

Searching the Weld Gun Catalog



This procedure describes how to search the weld gun catalog.



You should have already completed [Setting up Your Weld Gun Catalog](#).

See also [Resource Centric Workflow for Auto & Manual Gun search](#)

For more information on activating/deactivating the command settings, see [Customizing](#).



1. Select the activity to which you are assigning the weld gun.

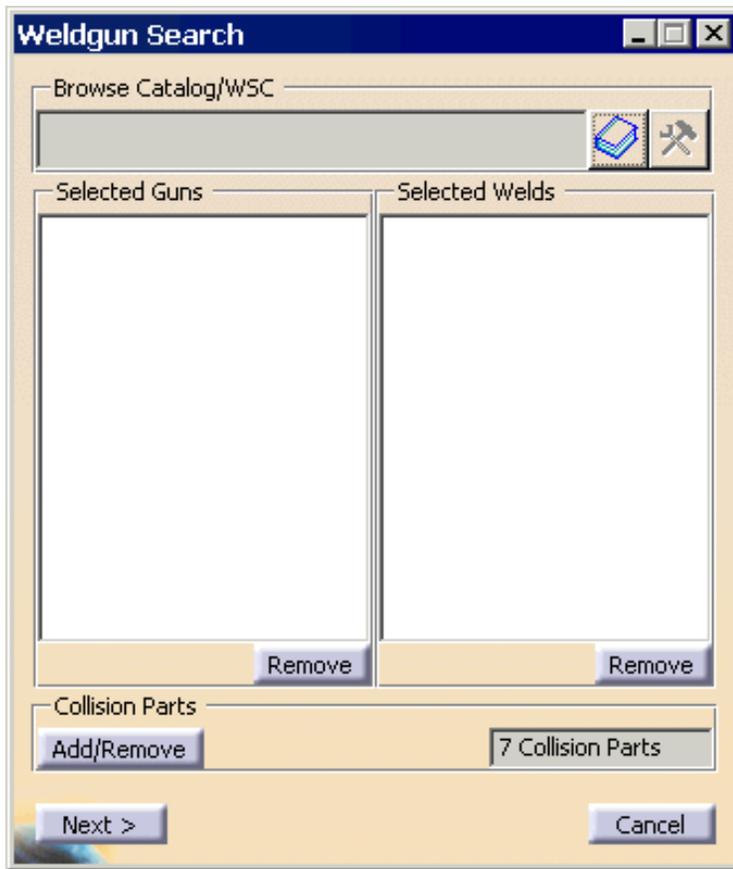


The activity should have all the relevant resources (e.g., fixtures) and fasteners assigned to it. The weld gun search mechanism takes into account these resources when determining whether a particular weld gun can perform the welds required.

2. Select **Perform a weld gun search for the selected weld**



[The Tool Palette](#), and the **Weldgun Search** dialog box appears.



If positioning information for the parts is defined, then they are positioned among the resources assigned to the selected activity in the preview window. Also, the fasteners assigned to the activity (but only those that are spot welds) appear in the **Selected Welds** list.



The selection of welds from the PPR is not restricted to those assigned to the selected activity. Any weld can be selected. Weld tags are not displayed in the selected order. They are displayed in the weld gun search alphabetically.

Weld guns from the list of selected guns can also be removed.

