

CSiPlant v6.1.0 Release Notes

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This document lists changes made to CSiPlant since v6.0.0, released 21-July-2020. Items marked with an asterisk (*) in the first column are more significant.

Analysis

Enhancements Implemented

*	Ticket	Description
	3220	An enhancement has been implemented to more clearly display and save messages generated during analysis runs. These are the same messages that appear in the analysis LOG file but provided in a more concise format. Analysis messages are categorized as information, warnings, and errors. After the analysis is run, the message log is displayed based on the selection set in the Set Load Cases to Run form to always show or to only show when there are errors or warnings. This same text display is available any time using the command Analysis > Show Analysis Messages. The messages are also available in tabular format under table Analysis Results > Run Information > Analysis Messages. Messages are cumulative with subsequent runs until the model is unlocked, at which time the messages are deleted. Each message includes its type, message text, associated load case or stiffness case, operation being performed, date-time stamp, parallel run tag, run serial number, and machine name. The run serial number counts subsequent runs before the model is unlocked. The parallel run tag indicates which thread was used when analyses are run in parallel during the same analysis run.

Database Tables

Enhancements Implemented

*	Ticket	Description
	2533	An enhancement was added to include the X, Y, and Z coordinates of supports in the Pipe Support Reaction tables.

Design – Piping

Enhancements Implemented

*	Ticket	Description
	3151	An enhancement was made when creating a Design Request by copying an existing Design Request. The previous behavior would create a new Design Request with the same Design Request settings; however, all objects would have default design settings for the newly created request. This enhancement automatically copies both the Design Request settings and the any object design settings.
	4923	An enhancement was made to the Design Report form allowing previous selections to be remembered the next time the form is opened.

Drafting and Editing

Enhancements Implemented

*	Ticket	Description
	77	An enhancement was added to update the Assign Frame Sections form to allow the user to select frames while the form is open.
	114	An enhancement was added to snap to the elbow TIP and tee midpoint rather than the elbow endpoint and the tee branch endpoint respectively. This change is applicable when drafting, but it does not affect the functionality of the insert command.
	159	An enhancement was added which automatically applies existing loads to a new element

* Ticket	Description
	that is inserted and overlaps a loaded element. If the new element is inserted such that it overlaps part of or all of an existing element, the loads that were applied to the existing element and were located where the original and new elements overlap are then applied to the new element. Constant loads, such as temperature or pressure, that are applied to two original elements are then applied as a weighted average onto the new element, based on the lengths of the two original elements overlapped by the new element after the insert occurs.
* 237	An enhancement was implemented allowing for the mirroring of frame and point elements about a user defined plane. This feature is accessible via command "Edit > Mirror" and applies to selected frame and point objects, with options to mirror the following assignments: point restraints, frame insertion points, groups, point local loads, frame distributed and point local loads, frame temperature loads, and frame strain loads. Two newly added context help topics "Mirror" and "Mirror Options" provide detailed information about the mirror operation, including the orientation of local axes and cross-sections for the mirrored frame elements.
2691	An enhancement was added to check for identical loads when joining multiple pipes together with the Join Pipes command. If identical loads exist on the pipes, one singular load with the same properties and values is applied to the newly joined pipe. This simplifies the model but does not change results.
3186	An enhancement was added to allow users to snap to the midpoint of an object in order to see its coordinates. Previously, this option was only enabled while drawing objects.
3615	An enhancement was added to include a Measure tool, which includes line, angle, and area measurements.
4182	An Incident was resolved when reversing pipe flow or reversing frame connectivity changed the global orientation of supports. Supports are now oriented in the same global direction. Added new option "Align with Associated Pipe or Frame in Reverse Direction" for local axes of support objects. Distributed, point, uniform, temperature gradient, shear strain and curvature strain loads are updated to act in the same global direction after the pipe flow or frame connectivity are reversed.
4308	An enhancement was added to allow the user to display a global coordinate marker in the bottom left corner of the model view. The axes can be turned on in View > Show Global Axes and are applied independently in each model view.
4717	An enhancement was added to the Select menu to allow the user to select supports in the model based on support type and connection type.
4963	An enhancement was added to the "Select by Pipeline Labels" form to include an option to include connected pipelines in the selection.

