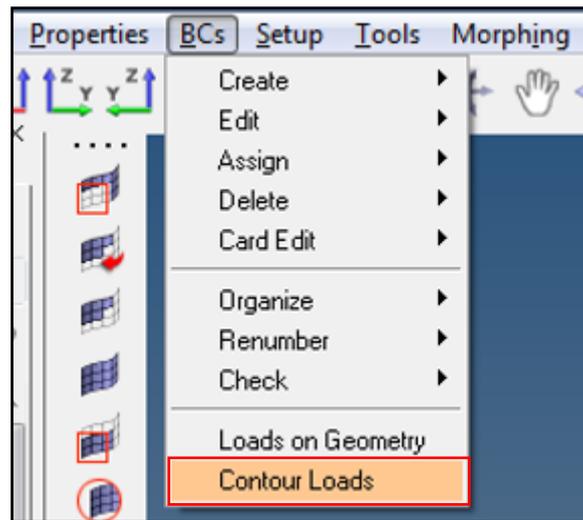


Tutorial: How to create contour plots of applied loads and boundary conditions contained within load collectors

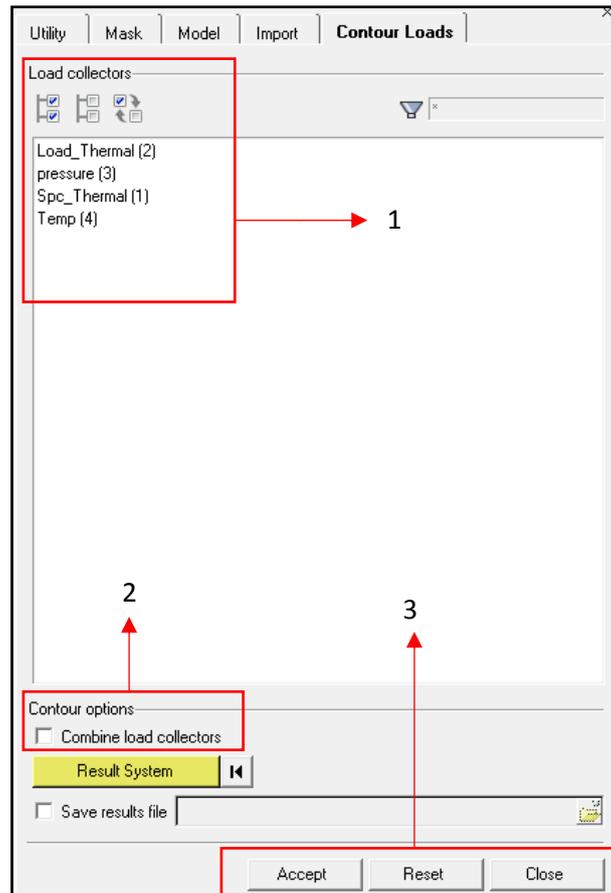
Procedure

Step 1: Open Contour Loads Panel

- Goto **BCs** in the Menu Bar > click on **Contour Loads**



- **Contour Loads Utility** will be opened in browser area.



The Contour Loads utility consists of three sections: **load collectors**, **contour options**, and **command buttons**.

- **Load Collector Section:**

The Load collectors section lets you select load collectors to contour. Every load collector in the current model's database displays in the load collector list. You can pick multiple load collectors by CTRL-clicking or SHIFT-clicking.

Filter buttons allow for additional selection control, including a **name** filter that uses standard filtering syntax.

The Contour Loads utility generates a .res file that is automatically loaded into the **Contour panel**. The .res file contains simulation results named after each load collector, unless you select the **combine load collectors** option in the **contour options** section. If a load collector contains multiple load types,

the simulation result will include multiple data types (that is load collector). Different load types support different data types:

Load Types	Data Types
Acceleration, Force, Moment, Velocity	X, Y, Z, MAG (unsigned). MAG is simply the magnitude of the X/Y/Z components
Pressures	X, Y, Z, MAG, Signed MAG. MAG is simply the magnitude of the X/Y/Z components. "Signed MAG" computes the dot product of the X/Y/Z components with the element normal to give a sign to the MAG value. If the dot product is ≥ 0 , the sign is positive, otherwise the sign is negative. MAG and "Signed MAG" always have the same absolute value.
Displacements, Rotations	X, Y, Z. Coming from constraints, rotations and displacements each have 3 degrees of freedom..
Temperatures, Fluxes	Temperature and Flux (single data types only).

Note:

In the Abaqus user profile, support is available for the *FILM, *RADIATE and *SFILM cards. *FILM and *RADIATE are supported for pressures assigned directly to elements only. *SFILM is supported for groups defined using elements, components or sets only, but only applies the contour to shell elements within the group, ignoring any non-shell elements within it. *SFILM has two possible data types: ***SFILM - Film_Coeff** and ***SFILM - Sink_Temp**.

The loadstep names in the results file are the selected load collector names. If the **Combine load collectors** option is checked, only a single loadstep is generated in the results file named **Combined Results**.

