

CSiBridge® 2016 (Version 18.0.1) Release Notes

© Copyright Computers and Structures, Inc., 2015

Notice Date: 2015-11-12

This file lists all changes made to CSiBridge since the previous version. **Most changes do not affect most users.** Incidents marked with an asterisk (*) in the first column of the tables below are more significant.

Version 18.0.1 was released shortly after v18.0.0 to address several issues with the initial release of v18. For this reason the Release Notes for v18.0.0 are also included in this file.

Changes from v18.0.0 (Released 2015-10-30)

Miscellaneous

Enhancements Implemented

| * | Incident | Description |
|----------|-----------------|--|
| | 85446 | The version number has been changed to v18.0.1 for a new minor update. |

User Interface and Display

Incidents Resolved

| * | Incident | Description |
|----------|-----------------|---|
| * | 85432 | An incident was resolved in which the 64-bit version of the program could take a minute or more to launch on certain machines. This is a result of Microsoft's JIT (just-in-time) compiler and not a bug in the software. Not all systems are equally affected, and newer versions of the Windows (8.1 and 10) tend to be less affected, especially if Windows Updates are current. A new tool, CSiNativeImageGen is available to 'precompile' the software after installation, prior to use. In most cases this should resolve the slow startup time, as well as speed up the displaying of forms. CSiNativeImageGen is available in the installation folder and must be Run As Administrator. Information on the use of this optional tool is provided within CSiNativeImageGen itself using the Help command, and by searching the CSI Knowledge Base at wiki.csiamerica.com for 'native image generation'. |

Loading

Incidents Resolved

| * | Incident | Description |
|----------|-----------------|--|
| * | 85382 85534 | An incident was resolved in which the assignment of area loads to frames was actually being assigned as area uniform loads instead of area loads to frames. The analysis results would reflect the area uniform loads, and usually no load was lost. |
| | 85607 | An incident was resolved where the diaphragm widths in X and Y directions were flipped when calculating the torsion due to specified additional eccentricity for response spectrum cases. |

Frame Design

Incidents Resolved

| * | Incident | Description |
|----------|-----------------|---|
| * | 85333 85386 | An incident was resolved in which the steel frame design results could be incorrect and/or the right-click design details were not able to be viewed when using the 64-bit version on certain machines. When results were available they could appear reasonable even if they were not correct. All steel |

| * | Incident | Description |
|---|----------|---|
| | | frame design codes could be affected. This only affected v18.0.0, 64-bit. The 32-bit version was not affected. |
| * | 85387 | An incident was resolved in which the Eurocode 3-2005 steel frame design was incorrect for box sections. Models with box sections designed in v18.0.0 should be redesigned. No other versions were affected. |
| * | 85520 | An incident was resolved for AISC 360-10 steel frame design in which the compression capacity of box, pipe, rectangle, circle, general, and section designer sections was being taken equal to the tension capacity, ignoring the compression capacity due to flexural buckling. This error could overestimate the compression capacity of these type of sections. This only affected models designed in v18.0.0. |

Results Display and Output

Incidents Resolved

| * | Incident | Description |
|---|----------|--|
| | 85453 | An incident was resolved in which the graphical display of results on a limited selection of the model was taking extra time to display. This was a performance issue only and did not affect results. |
| | 85587 | An incident was resolved in which the date on the report cover page was not correct. |

Data Files

Incidents Resolved

| * | Incident | Description |
|---|----------|--|
| * | 85367 | An incident was resolved in which trying to import frame section properties from a *.pro library file would generate an abnormal termination when the *.pro file was located in a folder without write permissions, which is usually the case for the default installation location. |

CSiBridge® 2016 (Version 18.0.0) Release Notes

© Copyright Computers and Structures, Inc., 2015

Notice Date: 2015-10-28

This file lists all changes made to CSiBridge since the previous version. **Most changes do not affect most users.** Incidents marked with an asterisk (*) in the first column of the tables below are more significant.