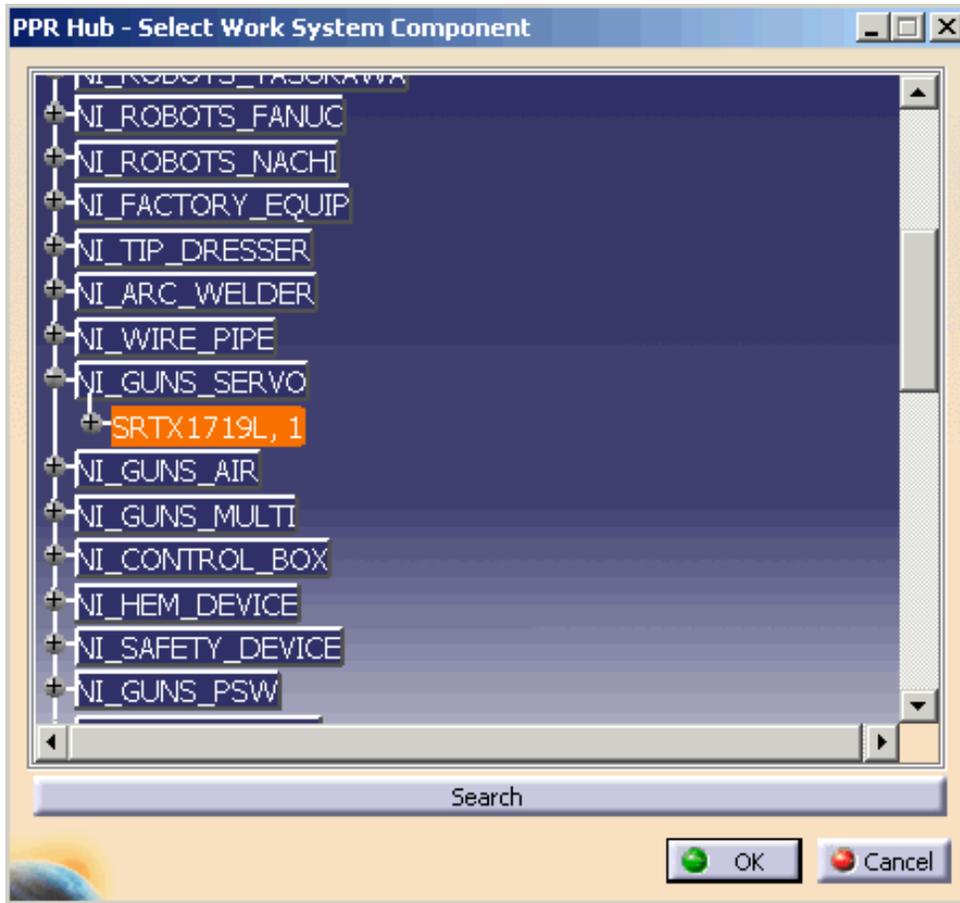
3. Using the Searching the Weld Guns from WSC



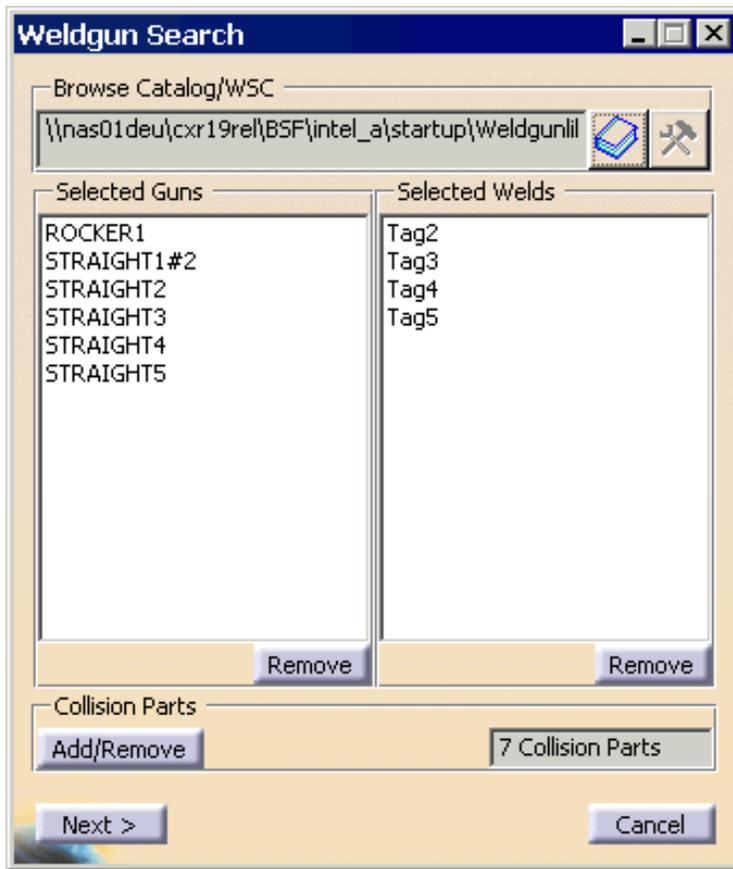
Search the Guns from WSC (Work Station Component) and Assign them to activities. This button will be active only for HUB based projects.

Selecting **Browse** in the Gun Search Dialog box to search for WSC's.

All the WSC's from the project library appear.