External Import and Export

Enhancements Implemented

* Ticket	Description
5247	An enhancement was implemented where models created through PCF import files will automatically have their ambient temperature set to 70 degrees F instead of 0 degrees F. Additionally, the "Display Load Assigns" form has been updated to default the Temperature and Pressure type to Incremental instead of Absolute.

Loading

Enhancements Implemented

* Ticket	Description
* 5372	An enhancement was made to a several of the time history function definitions to include one or more of the following options: <ol style="list-style-type: none"> 1. Amplitude Shift, allowing specification of a Y-offset for the wave. 2. Phase Shift, allowing specification of a phase shift for the wave. 3. Initial Time Shift, allowing specification of a time delay to the start of the

*	Ticket	Description
		<p>waveform. If no amplitude shift is specified, the Initial Time Shift represents a simple shift along the time axis. If an amplitude shift is also specified, the initial time shift effectively creates a linear ramp from (0,0) to the starting Y value of the waveform.</p> <p>4. Rectification, providing the ability to handle values less than the mean wave value. Half wave rectification sets all values below the mean to zero. Full wave rectification sets values below the mean to their absolute value. Rectification is applied prior to any amplitude shift so the mean value is equal to the amplitude shift.</p> <p>The updated functions and the specific enhancements applicable to each are:</p> <ul style="list-style-type: none"> - Cosine - Amplitude Shift, Phase Shift, Initial Start Shift, and Rectification. - Sine - Amplitude Shift, Phase Shift, Initial Start Shift and Rectification. - Triangular - Amplitude Shift, Phase Shift, Initial Start Shift and Rectification. - Sawtooth - Amplitude Shift, Phase Shift, Initial Start Shift and Rectification. - User Periodic - Amplitude Shift and Initial Start Shift.

Results Display and Output

Enhancements Implemented

*	Ticket	Description
	202	An enhancement was added to allow the user to update the units in the tables being displayed without exiting the table.
	4684	An enhancement was made to make the window title bar more descriptive when displaying loads.

Structural Model

Enhancements Implemented

*	Ticket	Description
*	4000	<p>A new enhancement was implemented to easily model distributed supports such as soil or elastic foundations. Distributed supports can be applied to frames, pipes (straight pipe, elbows, tees, etc.), and piping components (flanges and valves). The new distributed type of support allows for a variety of behavior (gap, friction, multi-linear elastic/plastic, linear). These supports can be defined using the same support definition form used for other support types.</p> <p>The default spacing of the point supports generated to represent the distributed support is based on the relative stiffness of the support property and pipe/frame flexural rigidity. In addition, automatic meshing has been enhanced to provide the following controls:</p> <ul style="list-style-type: none"> - Relative stiffness. The support spacing is based on the scaled relative stiffness spacing and is only used if the pipe/frame has a distributed-support assignment. Default scale factor is 1.0 - Member dimension. The support spacing is based on the a multiple of the average member dimension. This meshing option can be utilized with or without a distributed-support assignment on the object. Default multiplier is 3.0. <p>The reactions from distributed supports can be viewed in the analysis tables in both global and local coordinate system. In addition, contours of support reaction (force per unit length) can be viewed using the Display > Support Reactions command.</p>
	5159	An enhancement was added to set the default design code for materials and material properties to match the default design code used for design requests.