Changes from v17.3.0 (Released 2015-07-06)

User Interface

Enhancements Implemented

| * | Incident | Description |
|---|----------------|--|
| * | 64943 | A full 64-bit version of CSiBridge is now available. The 32-bit version can be installed on either a 32-bit or 64-bit operating system, while the 64-bit version requires a 64-bit operating system. |
| * | 69107 72353 | An enhancement was implemented to add an Apply button to the Select and Assign command forms and allow them to remain open (floating) for continual use. |
| | 81561 | An enhancement was implemented to allow user-defined paths to the location of the libraries for vehicles and frame-sections (currently only for precast-I and -U girders) using the File > Settings > Other Settings command. Library files will now be discovered in order of the following three locations: 1) CSiBridge installation \Libraries subfolder, 2) User-defined folder using Other Settings, 3) Local user settings folder for CSiBridge. In the case of conflicting definitions for a given vehicle or frame section name, the last one found will be used. For example, a definition found in the local user settings folder will overwrite a definition found in the installation folder. |

Graphics

Enhancements Implemented

| * | Incident | Description |
|---|----------------|--|
| * | 41385 69876 | The DirectX graphics performance has been enhanced, especially for larger models containing many points. |
| * | 81474 | DirectX graphics has been updated from DirectX 9 to DirectX 11. This may affect the graphics cards that are supported, particularly on older machines. |

Bridge Modeler

Enhancements Implemented

| * | Incident | Description |
|---|----------|--|
| * | 24363 | User-defined bridge sections can now be created in the Bridge Modeler and used to generate parametric bridge objects. Bridge sections are defined as a series of polygons representing different materials and openings. Each polygon can have an arbitrary number of vertices, and each vertex may optionally be given a radius to specify fillets and rounds. Any of the predefined bridge sections may be used as a template and converted to a user-defined section. User-defined sections can be edited in a table, in Microsoft Excel, or modified graphically in Section Designer. Parametric variations may be applied to user-defined sections to create non-prismatic sections along the length of the bridge. Bridge objects containing user-defined sections can only be updated as spine models in this initial release, and superstructure design is not applicable at the present time. All other bridge features are applicable, including curved layout, moving-load analysis, and construction scheduling. |

| * Incident | Description |
|----------------------------------|--|
| 69537 71727 80425 80644 | The Bridge Modeler has been enhanced to more accurately define the geometry in the vicinity of a skewed support, diaphragm, or in-span hinge in the case where the bridge is curved and/or there is parametric variation of the bridge section at the skew. Previously, the parametric variation was calculated based on the non-skewed section (i.e., perpendicular to the layout line), and then projected onto the skewed section. This projection was exact at the layout line and at the outer edges of the section, but was interpolated between the layout line and the edges. The accuracy of this projection was generally good except in the case of large skews in the presence of significant curvature of the layout line and/or significant parametric variations. Now the geometry is calculated for each point in the section directly along the skew, rather than being interpolated as before. For most models there will be little effect upon results. In any case, results for previous versions agreed with the model as generated from the bridge object. |
| 81913 | An enhancement was made to no longer discretize frame objects that are representing bridge superstructure spine objects, based on tendon discretization. All other frame objects remain as they were before. The previous discretization was excessive due to the number of tendons in the models. |
| 82767 | A new construction scheduling wizard has been added for segmental bridge objects. Working with a bridge object that has been defined using the segmental bridge wizard, construction travelers and a construction schedule can be quickly and easily created. Once the schedule has been generated, it can be modified in detail using the staged-construction scheduler, from which staged-construction load cases are created for analysis. Travelers are modeled automatically as frame elements having user-specified stiffness and weight. For spine models, these can support precast and cast-in-place construction. For area and solid models, these can support precast construction directly, and cast-in-place construction with additional modeling provided manually by the user. |

Modeling

Enhancements Implemented

| * Incident | Description |
|------------|---|
| 14367 | A new two-dimensional concrete model has been added to the nonlinear layered shell. This model is based on the Darwin-Pecknold model, with consideration of Vecchio-Collins behavior. This model represents the concrete compression, cracking, and shear behavior under both monotonic and cyclic loading. The direction of cracking can change during the loading history, and the shear strength is affected by the tension strain in the material. The given material stress-strain curve is simplified to account for initial stiffness, yielding, ultimate plateau, and strength loss due to crushing. Zero tensile strength is assumed. The layered shell allows this material to be used for membrane and/or flexural behavior and to be combined with steel reinforcement in arbitrary directions and locations. Transverse (out-of-plane) shear is assumed to be elastic. |
| 70714 | An enhancement has been implemented to provide access to a set of additional frame and shell templates for quick generation of non-bridge geometry. |
| 80135 | An enhancement has been implemented to add two new capabilities to the Modify Undeformed Geometry feature, namely, 1) It is now possible to specify a coordinate system and one or more directions (X, Y, Z) to limit the direction in which the target displacement modification is applied. 2) It is now possible to limit the modification, using either the target displacement or scaled mode-shape option, to a selection of joints. |
| 80281 | An enhancement has been implemented adding a new template for generating cable-stayed bridge models. |
| 83286 | An enhancement has been implemented to update the Russian material library to modify the concrete ultimate strain values. |

