Differences of physical attribute sources

In ZW3D 2017, new physical attribute function allows the users to select different calculation sources of the physical attribute and customize the modification.

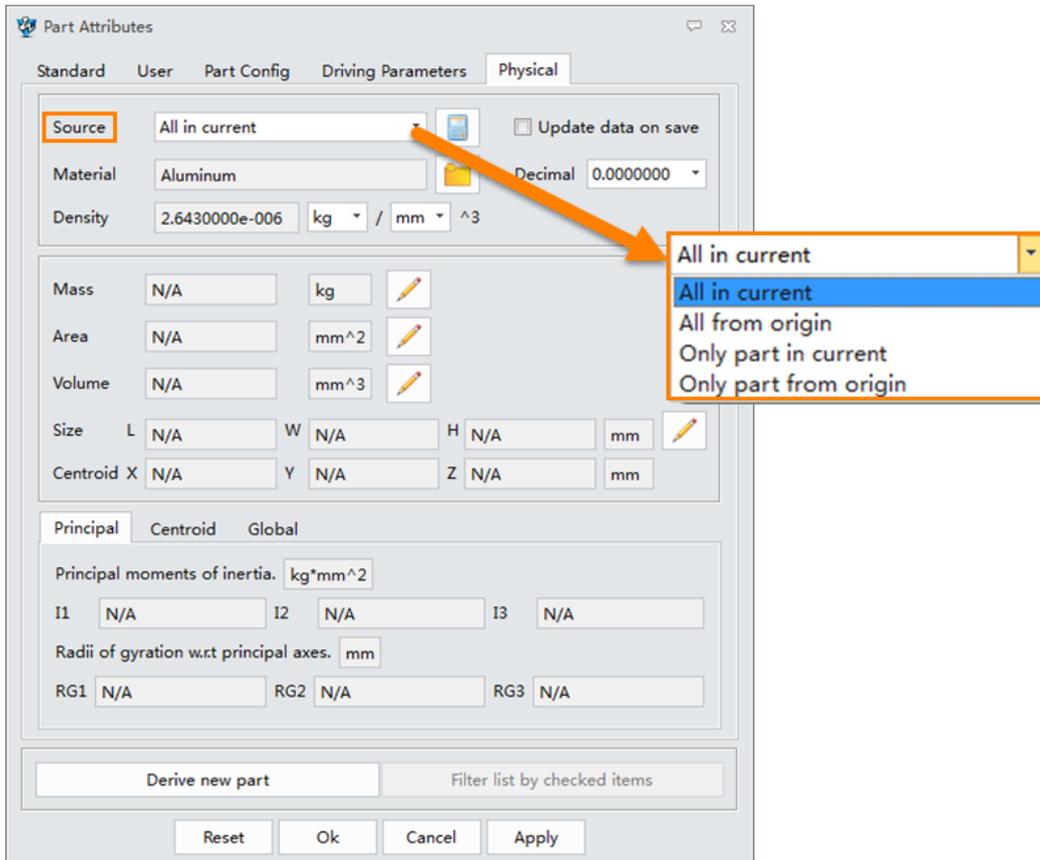The difference of four different sources will be introduced, as shown in figure 1.

Figure1. Source option of physical attributes

Here we divide them into two groups to make a comparison.

"All" VS "Only part"

1) "All" means that all objects in activated part/assembly will be calculated, including shapes, parts inserted as components, and all shapes and parts of sub-assemblies.

2) "Only part" excludes the shapes directly created in assembly/sub-assembly. The calculation only covers part entities in all components.

The structure of Assembly 1	"All"	"Only Part"
Assembly 1		
├─Shapes of the Assembly 1	✓	✗
├─Sub-assembly1		
├─Shapes of the sub-assembly1	✓	✗
├─Part 1	✓	✓
├─Part 2	✓	✓
├─Part 1	✓	✓
├─Part 2	✓	✓

Figure 2. Comparison between "All" and "Only part"

Let's take an assembly case, which contains four shapes, two components (A plane and Top plane) and one sub-assembly with one shape and three components, as shown in figure 3.

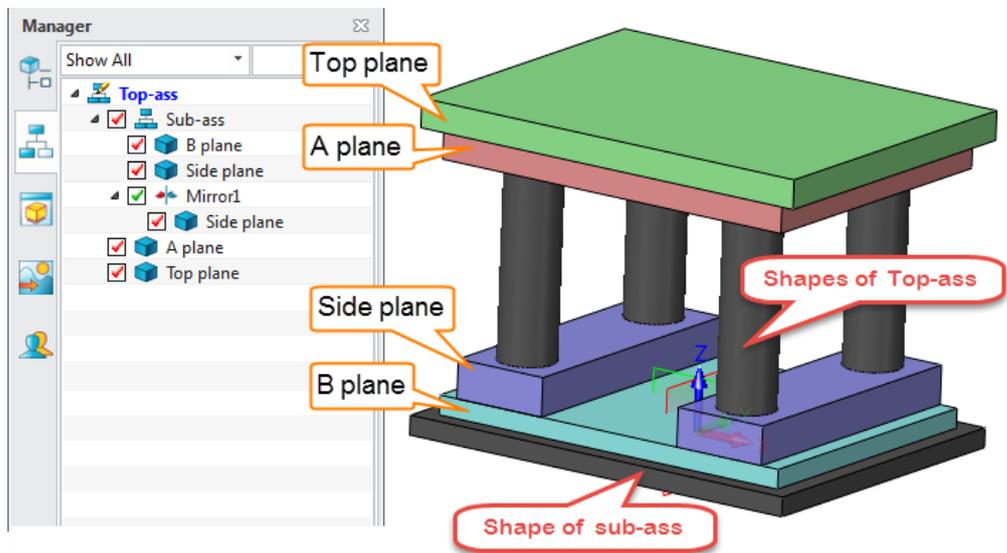For a clear comparison, _all shapes are displayed in dark grey._