User Interface

Enhancements Implemented

*	Ticket	Description
	34	An enhancement was added to the Assign Loads form to set the default load pattern based on the type of load being applied.
	48	The descriptions of the various rigid stiffness on the "Pipe Analysis Options" form accessible via "Analyze > Set Analysis Options > Model Options" have been updated to more accurately describe how the rigid stiffnesses are calculated and used.
	74	An enhancement was added where now double-clicking rows or columns in the Operating Cases tab of the Define Design Requests form activates or deactivates all the operating cases in the selected row or column.
	267	An enhancement was added to display Wind Load Parameters in the Display Information form when an object is right-clicked.
	4748	An enhancement has been implemented adding the "Assign Flanges to Valve Ends" form which automatically assign flanges to the ends of all selected valves. The assignment specifies the flange property and which side of the valves the flanges should be applied to.
	4956	An enhancement was made to the Support Properties definitions allowing users to specify friction coefficients greater than 1.0. When the selected Support Type was a gap, the previous behavior restricted the values for friction to be between 0 and 1.0. Friction values defined in previous versions are unaffected by this enhancement.

Analysis

Incidents Resolved

*	Ticket	Description
*	5366	An incident was resolved where analysis results could be affected by the active coordinate system in effect when the analysis was run. This would only occur if the active coordinate system had a non-zero origin translation or rotation. In general, a model with this issue would not converge rather than produce invalid results. Correct results were always produced when the Global system was in effect at the time the analysis was run.

Design – Piping

Incidents Resolved

*	Ticket	Description
	3469	An incident was resolved related to renaming of Design Requests that already have results. The previous behavior allowed the design request name to be changed after the request design was performed. The new behavior prompts the user to either delete the results and rename the request or else to not rename the request.
*	5416	An incident was resolved where load combinations of type Absolute Add used in a Design Request caused the Design Request to not complete.

Drafting and Editing

Incidents Resolved

*	Ticket	Description
	411	An incident was resolved where objects that were overlapping and appeared behind another object were selected preferentially over the object that was visibly in front.
*	4867	An incident was resolved which allowed the insertion of components along elbows and tees where there was not sufficient space to accommodate the insertion.
	5097	An incident was resolved where points drawn on an elbow object would sometimes not be correctly associated with that elbow due to the dimension tolerances used. This issue would manifest itself through an unexpected orientation of the drawn object, such as the local axis aligning with the global coordinate system rather than the elbow tangential axis. This was a rare issue that occurred for specific elbow geometries and draw locations. All models created in previous versions of CSiPlant will be automatically updated so as to correctly associate the point and elbow objects when opened in the latest version. Note that the local axes of these point objects will not be updated.
	5291	An incident was resolved which prevented users from drawing angled tees from the connection point of two parallel pipes.
	5297	An incident was resolved which prohibited the drawing of a new pipe that would create an angled tee when two pipes previously connected at an angle to one another without an elbow between them. If the new pipe is drawn parallel to one of the existing pipes, it will now prompt the creation of an angled tee. If any of the pipes have different pipe property sets, a reducer will always be inserted on the J side of the new tee.

Graphics

Incidents Resolved

*	Ticket	Description
	184	An incident was resolved where drafting and snapping errors occurred when the user attempted to draw in a grid other than "Global". These errors included the following: <ul style="list-style-type: none">- Cursor snapping to points that did not exist in the model- Drawn elements appearing in a different location than where the click to draft occurred- Inability to create tees

Loading

Incidents Resolved

*	Ticket	Description
	2886	An incident was resolved in which a load combination was available as a possible load case to be included in the load combination itself. This is no longer allowed.

Results Display and Output

Incidents Resolved

*	Ticket	Description
	3546	An incident was resolved where tees that were drawn into the pipe main, causing the flow direction to be toward the tee main, would display incorrect results contours. This was a display issue only. Tabular results were correct.
	4022	An incident was resolved where results contours were displayed incorrectly when the minimum and maximum values were user defined and did not fully contain the result values to be displayed.
	4922	An incident was resolved related to the presentation of selected items in the design reports. The previous behavior did not limit presented results to the selection, instead presenting all available results.
	4924	An incident was resolved where pressure loads on elbows were not being displayed. Design results were unaffected.

User Interface

Incidents Resolved

*	Ticket	Description
	3404	An incident was resolved where pressing any key or key combination assigned to a shortcut before opening a model caused the program to terminate unexpectedly.
	5261	An incident was resolved where a new model could not open if the user attempted to do so while the current model had an active grid system other than Global.