Loading

Enhancements Implemented

| * | Incident | Description |
|---|----------|---|
| * | 72215 | An enhancement was implemented to include standard vehicles in the vehicle libraries to represent AASHTO legal loads used for load rating, as defined in the AASHTO Manual for Bridge Evaluation. |
| | 72234 | An enhancement has been made to exclude the mass at restrained joints from being considered when computing the total mass for automated equivalent static seismic loads. Stiff springs should be used instead of restraints if such mass is to be included. |

Analysis

Enhancements Implemented

| * | Incident | Description |
|---|----------------|---|
| * | 68919 70348 | The handling of convergence tolerances for time-dependent behavior during staged-construction analysis has been improved to better enforce equilibrium after large load increments have been applied. Previously the convergence tolerance used to measure equilibrium during the time-dependent phase of a stage was relative to the magnitude of the load applied in that stage and previous stages. Now the convergence tolerance for the time-dependent phase is relative only to the internal creep and shrinkage effects themselves, and does not depend on the magnitude of any externally applied loads. This will have little effect on most models, but may improve the equilibrium for certain models without needing to tighten the convergence tolerance for the entire load case. It is always recommended that the effect of convergence tolerance upon results be examined when developing any nonlinear model. |
| * | 75659 | A new stability check has been added for nonlinear load static cases. For force-controlled load cases, including staged construction, the stiffness matrix will be formed, solved, and checked at the final converged state for negative eigenvalues. The number found will be reported in the analysis log file (.LOG), and a stability warning issued in the log file if the number is greater than zero. Displacement-controlled load cases are not checked as these typically are used to analyze unstable structures, whereas force-controlled load cases are intended to be stable. |

Bridge Design

Enhancements Implemented

| * | Incident | Description |
|---|----------|--|
| | 65601 | Superstructure design and rating for steel I-girder bridges using the AASHTO LRFD codes has been enhanced for consideration of the moment-gradient factor C_b . Previously this factor was always being taken as unity. Now, by default, a more detailed calculation of C_b is performed according to AASHTO clause 6.10.8.2.3. Optionally, the user can specify a fixed value of C_b to be used for a given design or rating request. For all AASHTO LRFD codes, the affected design requests are Steel-I Composite Strength, Steel-I Composite Construction Staged, and Steel-I Composite Construction Non-Staged; and the affected rating requests are Steel-I Composite Strength and Steel-I Non-Composite Strength. |
| * | 80134 | Superstructure design has been updated to now include the new CSA S6-14 code in addition to the existing CSA S6-06 code. |
| | 83038 | A minor enhancement was made to Bridge Design Optimization (for steel I-girder and U-girder bridges) so that the "Unlock" and "New File" operations are only enabled in the Select Option form that appears after clicking the OK button if the Current version of the plates sizes and stiffeners have been saved in the As Designed version by executing "Recalculate Resistance." Once "Recalculate Resistance" has been executed the first time, the "Unlock" and "New File" operations will be available, and any new changes made in the Current version will be discarded in favor of the As Designed version unless "Recalculate Resistance" is again executed. This behavior is documented on the Select Option form. |
| * | 83109 | An enhancement has been implemented to specify the location of splices along the span length of steel I-girder bridge sections. The specification includes the net-to-gross area ratio for the top and |

