically starts up when the DVD is inserted into the drive on your computer.

Before installation, be sure you have your Activation Key available if you will be using a Standalone license. You should have received this by email from CSI or your dealer. If you will be using a Network license, it is necessary to have the licenses already activated on a license server that is accessible to the workstation.

To begin the CSI Installation Wizard, click this link:

http://www.csiamerica.com/go/installation-wizard

The Wizard will start and guide you through the process. The actual files needed for installation will be downloaded as necessary. An active internet connection is required throughout the installation and licensing process.

The license activation server ports are 8080 and 8443. If either of these ports is blocked, they need to be opened. Otherwise license activation will not be possible.

Windows User Account Control (UAC)

For recent versions of the Windows operating system (Windows 7, 8, Vista, and XP SP3), User Account Control (UAC) is enabled by default. When UAC is turned on, you must explicitly give permission to any program that wants to use "Administrative" privileges. Any program that tries to use Administrative privileges without your permission will be denied access.

The installation of the CSiBridge and the activation of the license require "Administrative" privileges to run. When installing CSiBridge with UAC enabled, you should expect to be prompted to allow the installer access to system folders and Windows registry. Please allow it to continue so that the installation can complete.

2. Installation Instructions for License Manager 8.5

The information in this section does not apply if you are using Standalone licenses.

Important: If you are using a network license and you have already installed the Sentinel RMS License Manager 8.5 Utilities described below, please re-install them now as these Utilities have been updated.

If you will be using a network license to run CSiBridge 2014, the License Manager and Utilities should be installed on a license server, which is usually not one of the client workstations. The Installation Wizard (and DVD) provide the following two installations:

Sentinel RMS License Manager 8.5

- If you have an earlier version of Sentinel RMS License v8.x.x running, uninstall it after making sure no licenses are currently in use and no commuter licenses are checked out. Make a backup of the license file “lservrc”, and then proceed with the installation of License Manager 8.5.

- If you are already running the Sentinel RMS License Manager 8.5 or a later version, you can skip this installation.

- If you have an earlier version of Sentinel RMS License v7.x.x running, you will need to leave this installed as v8.5 does not recognize v7.x.x licenses. Install the Sentinel RMS License Manager 8.5 on a different server.

Sentinel RMS License Manager 8.5 Utilities

- The Sentinel Utilities for License Manager 8.5 needs to be installed even if you are running a later version of the License manager. The Utilities are to be installed on the same license server as License Manager. During the installation you will be prompted for a Network Activation Key. You should have received this by email from CSI or your dealer. Enter the key and click on Activate; a Network license will then be generated and copied to the server location or appended to an existing license at the server location. Note that the License Manager 8.5 needs to be running to activate the license.

On the client workstations

To speed up finding a network license when CSiBridge is launched, you can do either or both of the following:

- Create a text file, LEVEL.TXT, and enter the *ProgramLevel* in a single line. The *ProgramLevel* should be one of the following:

  ADVANCEDRATING / ADVANCED / PLUSRATING / PLUS /
  ADVANCEDRATINGC / ADVANCEDC / PLUSRATINGC / PLUSC /
  ADVANCEDI / PLUSI

  Save this file to the folder where CSiBridge 2014 is installed. This file will cause the program to find the license faster.

- Create a text file, LMHOST.INI, and enter the network name or IP address of the machine that is running the License Manager. If you are serving licenses on more than one machine, enter each name or IP address on a separate line of text. Save this file to the folder where CSiBridge 2014 is installed.

- Either the LEVEL.TXT file or the LMHOST.INI file can also be placed in the user settings folder, which can be found by entering "%LocalAppData%\Computers and Structures\CSiBridge 2014" (without quotes) in Windows Explorer. Accessing this folder does not require administrative permissions like the installation folder does. Files located in the user settings folder will take precedence over those in the installation folder.

As an alternative to using the LEVEL.TXT file, you can specify the program level as a command-line option. To do this, use the Windows Run command or create a shortcut pointing to CSiBridge.exe in the installation folder. Add the following text to the command line after "CSiBridge.exe"

/L *ProgramLevel*

where *ProgramLevel* is one of the values listed above for the LEVEL.TXT file. Specifying *ProgramLevel* on the command line will supersede the value in the LEVEL.TXT file.

3. New Features for CSiBridge 2014 Version 16.0.0

CSiBridge 2014 v16.0.0 is a major new release, and significant new features have been added or enhanced since Version 15.2.0.

For a full list of features and capabilities, please visit the CSiBridge 2014 news page at http://www.csiamerica.com/csibridge/news-2014

4. File Compatibility with Older Versions

CSiBridge 2014 Version 16.1.0 can open model files (*.BDB) from older versions of CSiBridge, as well as import older CSiBridge database files (*.B2K,*.$BR, *.XLS, and *.MDB). Note that once you save or run these models in Version 16.1.0, they will not be usable by older versions of the program, so you should save them under a new name after opening or importing them in v16.1.0.