Figure 3. An assembly case1

"**All in current**"--- all objects will be calculated with the current status.

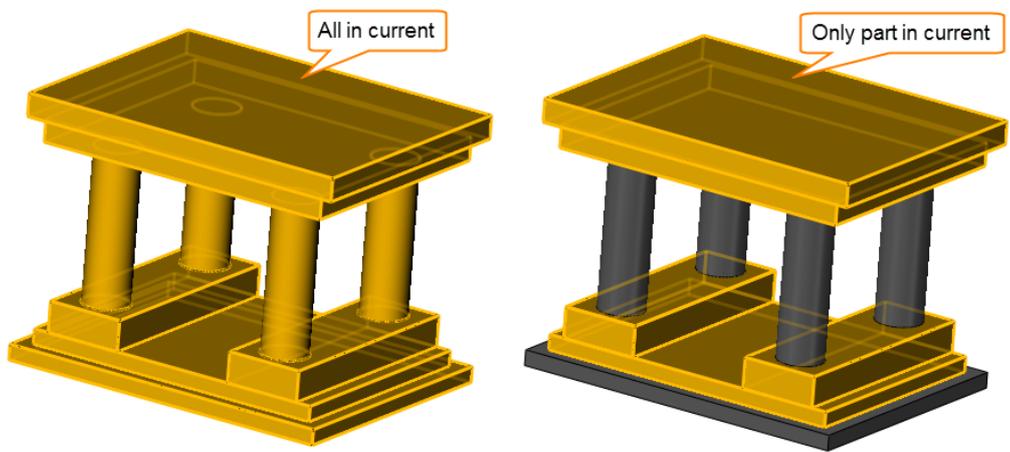"**Only part in current**"--- the dark grey shapes will not be calculated.

Figure 4. "All" VS "Only part"

"In current" VS "From origin"

1) "In current" means the system calculates the physical attribute of models with their current status.

2) "From origin" means the original data of the models will be used to get the result.

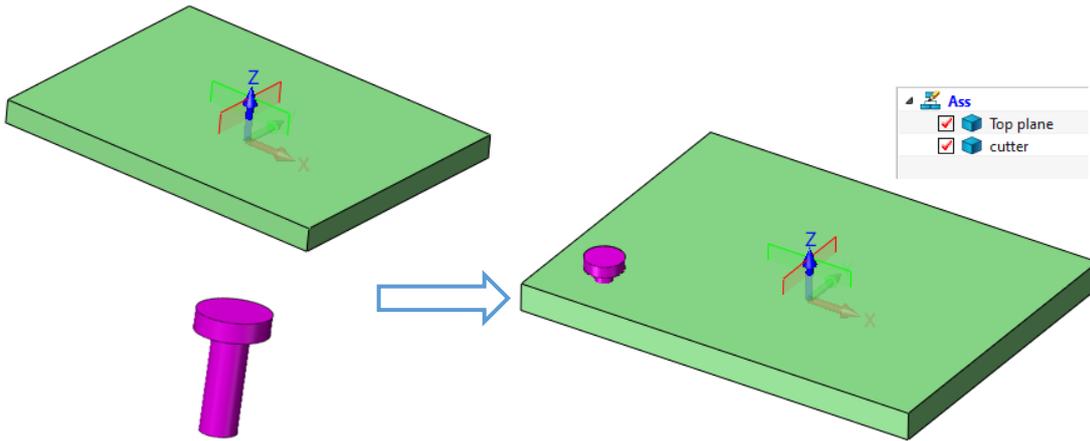Let's take an example combine-used with "Assembly cut" function.