| * Incident | Description |
|------------|---|
| | bottom flanges, which is used to reduce the flange area at these locations for AASHTO flexural design checks. In order for these to be effective, user-defined discretization points must be added at each of these locations where a section cut is not already present. Splices do not affect analysis results. Two additional tables for these design results are now provided for the Steel-I Comp Strength design request for the AASHTO LRFD 2012 and 2014 codes with all Interims whenever splices are defined. |
| * 83805 | An enhancement has been implemented for AASHTO superstructure design of steel I-girder bridge sections to report the total nominal shear force per Clause 6.10.10.4.2 in order for users to be able to determine the number, size, and spacing of shear studs required. An additional table for these design results is now provided for the Steel-I Comp Strength design request for the AASHTO LRFD 2007, 2012, and 2014 codes with all Interims. |
| * 83944 | An enhancement has been implemented for AASHTO superstructure design of steel I-girder bridge sections to compute the top and bottom-flange tensile stress ranges due to vertical bending and bottom-flange lateral bending. These stress ranges can then be considered by the user to verify AASHTO LRFD load-induced fatigue criteria according to Clause 6.6.1.2.2. An additional table for these design results is now provided for the Steel-I Comp Fatigue design request for the AASHTO LRFD 2007, 2012, and 2014 codes with all Interims. |

Frame Design

Enhancements Implemented

| * Incident | Description |
|------------|---|
| 76864 | The handling of effective-length K-factors has been changed for steel frame design with the "AISC 360-10" and "AISC 360-05" codes when the Analysis Method is set to "Direct Analysis". Previously the bending factors K22 and K33 were always taken as 1.0, and the lateral-torsional buckling factor K_LTB was taken as an internally calculated value for K22, which was generally greater than 1.0 and usually over-conservative. Furthermore, these factors were always being used and could not be changed by the user. Now the default values for all three factors (K22, K33, and K_LTB) are taken as 1.0, but these can be changed by the user by assigning design overwrites to specific frame members. This change only affects the design using the Direct Analysis Method. |
| * 81910 | A change has been made to remove older design codes which have been superseded. Models with older code assignments will now use the latest corresponding design codes. The following older codes have been removed: For steel frame design "AISC-ASD01" and "CAN/CSA-S16-01"; and for concrete frame design "ACI 318-05/IBC2003". |

Results Display & Output

Enhancements Implemented

| * Incident | Description |
|------------------|---|
| * 11549 | The vehicles acting on each lane and their longitudinal position may now be shown in the Bridge Superstructure Response form when viewing the force, moment, or stress response for any moving load case. This information is presented in tabular format for any section cut location on the bridge object. The contribution to the total response from each lane is also shown. |
| * 34729 | An enhancement has been made so that contour plots are now available for frame axial stresses. Contour values are plotted as colors on the line or the extruded shape of the frame objects based on the extrusion setting. When plotted on the line the color represents the maximum axial stress in the cross section. The axial stresses are the S11 components due to axial force plus bi-axial bending moment, and are provided for all load cases except influence-based moving-load cases. Stresses are calculated for the base material, and do not account for modular ratio. Stresses are computed for the section property assigned to the frame object, and do not account for the possibility that the section has been changed during staged construction. |
| * 84141 84466 | An enhancement has been made so that contour plots are now available for frame deflections. Contour values are plotted as colors on the line or the extruded shape of the frame objects based on the extrusion setting. |

Application Programming Interface *Enhancements Implemented*

| * | Incident | Description |
|---|----------|---|
| * | 82060 | The CSiBridge API has been updated for v18 (2016) such that both v17 (2015) and v18 (2016) can coexist on the same machine. API tools and plugins written using the v17 API will need to be recompiled after changing the reference to CSiBridge18.dll. |

Installation and Licensing *Enhancements Implemented*

| * | Incident | Description |
|---|----------|--|
| | 71757 | The license manager for network licenses has been updated to Sentinel RMS 8.6. |

Miscellaneous *Enhancements Implemented*

| * | Incident | Description |
|---|----------|--|
| | 81074 | The version number has been changed to v18.0.0 for a new major release. CSiBridge v18 will be known as CSiBridge 2016. |

User Interface and Display Incidents Resolved

| * | Incident | Description |
|---|----------|--|
| | 82700 | An incident was resolved where an abnormal termination error could occur when attempting to review superstructure design requests after running the superstructure design while the model was still locked. This was a user interface issue that did not affect results, which could be accessed by restarting the software. |