It is generally advisable to update the linked bridge model for all bridge objects after opening a model file in a newer version. However, if you had modified the linked bridge model after last updating it, these changes may get overwritten, so do so with caution.

CSiBridge 2014 can import model files having the *.SDB file extension from SAP2000 v15 or older by using the *Orb > Import > SAP2000* command. Note that once you save or run these models in CSiBridge, the new files will not be usable by SAP2000 v15, so you should save them under a new name after importing them in CSiBridge. The name is changed automatically by CSiBridge, which will append "_V16" to the imported filename.

When importing a SAP2000 model v14 that contains bridge objects into CSiBridge, you will receive a message suggesting that you update the linked model for all bridge objects. This will make sure that the linked model is fully compatible with CSiBridge v16. However, you should be aware that any changes you may have made to the linked model in SAP2000 after last updating it may be overwritten by this process, and you may need to make these changes again in CSiBridge.

5. Significant Changes from Version 16.0.2

For a complete list of all changes, please see the separate file ReleaseNotes.PDF in the Manuals subfolder of the CSiBridge 2014 installation and available by using the *Orb* > *Resources* > *Documentation* command in CSiBridge 2014. Note that most incidents do not affect most users.

Modeling

Enhancements Implemented

Incident	Description
60160	The specification of the notional size used for time-dependent creep and shrinkage analysis has been enhanced to now be specified with the frame and shell section properties instead of with the material property. This now provides three options: (1) "Auto", in which the notional size will be calculated automatically based on the section dimensions, when applicable. (2) "User", in which the user specifies an explicit value to be used for the section. (3) "None", in which creep and shrinkage is ignored. Models from older versions that used the notional size in the material property will be updated so that each frame or shell section uses the previously specified value from the material as a "User" value in the section definition. Models from older versions that used material overwrites may produce different creep or shrinkage results if the notional size in the material overwrite assigned to a frame or shell object is different from that in the material used by the section assigned to that same object. Identical results can be obtained by manually adding new sections with the notional size value equal to that in the material overwrites, and assigning them to the affected objects.
60261	A new staged-construction operation “Change Section & Age” is now available allowing specification of the “Age at Add” when changing frame sections or shell sections. This age affects time-dependent analysis for creep, shrinkage, and stiffness. The existing operation “Change Section” uses the age of the member as it was before the section was changed. In either case, the member is removed and re-added in the same location without retaining any of the strain or load history, as before.

Bridge Design and Rating

Enhancements Implemented

Incident	Description
59193	Design checking has been implemented for steel superstructure sections according to the Indian Roads Congress code IRC:22-2008 (included under code "IRC-2011" in the software). Superstructure types supported include steel I-girders and hybrid I-girders with composite concrete deck. Separate design checks are provided for strength, serviceability, reinforcing, and constructability. The effect of mild reinforcing is included. Live-load distribution factors can be specified by the user or determined from detailed 3-D live-load analysis. Design results are displayed graphically for the entire section or on a girder-by-girder basis. Detailed tables showing all results and intermediate values are available for display, printing, and export to Excel or Access. Interactive modification of girder sizes and stiffener locations can be performed for rapid optimization of the design.
59592	Superstructure design has been implemented according to AASHTO LRFD Bridge Design Specifications, 6th Edition, 2013 Interim Revisions. This is provided as an option to the AASHTO LRFD 2012 code preferences as to whether or not to consider the 2013 Interim Revisions in the design.

Incident	Description
60022	Design checking has been extended to include composite bridge superstructures with steel U-girders according to the "Eurocode EN 1994-2" code (EN 1994-2:2005, Eurocode 4: Design of composite steel and concrete structures - Part 2: General rules and rules for bridges). Separate design checks are provided for strength, service stress, service rebar, and constructability. The effect of mild reinforcing is included. Live-load distribution factors can be specified by the user or determined automatically from detailed 3-D live-load analysis. Design results are displayed graphically for the entire section or on a girder-by-girder basis. Detailed tables showing all results and intermediate values are available for display, printing, and export to Excel or Access. Interactive modification of girder sizes and stiffener locations can be performed for rapid optimization of the design.

Frame Design

Enhancements Implemented

Incident	Description
61444	Steel frame design according to Eurocode 3-2005, including Eurocode 8-2004 seismic requirements has been added.
61445	Concrete frame design according to Eurocode 2-2004, including Eurocode 8-2004 seismic requirements has been added.

