SAP2000® Version 21.0.1
Release Notes

Notice Date: 2019-01-22

This file lists all changes made to SAP2000 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 v21.0.0 (Released 2018-12-26)

Frame Design
Enhancements Implemented

*	Incident	Description
*	224993	An enhancement has been implemented to include crack-width analysis for concrete beams according to the Russian concrete frame design code SP 63.13320.2012.

External Import/Export
Enhancements Implemented

*	Incident	Description
	94426	The option to export the analysis model to Perform-3D has been added to the 64-bit version. Previously this was only available for the 32-bit version, which is no longer available starting with v21.0.0.

Installation and Licensing
Enhancements Implemented

*	Incident	Description
*	228281	The version number has been changed to v21.0.1 for a new minor version release.

User Interface
Incidents Resolved

*	Incident	Description
	225642	An incident was resolved in which an abnormal termination could occur when attempting to display an internally generated constraint using the Display > Show Misc Element Assigns > Joint command. This was a user interface issue and did not affect results.
	227530	An incident was resolved where the filename input on the Analysis Options form for automatically saving database tables incorrectly had a ".xml" appended if the user input filename ended with ".xlsx" or ".accdb".
	228210	An incident was resolved for the NBCC 2015 auto seismic loading form to correct three items: 1) Using the tab key did not move around the form in a logical order. 2) The eccentricity parameter would not allow a zero or negative value. 3) The label for the MaxZ input incorrectly showed MinZ.

Loading
Incidents Resolved

*	Incident	Description
	226273	An incident was resolved where external tendons (those not contained inside a frame, shell, or solid object) could exhibit instabilities and excessively large deflections. This is due to a change made for versions 20.2.0 to 21.0.0 to model tendons as having axial stiffness only. This works well for tendons elements connected to other objects, but not for external tendons which need transverse stiffness for stability. Now only tendon elements with both ends constrained to a containing object will neglect transverse stiffness. Tendon elements with either or both ends external to other objects will include transverse stiffness based on the section and material properties, similar to the behavior before v20.2.0.
*	227808	An incident was resolved where the bounding box used to connect tendons to frame elements was set to zero in certain models. This could cause prestress load to be lost for tendons modeled as elements, or cause tendons to be connected only at their ends for tendons modeled as elements. Bounding boxes can be displayed using the option under command View > Set Display Options. When the error occurred, the affected frame objects showed no bounding box. Whether or not a model was affected depended on the number of frame objects, frame and tendon section properties.

Analysis
Incidents Resolved

*	Incident	Description
	227289	An incident was resolved where staged construction load cases were sometimes not able to converge in stages that applied load if all the previous stage(s) in the same load case had no applied loads. The tolerance used in stages without loads was very small and was not being changed when loads were applied in later stages. Now the tolerance will be reset for each stage according to the magnitude of the load applied. When this issue occurred, results were not available. This issue only affected v21.0.0.

Frame Design
Incidents Resolved

*	Incident	Description
	227170	An incident was resolved for the Russian steel frame design code SP 16.133330.2011 in which section p9.2.10 was being used to determine the D/C ratio of pipe sections. For pipes, the generic section p9.2.9 is now used. The previous results were slightly conservative.
*	227746	An incident was resolved in which steel frame design optimization was not enforcing displacement or time-period targets. This issue was inadvertently introduced in v21.0.0.

Results Display and Output
Incidents Resolved

*	Incident	Description
	228052	An incident was resolved where the design-details sheet for Italian NTC 2018 steel frame design incorrectly listed the framing type. This was a reporting issue only that was inadvertently introduced in v21.0.0. No other results were affected.