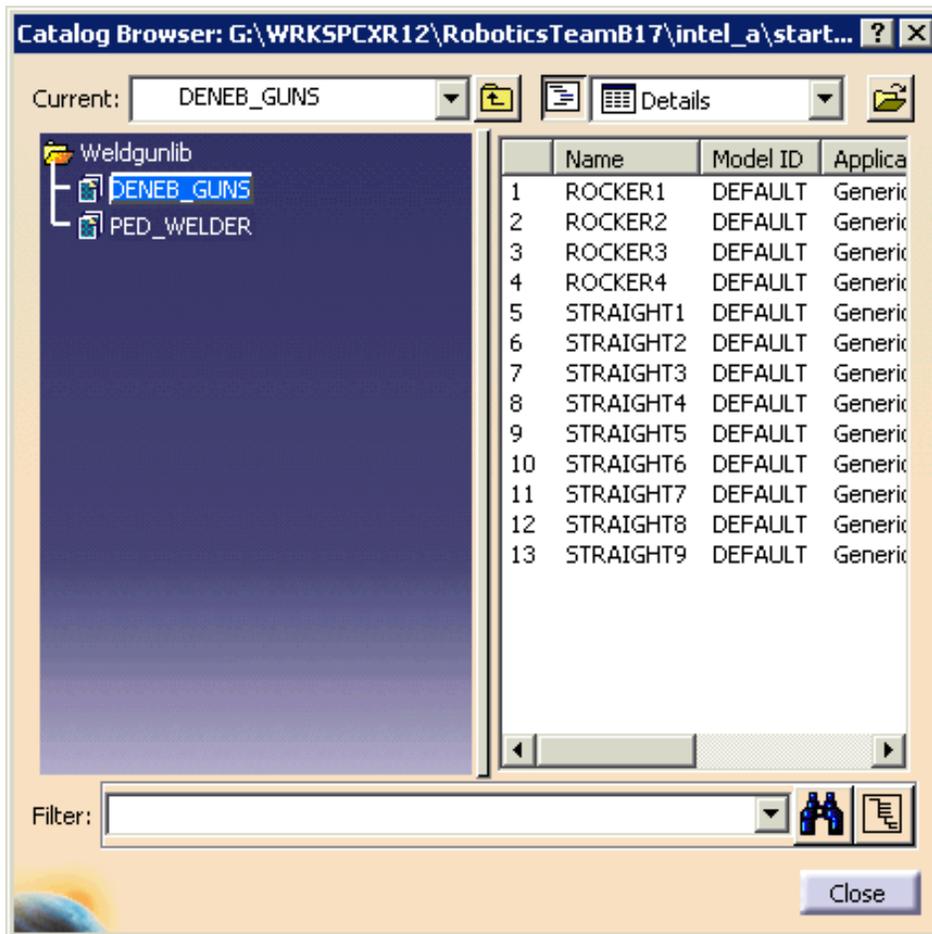
Then select the Guns from the dialog window and select OK.



Selecting the [Next](#) button the Analysis Results dialog box appears.

4. Using the Catalog function, select Catalog 

The Catalog Browser dialog box appears.



5. Use Filter  to select the gun you want.



Although you can select more than one gun at a time, your collision checking occurs faster if you only use one gun.

- o To select all guns within the catalog, then select the Close button.
- o To use the filter to select a gun, use the following steps:

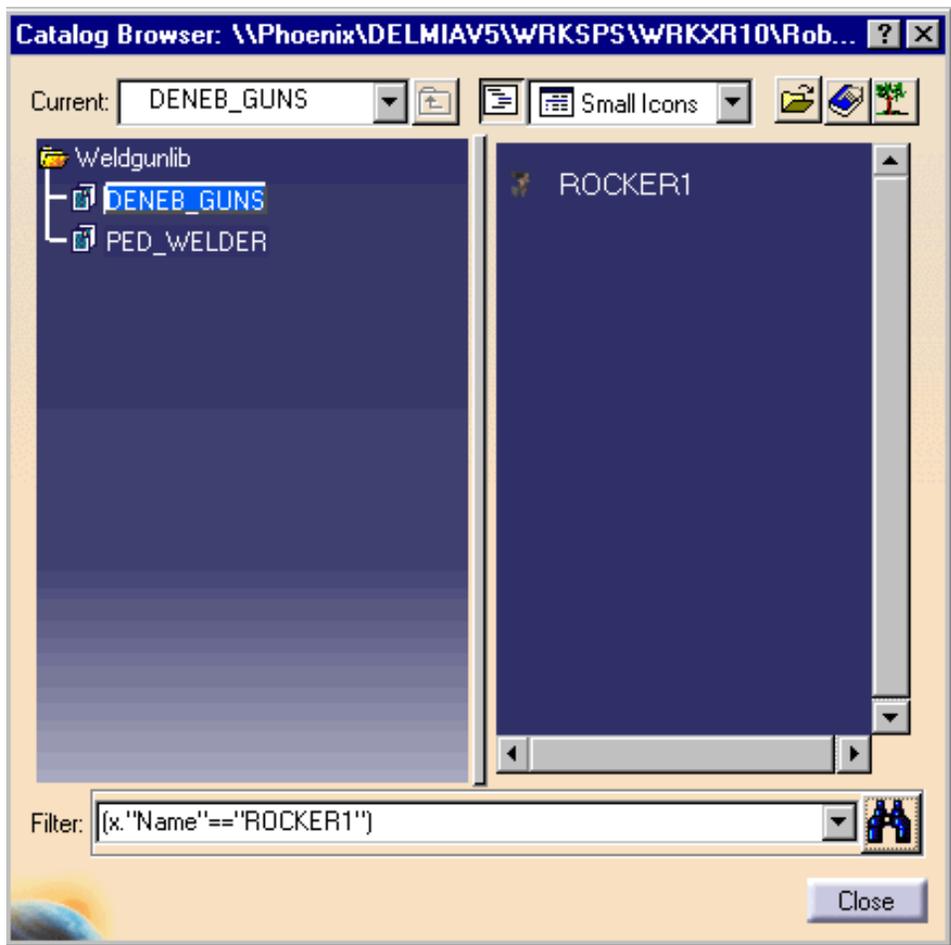


1. Select Filter

The Filter dialog box appears.

2. In the Name field, select == from the list.
3. In the box next to ==, type the name, exactly as it appears in the catalog, of the gun you want (e.g., ROCKER1). Capitalizing all letters is important.
4. Select OK.

The Filter dialog box disappears, and the Filter box on the Catalog Browser dialog box contains the correct filter syntax for the weld gun. The weld gun selected is the only one that currently appears in the dialog box.

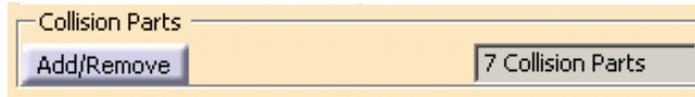


6. Collision Parts - Using the Add/Remove to change the analysis for collision.

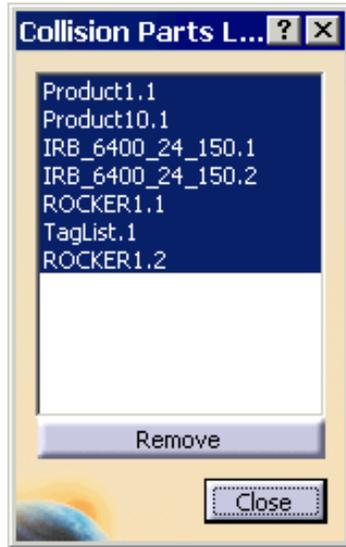


By default the current collision list creation algorithm is used to fill up the collision list and no. of objects in the list will be reported in the text editor. The scenario below describes how this will work:

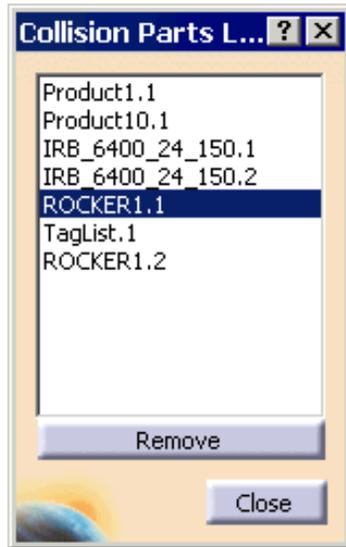
1. Select the Add/Remove button in the Collision Objects.



2. The dialog box will pop-up which will list all the products in collision list.



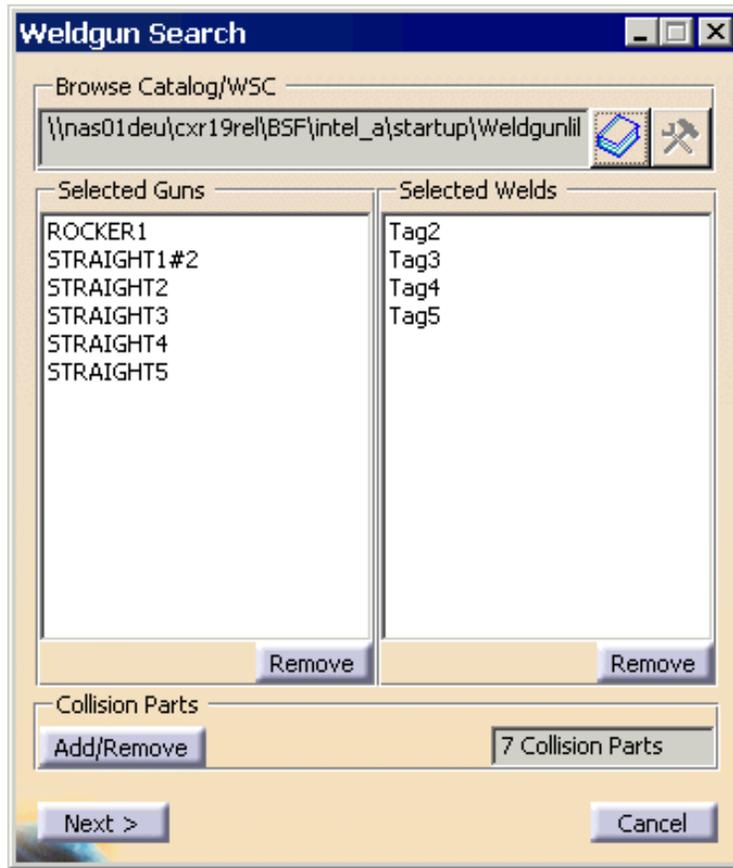
3. Select the part that you would like to remove from the list, and click on Remove.