Results Display and Output

Enhancements Implemented

Incident	Description
60260	Table output may now optionally include the correspondence between the response components at a single location for additive-, range-, and enveloping-type load combinations when correspondence is available for the contributing load cases and combinations. Response that admits correspondence includes joint displacements and reactions; frame forces at a given station; stresses at a given joint for shells, planes, asolids, and solids; forces and deformations in links; element-joint forces, section cuts; bridge forces and bridge-girder forces; and base reactions. Correspondence is available for single and multi-step load cases, moving-load cases when correspondence is specified for analysis, and combinations of such cases. Correspondence is not available for response-spectrum, steady-state, and PSD load cases. Correspondence is not available for moving-load cases for element joint forces and base reactions. Correspondence requested for table output (Display > Show Tables and File > Export of tables) does not affect any other type of display, design, or the Open API functions.

Bridge Modeler
Incidents Resolved

Incident	Description
59856	An incident was resolved for precast concrete I-girder bridges in which the superstructure moment M3 due to the prestressing was calculated incorrectly for non-prismatic precast I-girders with tendons. This was because the vertical location of the centroid of the tendons was incorrectly calculated for nonprismatic precast I-girders. No other results were affected. This error did not affect prismatic I-girders or any other type of girder. This error affected versions 16.0.0 to v16.0.2.

Loading
Incidents Resolved

Incident	Description
59490	An incident was resolved for the Bridge Modeler that affected two issues for temperature loading: (1) Bridge temperature loading applied to one span in a given load pattern would also be applied to any subsequent span that has no bridge temperature loading assigned in the same load pattern. For example, if bridge temperature load is applied in load pattern "A" only to spans 1 and 4 of a 5-span bridge object, then the temperature applied to span 1 would also apply to spans 2 and 3, and the temperature applied to span 4 would also apply to span 5. (2) For a bridge object with a composite deck section having nonprismatic girder sections (steel-I, steel-U, precast-I), bridge temperature-gradient loads were not correctly distributed across the depth of the section when the bridge object was modeled as area objects and the girders were modeled as area objects or mixed area/frame objects, and thus the analysis results were not be as expected. In particular, the temperature distribution applied was based on the girder section at the start of the span rather than the actual nonprismatic section at each location along the span length. Note that temperature-gradient loads are always converted to an equivalent uniform temperature and uniform temperature-gradient loads that cause the same axial force and bending moment in the bridge section, and this has not changed. Composite bridge sections with prismatic girders were not affected by this issue.

Analysis
Incidents Resolved

Incident	Description
61455	An error has been detected where the direct stresses (S11, S22, and S33) reported in plain-strain and asolid elements is incorrect under temperature loading. The error is approximately equal to the Poisson's ratio of the material times the restrained thermal stress S33. Solid, Shell, and Plane-stress elements were not affected.

Bridge Design and Rating
Incidents Resolved

Incident	Description
59545	An incident was resolved for the bridge rating of steel I-girder bridges using the AASHTO 2007 and AASHTO 2011 codes where the calculated DC moments for the rating requests of types Steel-I Comp Strength and Steel-I Comp Service were incorrectly divided twice by the number of girders to obtain the girder demands. In other words, the DC demand moments were too small by a factor equal to the number of girders in the section. This could cause the final rating factor to be overestimated. No other results were affected. This error affected versions 15.1.0 to v16.0.2. Rating requests of these types should be re-run with the new version.

Incident	Description
60191	An error has been detected for bridge superstructure design using the AASHTO LRFD code where, for the non-staged constructability checks of steel-I- and steel-U girder bridges, the top and bottom flange lateral bending stresses were sometimes incorrectly calculated. These values were being averaged over all girders rather than calculated individually for each girder. The reported D/C ratio could be affected by this error. The following affected design requests should be re-run with the new version: AASHTO LRFD 2007/2012 Steel-I Constructability Unstaged and Steel-U Constructability Unstaged. No other design requests were affected.
61642	An incident has been resolved in the AASHTO Bridge Rating for steel I-girder bridges in which the live load stresses were not calculated correctly, resulting in incorrect rating factors. The effected rating checks were: (1) Steel I Comp Ultimate with the parameter UseStagedAnalysis set to Yes, and (2) Steel I Comp Service with the parameter UseStagedAnalysis set to Yes. Models using either of these rating checks should be rechecked. These checks were not affected when the parameter UseStagedAnalysis was set to No.

Data Files

Incidents Resolved

Incident	Description
61392	An incident has been resolved where model files from v15.2.0 or v15.2.1 containing frame sections imported from databases may have inadvertently contained nonzero values of shear center when they should have been zero. Versions 15.2.0 to v16.0.2 account for the shear center location and therefore the results were affected by this error. Versions after v16.0.2 will check for non-zero values and set them to zero for sections that should not have non-zero values.