Bridge Modeler Incidents Resolved

| * | Incident | Description |
|---|-------------------------|---|
| | 80940 | An incident was resolved for the Bridge Modeler where a moment release specified at the top of a bent column could be improperly modeled if a joint from another part of the model was coincident with the bent column. This could happen, for example, in the case where a bearing lies directly above the column and the bottom of the superstructure lies below the centerline of the bent cap. In this case the link created to connect the bearing to the bottom of the superstructure has a joint that lies on the column. Previously, the bent column was automatically meshed at this joint, and the moment release was placed in the top element inside bent cap instead of at the bottom of the bent cap. Now the bent column will no longer be automatically meshed at joints created by the Bridge Modeler itself. Manually create joints may still have this effect, and manual adjustments will need to be made to achieve the desired behavior. This issue was not common. |
| | 80979 | An incident was resolved for the Bridge Modeler where an error message "The support name at the ends of the spans needs to be unique!" was sometimes generated after clicking the OK button in the Bridge Object Abutment Assignments form. This error did not occur if the span names were changed or the Bridge Object Bent Assignments form was used before using the Bridge Object Abutment Assignments form, and hence was not common. When this error occurred it was necessary to restart the software. No results were affected. |
| | 81616 | An incident was resolved for the Segmental Bridge Wizard where a bridge tendon could not be defined for a segmental bridge object if the bridge object had been renamed after the model was created. |
| | 81814 | An incident was resolved in the bridge modeler in which the link/support property could be missing in a bridge bearing that was defined using a Link/Support Property if any of the program-generated "fixed" link properties were assigned to this bridge bearing and the linked bridge model was then updated. |
| | 82044 83641 83840 | An incident was resolved for the Bridge Modeler that corrected two issues affecting the use of General bearing locations in the bent assignments, i.e., bearings not at default Girder-by-Girder locations: 1) If a bent property was used at the start abutment, specifying General bearing locations was ignored at that abutment, and the bearings were always placed at the default Girder-by-Girder locations. This did not affect the start abutment when using an abutment property, and it did not affect the end abutment. 2) When General bearing locations were used at a bent and the number of bearings specified was greater than the number of girders at that bent, some of the bearings at subsequent bents may not be generated. These issues affected version 17.3.0 only; previous versions did not support the General bearing location. |
| | 82191 | An incident was resolved in which the name of precast concrete U-girder frame sections could not be modified after being added. This was a user interface issue only. |
| | 83066 | An incident was resolved for the Bridge Modeler where staggered diaphragms would not be created correctly within a span having a steel I-girder bridge section for the particular case where two or more staggered diaphragms in that span were assigned the same distance from the start of the span and the reference lines for these diaphragms were all set as the right-side girder of the diaphragm. When this occurred, the error was obvious and results agreed with the model as generated. |
| | 83700 | An incident was resolved for the Bridge Modeler where the polygons used to represent the spine model of a steel I-girder bridge section with non-prismatic hybrid steel I-girder frame sections could be created incorrectly such that there was a small gap between the web and each flange in the hybrid frame section. The flanges were correctly located, and the gap was equal to the flange thickness, |

| * Incident | Description |
|------------|--|
| | and reduced the height of the plate representing the web. When this occurred, the overall sections properties for the spine model of the bridge section could be calculated incorrectly, primarily affecting the moment of inertia I33 and the shear area A2. In turn this could affect analysis and design results. However, the error was small and the effect insignificant and conservative. Note that non-prismatic hybrid steel I-girder frame sections are always created whenever changes are made to the I-girder webs or flanges during superstructure optimization using the commands Design/Rating > Superstructure Design > Optimize or Design/Rating > Load Rating > Optimize. |

Modeling Incidents Resolved

| * Incident | Description |
|----------------|---|
| 43466 80127 | An incident was resolved where, in certain rare cases, it was not possible to draw a long vertical cable. Drawing the cable as several shorter vertical segments would work. Other minor issues related to drawing cables were also resolved where the drawn shape would not appear symmetrical or could exhibit small oscillations at one end. This could result in unequal segment lengths if the cable was subdivided, or in the appearance of unexpected deflections. However, analysis results were always correct and consistent with the length of the drawn cable as shown in the Cable Geometry form and the Cable Shape Data database table. Results are not affected, except that the displayed deformed shape of the cable may appear different in certain cases. The actual deformed shape of the cable, its tension, and its action on the rest of the structure are unchanged. |