4. You can add additional parts by selecting from 3D viewer. Manufacturing assemblies is also supported. In the actual computation only your specified collision list is used.

7. Select Close.

The weld gun appears in the Weldgun Search dialog box.



You can select welds to remove from the analysis if you wish. At a later point, you can add the welds by selecting them in the PPR tree. The welds you return to the list, however, must come from those assigned to the activity you selected in Step 1. You can use the Tool Palette to select the welds.

Using the Assembly Spec tree for a Gun Search

You are able to provide a Manufacturing assembly as an input to the Auto Gun search command. When, the command is launched you are requested to select an activity, fasteners or a manufacturing assembly.

When you select a manufacturing assembly command, it will create a list of fasteners to identify their accessibility against a library of weld guns.

In the Tools > Options > Digital Manufacturing > Tree tab, activate the Output Products folder.

Under Applications > Manufacturing Products, select the BIWActivityStation.1.



This list of fasteners will contain:

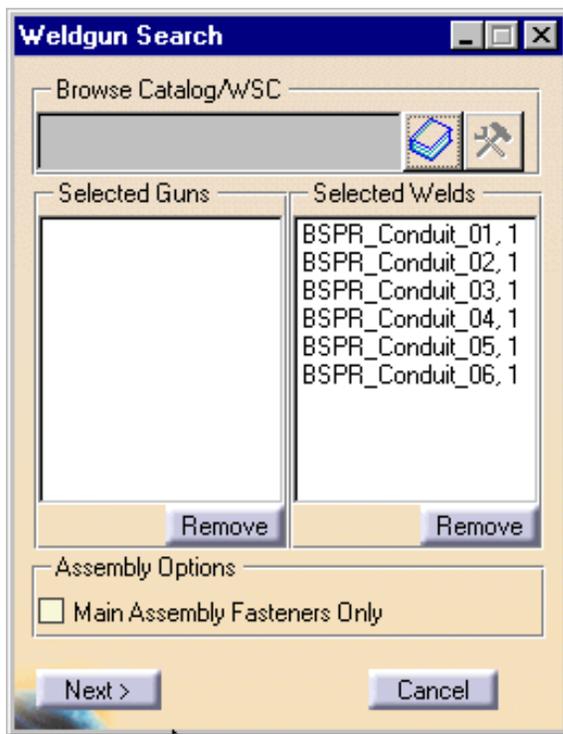
Fasteners which assemble the assembly selected.

Fasteners which assemble all the child assemblies of the assembly selected.

When, you select a Manufacturing assembly the Auto Gun search command identifies all the parts in the assembly and fasteners on those parts. If, you have not assigned any parts to the manufacturing assembly then, it will fall back to the standard auto gun search behavior i.e., include all the products in the world to the collision list when welds are selected.

