

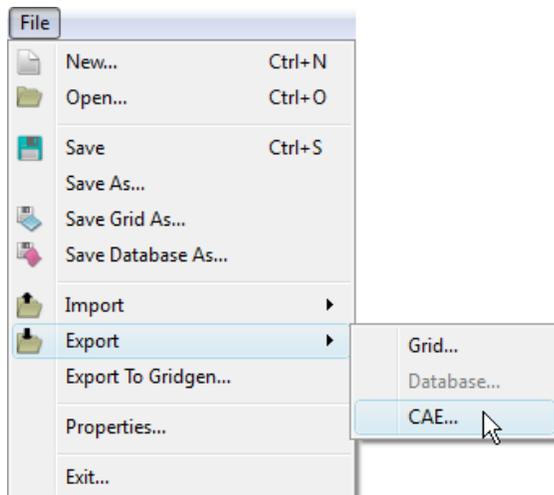
PointwisePointer

A User Tip from the Pointwise Support Desk

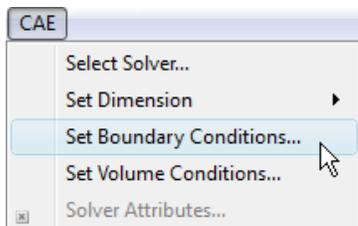
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Get More From Boundary Conditions

One of the most powerful features of Pointwise is the ability to export mesh in the native format of your computer-aided-engineering (CAE) solver. This export will include the boundary conditions (BCs) you have assigned, relieving you of this chore downstream when it could be much more tedious on a full grid. More than 30 CAE solver formats are supported, so it is easy to export grids to multiple flow solvers.

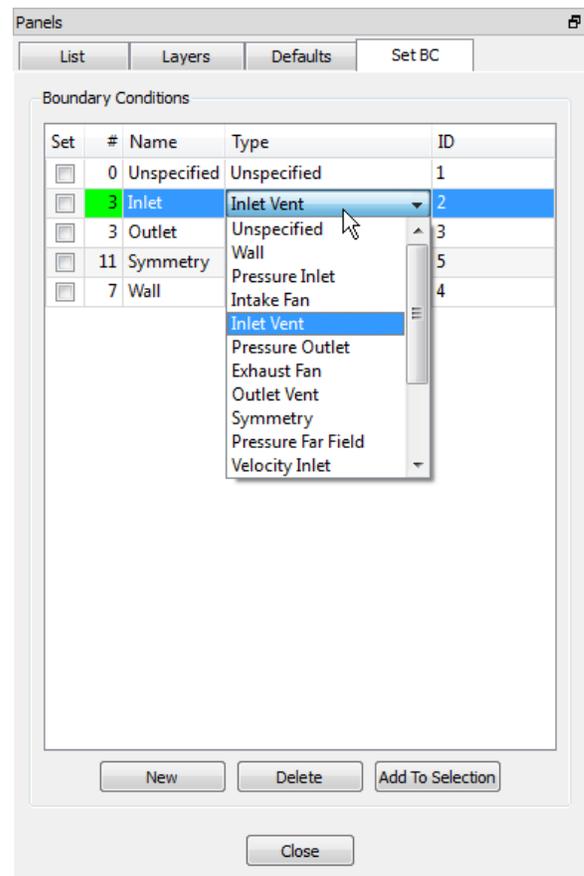


Pointwise provides increased flexibility for creating, assigning, and managing BCs. It lets you assign your own unique names to BC regions, which are preserved when you change CAE solvers, delete blocks and make other changes to the grid. In this Pointer, we will discuss some of the highlights of the **Set Boundary Conditions** command, along with tips on how to use the tool more efficiently.



In Pointwise, boundary conditions can be assigned to a domain at any time. BC assignment will remain with the domain regardless of whether the domain is used by a block or not. This feature allows you to assign BCs as soon as you create your domains if you wish.

When you enter the **Set Boundary Conditions** command, the selection mask automatically is set to allow only domain selection. Domains can be selected in an unlimited fashion as necessary to assign BCs while in the command. Therefore, you do not need to select all the necessary domains prior to entering the command or worry about the current **Mask** settings. The **Set Boundary Conditions** panel is made up of a table listing all



the currently available BCs and a few accompanying commands. Double-click any field to edit its value. For instance, you can double-click the default name given, such as "bc-2", and change the name directly in that field. The table format also makes viewing and setting BCs efficient. To assign BCs, simply select a domain or domains in the window or **List** and check the box next to the appropriate BC.

When you begin to use the **Set Boundary Conditions** command for the first time in a new project, you will find there are no BCs in the table other than Unspecified. Essentially, all BCs are custom created and named by you and then assigned to domains as you choose. For each BC you create using the **New** command, you can specify its name, the physical type for your selected CAE solver and its ID number. You also can use the **Delete** command to remove an unwanted BC. Using the command is that simple. And your BCs and assignments will persist even if you change your CAE solver selection. You will only need to update the BCs' solver specific physical types, if available.

For grid projects in which you expect to create a large number of domain and block entities, it generally will be best to create your BCs early and start using them right away. That way, you can assign domains to a BC soon after they are created, when you still remember clearly where they are and what they represent, instead of waiting to the end of a large meshing project and finding yourself daunted by a huge number of unspecified domains.

Remember also that layering your domains will allow you to keep them organized with the features of the geometry on which they lay. This organization also can serve to differentiate different BC regions and facilitate BC assignment.

Inside the **Set Boundary Conditions** command, you can view all domains with a particular BC by clicking the BC in the list. All domains with that BC will be highlighted with the same color in the display window so they are easy to distinguish. Each BC will be highlighted in a unique color, so you can click on as many BCs as you wish and still be able to distinguish them by color.

This feature can make it easy to locate improperly set and unspecified domains. For instance, if a piece of geometry such as a wing were represented by a patchwork of domains, and all of those domains did not highlight as the same wall BC, then you know a domain has not been assigned or has the wrong BC.

Clicking on the Unspecified BC in the table is useful in determining which domains remain unspecified, since those domains are also highlighted. And if all the remaining unspecified domains will be assigned the same BC, there is the handy **Add To Selection** command to quickly add to your selection list all of the domains referenced by the currently highlighted BCs.

Try **Set Boundary Conditions** now to see how easy it is to use and experience the flexibility Pointwise gives you in managing your BCs.