Loading Incidents Resolved

| * Incident | Description |
|-------------------------|---|
| * 80765 | An incident was resolved where the centrifugal moving load calculated for a moving load case could be zero in certain cases. This occurred due to errors interpolating the lane centrifugal radius, which caused the radius to be set to zero, indicating a straight lane. When this occurred the error was obvious because the centrifugal results were zero. |
| 81506 82584 83709 | An incident was resolved where incorrect values were displayed in the textboxes on the Tendon Response Form. This was a display issue on this form only and did not otherwise affect the results. |
| 82981 | An incident was resolved in which the default AASHTO HL-93F vehicle in the vehicle library had an incorrect scale factor on the axle loads, causing the loads to be much larger than necessary. The results agreed with the scale factor that was imported and shown in the model. This scale factor has been changed from the previous 26.6 to 1.15, where 1.15 represents a 15% increase over the nominal axle loads to account for impact. |

Analysis Incidents Resolved

| * Incident | Description |
|---|--|
| * 80931 | An incident was resolved where the results of a moving load case could be incorrect for vehicles where the option "Vehicle Remains Fully in Lane" was selected. This error, although not common, could occur in versions 17.2.0 and 17.3.0. Moving load cases containing such vehicles should be re-run with the new version to confirm the results. Multi-step linear static load cases for vehicle loads were not affected, only influence-based moving load cases. |
| * 80942 81196 81569 81820 81912 | An incident was resolved where the analysis could terminate abnormally in certain rare cases while running moving load cases due to exceeding memory resources. When this occurred, results were not available. This error could also occur after the analysis was completed but when accessing analysis results for display or for superstructure design/rating. When this occurred, certain results were not available. Results that were available were not affected by this error. |

Bridge Design Incidents Resolved

| * | Incident | Description |
|---|----------|--|
| | 80766 | An incident was resolved that could affect the calculation of the live-load distribution factors (LLDF) for bridge design and rating of precast I-girder and U-girder bridge sections using the AASHTO design code. Previously the longitudinal stiffness parameter K_g (AASHTO LRFD eq. 4.66.2.2.1-1) was being calculated using the precast girder area and moment of inertia converted by the modular ratio to the material of the composite slab. The K_g parameter is used to determine live load distribution factors for moments and skew correction factors for moments and shear. This only affected Precast I-girder and U-girder sections when the modulus of elasticity was different between the slab and the precast girder. Affected design and rating checks are the Precast I and U Beam w/ composite Slab - Flexure and Shear, for all editions of the AASHTO LRFD code. |
| | 81565 | An incident was resolved where in some models with vehicle live or wave load patterns the seismic bridge design resulted in an error message and the seismic design could not be completed. |
| | 81716 | An incident was resolved in which a response spectrum function could be deleted when it was already assigned to a seismic design request. Deleting the function would cause errors when trying to run the bridge seismic design and no results would be generated. |
| | 82260 | An incident was resolved for the bridge design and rating of steel I-girder and U-girder bridges where running design or rating requests terminated with an error message for models containing multiple spans having different numbers of girders and the change in the number of girders occurred at a location without a bent support. When this error occurred, design/rating results were not available. This affected all steel I-girder and U-girder design and rating requests for all codes under the specified conditions. |
| | 83255 | An incident was resolved for the AASHTO LRFD Multicell ConcBox and Precast-I Comp bridge design and rating shear resistance calculation reports where the evaluation of effective depth to the centroid "de" of the tensile reinforcement per AASHTO LRFD 5.8.2.9-2 was incorrect. Previously the area of the prestress tendons (PT) was reported as zero if the centroid of the tendons was located on the compression side of the neutral axis. Now the area of PT is reported as zero when the centroid of the tendons is located in the equivalent rectangular concrete compressive stress block as defined in AASHTO 5.7.2.2. This affected the reported values of "de" and "dv". The impacted regions were areas where the centroid of the tendons was in the flexural compression zone. This was a reporting error that only affected the calculation reports. No other design results were affected. |