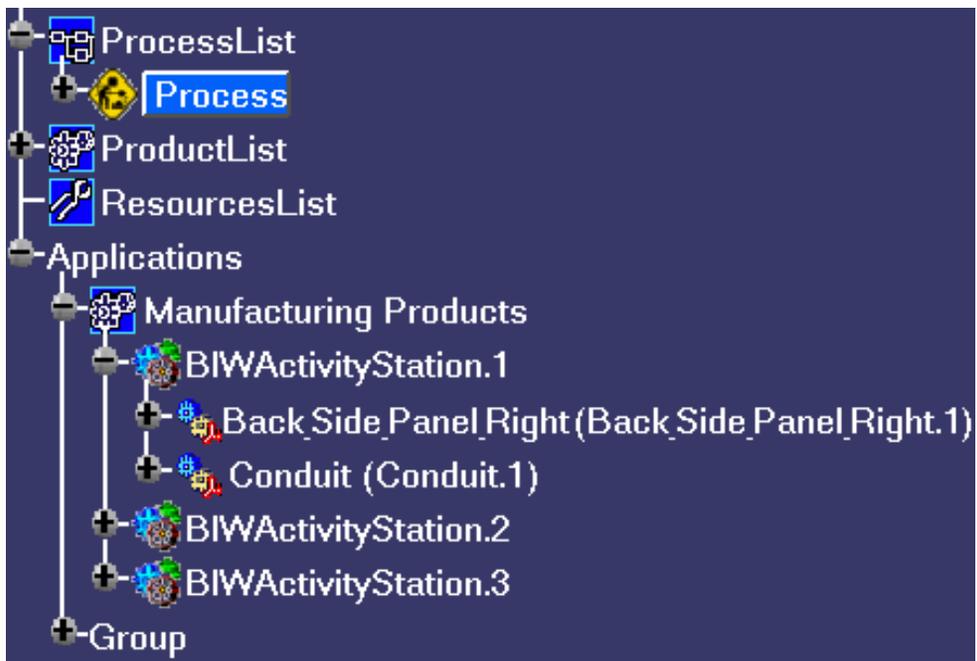
The **Main Assembly Only** option is used when you select a manufacturing assembly. Selecting this option then, the fasteners that are part of assembly joints between parts/assemblies of the main assembly are selected and fasteners of assembly joints of child assemblies are filtered out.

At this stage you can select either an activity or a set of fasteners or a manufacturing assembly. Once selected, a Manufacturing assembly command will build a list of all fasteners that are involved in assembly joints in the manufacturing assembly (including child assemblies) that was selected. This list is displayed as shown. The dialog is also modified to display another option under the title Assembly options.



If you select the **Main Assembly Only** then, only those fasteners are displayed in Selected Welds list that are joining the sub assemblies/parts at the level of selected assembly i.e., say user has selected Rear floor assembly shown then, only those fasteners which join parts from Floor Panel Crossmember subassembly with parts of Rail Crossmember Kickup will be displayed and fasteners which join couple or more parts which are present in a single sub-assembly will be filtered out.

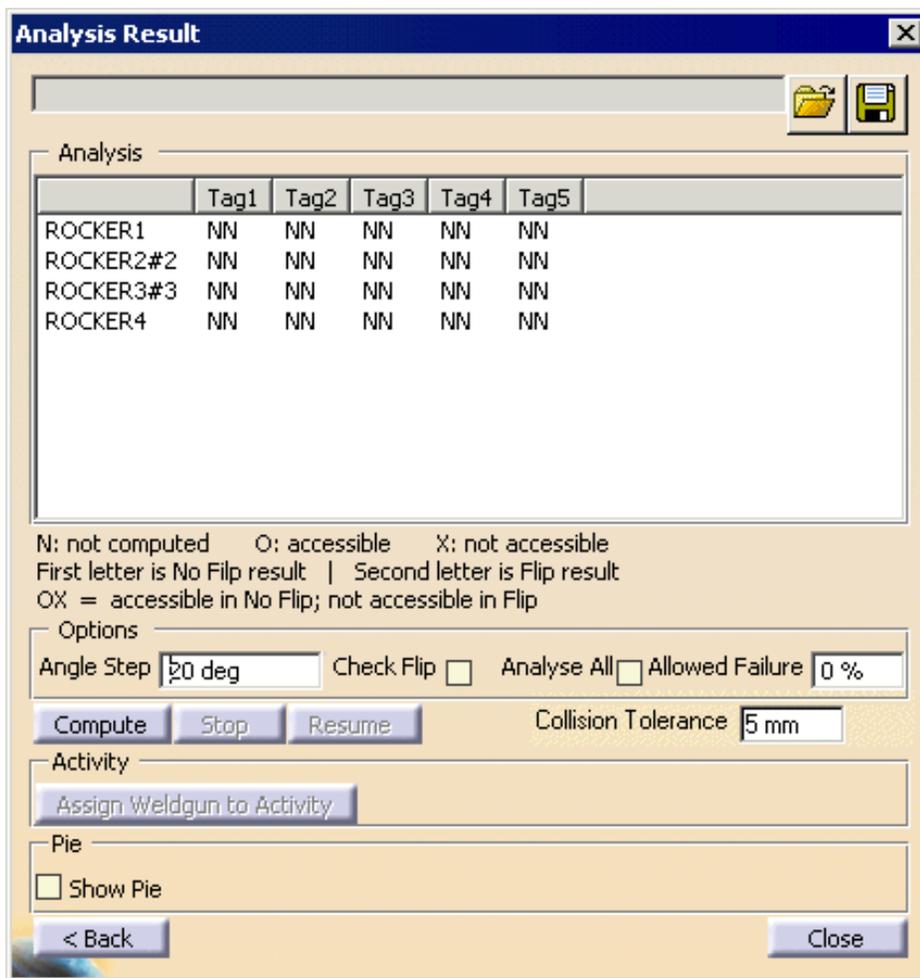
Once, you have selected the fasteners and weld guns against which fastener accessibility is to be checked. All, parts of the main assembly are added to the collision list against the weld gun.
Manufacturing assemblies are populated under the Application branch of PPR tree as shown.