In all cases, a data type is only created if there is an applicable result for that data type. Some data types may not always be created. For example a force in the X direction will not create the Y and Z data types, but will create X and MAG.

If a non-rectangular local coordinate system is selected, the X/Y/Z labels change to R/T/Z (cylindrical system) or R/T/P (spherical system).

- **Contour Options Section:**

The Contour options section allows you to control options for generating contour data from the selected load collector(s). Contour options include:

Combine load collectors: linearly superimposes all loads of the same load type from all selected load collectors into one simulation, named "Combined Results" within the .res file. If two load collectors are selected, and both contain force data, HyperMesh linearly superimposes their forces and plots them in one contour, as opposed to a separate force contour for each load collector. Loads are summed — or in the case of constraints, only the maximum constraint value is used.

- **Result System:** defines the coordinate system in which the simulation data is transformed into and output to the contour. If a system does not currently exist, one can be created by clicking the Proceed button without selection of a coordinate system. If no results system is specified, HyperMesh uses the system that the loads were created in. This option is not available for flux or temperature load types.
- **Save results:** this option allows you to store the contour results in a HyperMesh results file (.res) using a specific file directory and filename. These results can then be loaded into HyperMesh or HyperView for review.
- Upon clicking **Accept**, the **Contour** panel opens so that you can select the appropriate simulation and data type. The simulation corresponds

to the load collector, and the data type is the list of load type(s) and components contained in the selected simulation.

- **Command Buttons:**

Three command buttons at the bottom of the tab perform the following actions:

Accept: Activates the Contour panel, where the selection of a simulation and a data type within that simulation are required to produce the desired contour. The simulation corresponds to the load collector, and the data type is the list of load types contained within the selected load collector(s).

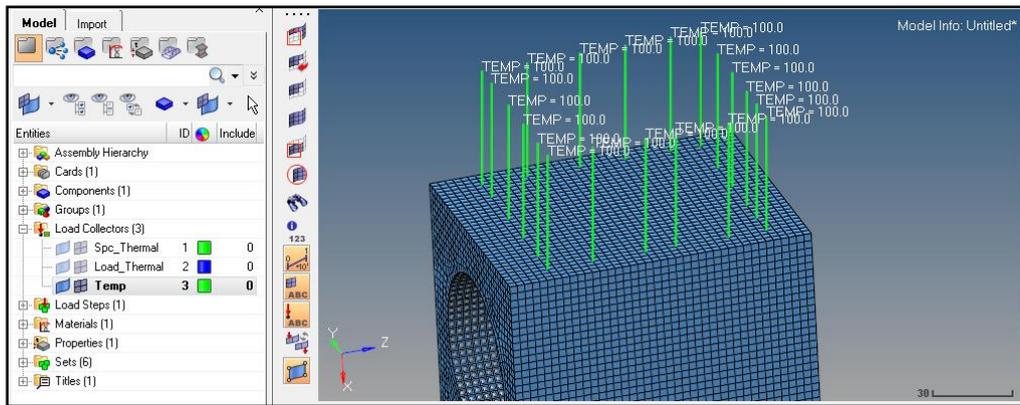
Each simulation corresponds to one load collector. If multiple load types are contained inside a load collector, there will be multiple data types available. When using the **Combine load collectors** option, only one simulation will exist with the name "**Combined Results**" as discussed above.

Reset: Clears all of the entry fields on the tab so that you can start over.

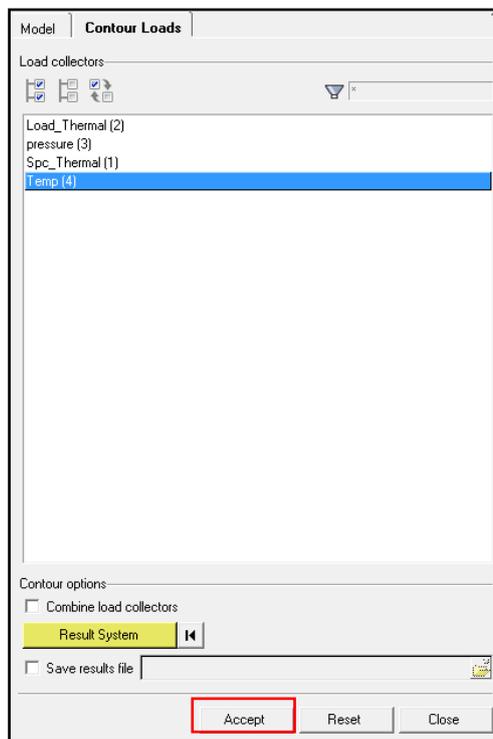
Close: Closes the tab without performing the contour plot.

For example:

Let's consider below model. Which is subjected to Temperature Load of 100 units. Now, let us see the contour plot of this Temperature Load.



In the Contour Load utility browser, we choose **Temp** load collector and click **Accept**



Contour panel opens and **simulation** is set to **Temp** and **data type** to **Temperature**. When **contour** button is clicked, you can see the contour plot the Temperature load.