Results Display and Output Incidents Resolved

| * | Incident | Description |
|---|----------|--|
| * | 38919 | An incident was resolved where the option "Provide Output" in the definition of a staged construction load case had no effect. Results were provided for every stage regardless of the setting. Now setting this option to "No" will cause the stage to produce no output except for the last stage or for stages with target-force loading, for which output will always be provided. The default value for this setting when defining a load case has been changed from "No" to "Yes". Models from previous versions, when opened in the new version, will have this option set to "Yes" for all stages in any load case where all stages were previously set to "No". Otherwise the settings will not be changed, but the number of output steps produced may differ between the new version and the old version. |
| | 81021 | An incident was resolved where in some instances the data shown in a report may appear in the wrong column. This was a report creation error only and did not affect the results as displayed in the tables or on the model. |

| * | Incident | Description |
|----------|-----------------|--|
| | 81511 | An incident was resolved where the girder displacement plotted in the Bridge Object Response Display form could be calculated incorrectly for composite bridges (steel or precast I- or U-girders) in regions where the longitudinal meshing of the slab area objects changed in the transverse direction of the slab. For example, if between two transverse section cuts the analysis model for the slab had three shell elements on the left side of the bridge and two shell elements on the right side of the bridge, say due to skew or curvature of the layout line, girder displacements at those section cuts could be incorrect. This error was limited to the bridge girder displacements in the vicinity of the mesh changes and did not affect any other results. Bridge objects without sub-meshing were not affected. The error was generally small as the displacement was being plotted for a point near the expected point. Stage-construction load cases were the most likely to be significantly affected. |
| | 83281 | An incident was resolved for Bridge Design where generated calculation reports were corrupt and unable to be opened in Microsoft Word when any of the design or rating request names referenced in the report contained the characters "&" "<" or ">". No results were affected. |

Database Tables

Incidents Resolved

| * | Incident | Description |
|----------|-----------------|--|
| | 81242 | An incident was resolved where the interactive database import of the Bridge Parametric Variation Definitions table may result in duplicate records being added to the table. |
| | 82301 | An incident was resolved in which exporting the Frame Loads - Temperature database table would export the table without any values in the temperature column. This was a database export issue only and did not affect results. |
| | 82355 | An incident was resolved for interactive database editing where a table edited in Excel and then brought back to the editor form could display incorrectly if the scroll bar is visible. When this occurred the scroll bar did not function correctly and some rows could appear to be missing. This was a display issue only. The data was correct and no results were affected. |
| * | 83178 | An incident was resolved where tables exported to Excel using the command File > Export > Excel could, under certain regional settings, produce incorrect values in the Excel file. Values were previously being exported as text in full precision, and the decimal separator could be lost. Now values are exported as numerical double-precision values to avoid this problem. This error only affected versions 17.2.0 and 17.3.0. When this occurred the error was usually obvious because the values could be incorrect by orders of magnitude. This error only affected the File > Export command. It did not affect Excel tables produced using the Home > Display > Show Tables > Export Current/All Tables command nor the Excel tables accessed from the command Advanced > Edit > Interactive Database Editor > Send Table to Excel. |

Data Files

Incidents Resolved

| * | Incident | Description |
|----------|-----------------|--|
| | 71574 | An incident was resolved in which the CSiLoadOptimizer could not open its file when the regional settings on the machine used a comma as the decimal separator, but the data in the file used a decimal point. |
| | 81192 | An incident was resolved where the Bridge Seismic Design Preferences - AASHTO Seismic 2011 table did not import correctly. |
| | 83635 | An incident was resolved in which the import of vehicles and/or precast concrete I- and U-girder frame sections from XML files did not work when the regional settings on the computer were set to use a comma as the decimal separator. Note that the format of these files always uses the period as the decimal separator regardless of the regional settings. Now the files are written and read independently of the regional settings to accommodate this. |

Application Programming Interface

Incidents Resolved

| * | Incident | Description |
|---|----------|--|
| | 84753 | An incident was resolved for the Application Programming interface (API) where calling the function SapObject.SetAsActiveObject() on an instance of SapObject that had previously been set as the active instance caused subsequent calls to SetAsActiveObject() on all other SapObject instances to fail. Consequently, no other SapObject instance could be set as the active instance until the active SapObject instance was destroyed by closing the program or calling the function SapObject.ApplicationExit(). No results were affected. |