You can select any of these manufacturing sub assemblies using auto gun search command.

8. Select the Next> button.

The Analysis Result dialog box appears.

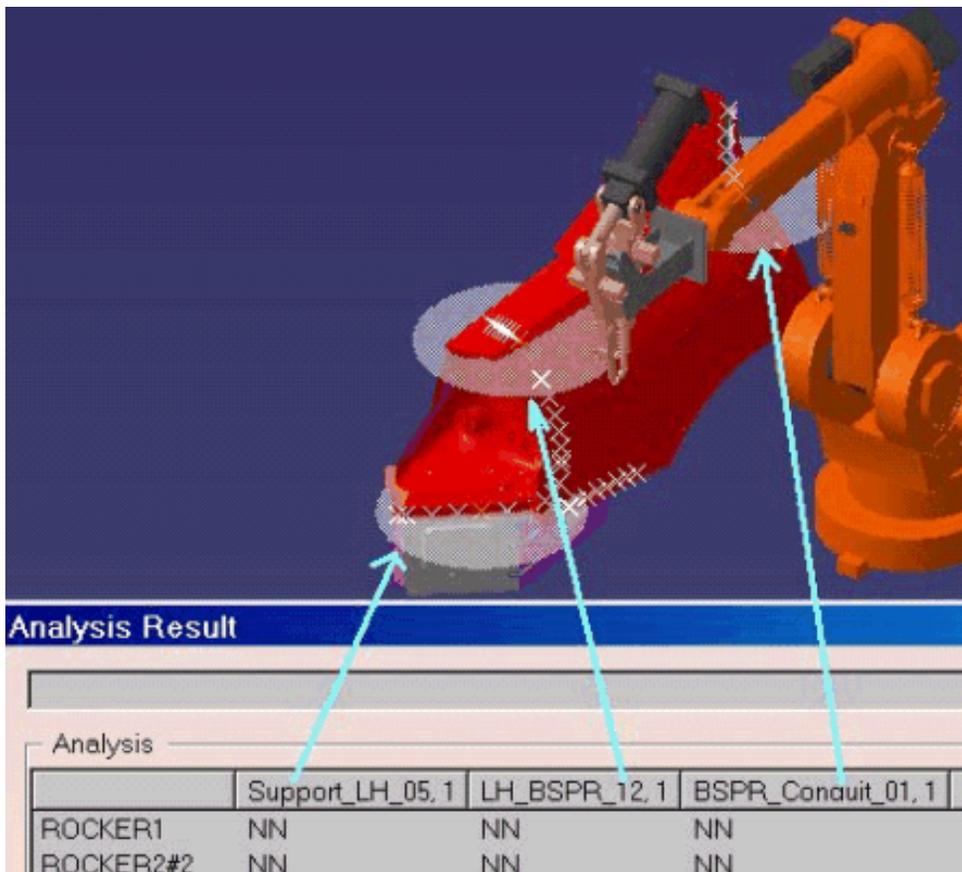


Option	Explanation
	Load a previously saved analysis. Clicking on this button opens a File Open dialog box. You can navigate to the saved analysis (which has a .txt or .xml file extension), and load it. For more information on the restrictions and safeguards of using previously saved analysis, see About Previously Saved Weld Gun Analysis .
	Save the current analysis. Clicking on this buttons opens a Save dialog box. You can navigate to the directory in which you want this analysis saved. The saved analysis will have the file extension .xml.

