Patran® 2019
Welcome to Patran 2019!

MSC Software is pleased to announce the latest release of Patran 2019 designed to provide enhancements to improve user productivity. Major areas of focus in this release include the following:

Contact Model Check Support

MSC Nastran 2019 has released enhanced Contact Model Check capability. Patran 2019 now supports majority of these features. To access these model checking features one simply need to turn ON the Check Contact Model toggle for any of the standard solution sequences 101-200, and 400 under the Contact Controls form in the Analysis application for SOLs 101 and 400 or the Solution Parameters form for other solutions (Optimization Parameters form for SOL 200).

SuperGroup Support

SuperGroup is a group of groups. This special approach in Patran 2019 is used to organize in an easy way different analysis scenarios in the same model. Groups are better than part and subassemblies regarding entities, because an element can be member of multiple groups. Therefore a lot of user organize their analysis scenarios over super groups, which is a compilation of groups. This helps also in postprocessing to display fast the correct scenario to the analysis run of a submodel.

What is done now for LBCs (and Element/Material Properties) that are define with a PCL function is that the PCL function is evaluated at the original locations of the selected group(s). A new discrete FEM field is then created with the elements or nodes of the mirrored group.

The corresponding mirrored elements or nodes are then assigned the evaluated PCL values from their original locations. If the PCL function is a scalar, the scalar evaluation is used straightway. If the PCL function is...
a vector, the resulting evaluated vector is mirrored to the new element or nodal locations. Thus a true mirror of the property or LBC is maintained.

Here is a plot of the nodal thicknesses from the property set plate and the mirrored property set plate. Note the symmetric plot indicating the thicknesses were mirrored correctly.

Property set plate defines its thickness with PCL function pcl. The function is defined as ‘X+Y’ coordinate locations.

**Insight Ported to QT**

In the previous release of Patran, a new graphical user interface (GUI) was introduced based on the cross-platform development framework called QT, thus providing Patran with the same look-and-feel on both Windows and Linux machines. Unfortunately at that time, not all Patran functionality was made available, specifically the results postprocessing application called Insight. This release now features a fully functional Insight application under the QT framework.

Insight is accessed from the Results tab in “Skin” mode by clicking on the Insight icon:

**Maximum/Minimum Load Case Tracking**

Enhancements to the Results application for extraction of Maximums and Minimums (MaxMin) across results cases/layers has been implemented in this release to make the results more insightful.

In addition to simply extracting MaxMin results, the actual Maximums or Minimums of the derived comparison value are retained and load case tracking results are retained to indicate to the user from which load case (result case) the MaxMins occur.

This functionality is accessed from the Results application with the Action/Object/Method set to Create/Results/Maximum (or Minimum).
Crash Reporting System

A new crash reporting system is introduced in this version, which is meant to help MSC Software make the Patran application as robust as possible.

The crash reporting system is supported on both Windows and Linux platforms. When Patran crashes, it shows the following message and records the information about abnormal termination in diagnostic files.

Diagnostic files are not created if Patran becomes unresponsive due to resource shortages, secondary application crashes, and in certain un-handled circumstances such as large memory issues or security problems.

“To report such defects, users are requested to describe the scenarios and steps to reproduce the crash in a separate document along with the model data (if possible) and send with the generated diagnostic (.dmp) file to the MSC Technical Support Team.”

This information is critical for MSC to identify the root cause and fix the application as appropriate.