	<p>The analysis window can show one of three states for a weld and a weld gun.</p> <p>Once the accessibility starts being computed, the fields are:</p> <ul style="list-style-type: none"> o N=not computed o X=not accessible o O=accessible <p>Each fastener is looked at for accessibility from flip and no flip. Each fastener result, therefore, consists of two letters. The first letter shows the no flip approach; the second shows flip.</p> <p>If the Allowed Failure rate is set low enough, then the accessibility of some of the welds may not be analyzed because when the failure percentage of welds has been found inaccessible, the analysis will stop. If the Allowed Failure rate is 100%, then all the welds will be analyzed.</p>
Analysis	
Angle step	This controls the step size of the different angles that is analyzed. The larger the step size, the more rapid the analysis; the smaller the step size, the more detailed the analysis.
Check Flip	This checks the flip angle of the gun's approach. Selecting this check box slows down and provides detail to the analysis.
Analyze All	When this check box is selected, then the pie results are computed for full 360 degrees. If this option is unchecked, then computation for the pie results are done only till the first accessible location. Flip and no flip results are combined in the same pie results.
Allowed Failure	The Allowed Failure percentage determines the extent to which the analysis is conducted on all the welds in the activity. If you set the allowed failure rate to 0%, once an inaccessible weld is discovered, the analysis ceases for the gun. If you set the Allowed Failure rate to 100%, all welds will be checked, regardless of the accessibility of those checked.
Compute	<p>Clicking on this button begins the analysis. Once you select this button, the Stop button becomes available. If you had previously halted an analysis by clicking the Stop button, selecting Compute begins the analysis from the beginning.</p> <p>If the Use the Context of Selected Process option is checked ON in Tools > Options > DPM - Fastening Process Planner > Tool Selection Assistant, then you have to select an activity to which welds are assigned. (You can select additional welds other than selected activity for analysis, but selecting an activity is a must) otherwise the compute button will be disabled in the Analysis Results dialog box.</p> <p>If you select OFF, for this option then the compute button in the Analysis Result dialog will not be disabled and it is not mandatory to select an activity.</p>
Stop	Clicking on this button halts the analysis. You alter the conditions of the analysis (e.g., checking flip) while the analysis is halted. Once you select this button, Resume and Compute become available.
Resume	Clicking on this button resumes the analysis where it left off when you pressed the Stop button.
Activity Selection	<p>Activity Selection defines the collision queue and part positioning.</p> <p>During the Weldgun Search collision checking is done between the Weldgun and the environment of the selected activity. The environment of the selected activity is the parts loaded up to that activity and resources available to the activity. The resources available to the activity are the resources assigned to the activity and those assigned to all the parent activities. The resources of the parent activities are considered only if the Tools Options setting are on for Display Parent Activity's Resource (see Resource Display settings).</p> <p>The parts are positioned according to the selected activity which is defined by the part positions created by the user.</p>

Collision Tolerance	<p>With this option, you can specify the tolerance value in mm between colliding objects.</p> <p>During a weldgun search while doing collision checking for each home position tool tips for that home position are removed from the collision list.</p> <p>You must have defined if there are any tool tips for each Home Position. For example in close home position the caps can be defined as tool tips because at this home position they are expected to come in contact with the work piece. The same caps need not be defined as tool tips for open home position.</p> <p>If you select ON for the Use the Context of Selected Process option in Tools > Options > DPM - Fastening Process Planner > Tool Selection Assistant, then only objects with respect to activity context will be considered for collision checking against gun during computation.</p> <p>If you select OFF for this option, then all the objects in the scenario (in the 3D world) will be considered for collision checking against gun during computation</p>
Assign Weld Gun to Activity	<p>You can assign the weld gun to the activity. Before assigning the weldgun to the activity, the weldgun needs to be inserted in the resource context. For this the user needs to select the parent resource in the resource context to define the level at which the weld gun will be inserted</p> <p>You can use the WeldGun search command in HUB context, but to Assign WeldGun to activity, the station is loaded with a valid resource tree. (i. e. defined all the activities, assigned the fasteners to that activity, assigned whatever fixtures/jigs(resources).</p> <p>Since WSCs cannot be assigned to activities directly, you have to select a valid resource from the resource tree, if it is not already present. if a valid resource is not there then it is your responsibility to use "create resources for PPR hub" command in the PPR commands tool bar and create a valid resource in resource tree and then use our Assign Gun to activity functionality to assign it to activity.</p>
Show Pie	<p>When a user selects any row in the results column by single click, the row gets highlighted in blue. If the Show Pie check box is also selected, then pie results are displayed in the 3D viewer over each fastener. These pies (as shown below) are specific for the results computed for these fasteners for a particular weld gun. This weld gun is the one chosen through selecting the row in the results column above. If the user selects other row in the results column then pie results for the fasteners are changed and displayed accordingly. (Note that the location of changed pie results remains the same).</p>
Back	<p>The Back button enables you to return to the Weldgun Search dialog box and alter some of the parameters before returning to the Analysis Result dialog box.</p>
Close	<p>Ends the weld gun search.</p>

The image below shows the effect of selecting **Analyze All** and **Show Pie**.



9. Select Compute.



If you have multiple guns and weld points selected, this analysis can take awhile. You can stop the analysis at any time and resume it later. You can also save the analysis on your disk for later reuse.

The tips of the weld guns are not counted in the search, because it is expected that they will come into contact with the objects being welded, and the weld gun search rejects guns that clash with the objects.