Figure 5. An assembly case2

Refer to the figure below to make an assembly cut operation. Make sure "propagate feature to components" is unchecked.
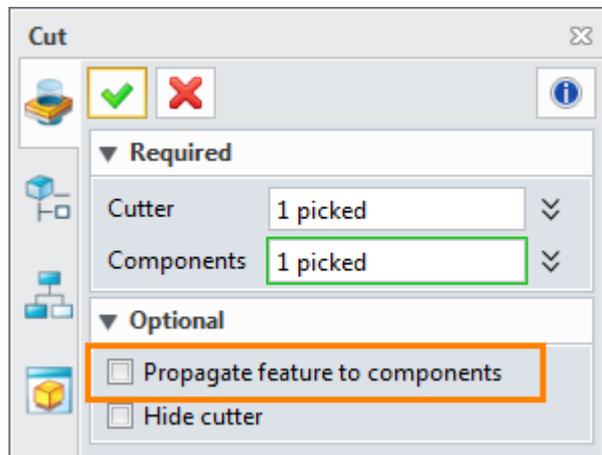

Figure 6.   Assembly cut

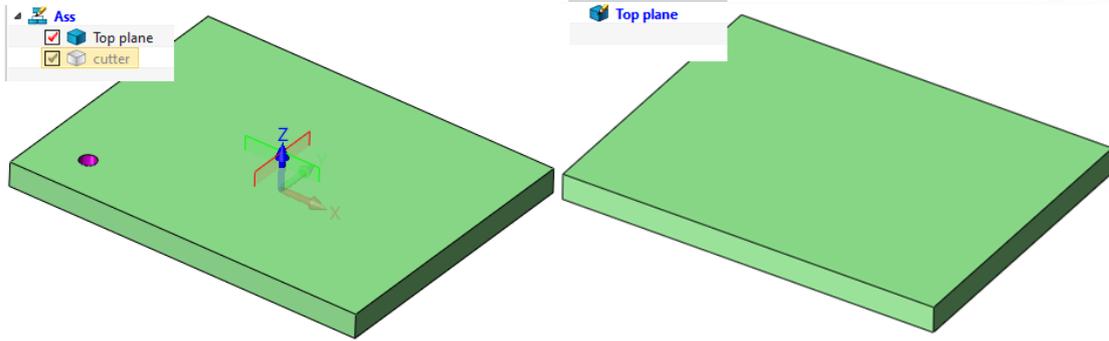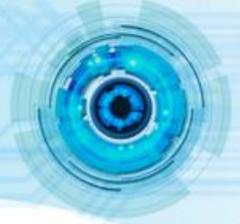After that, the top plane part will have different status between the assembly environment and part environment.

Figure 7.   Different status between part and assembly environment

"**All in current**" --- all objects will be calculated with the current status. It means that top plane shape is calculated with its assembly status.
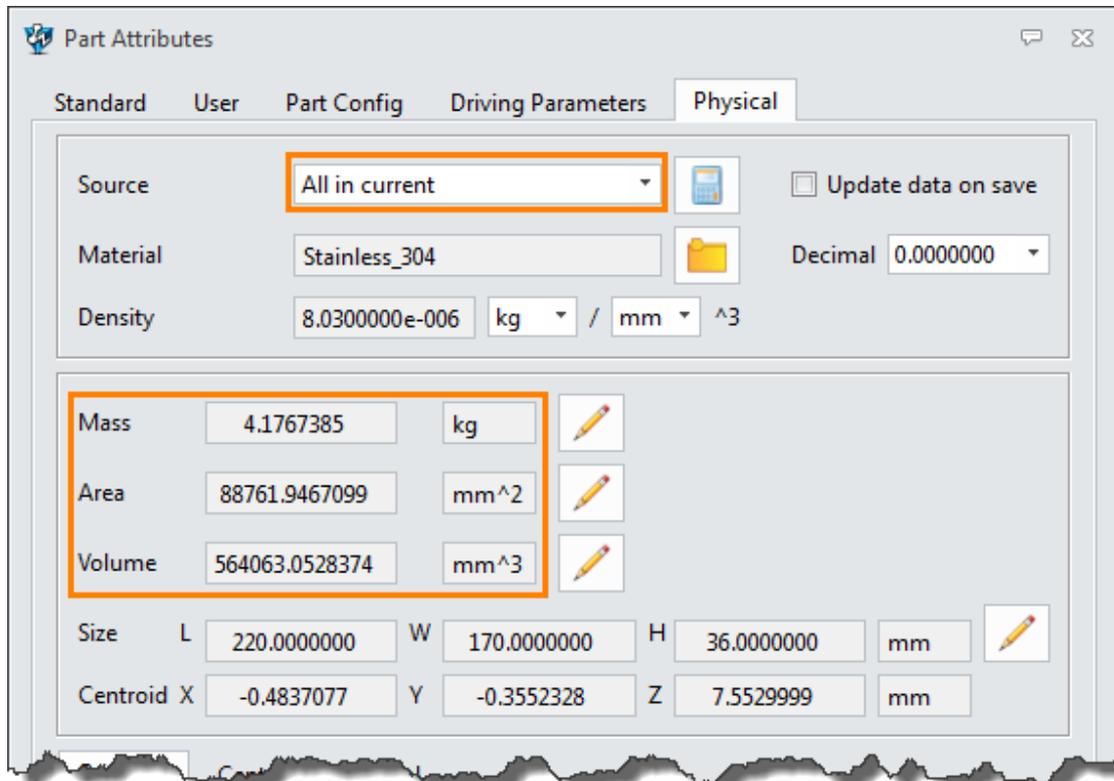

Figure 8. All in current

"**All from origin**" --- all objects will be calculated with the origin data. It means that top plane shape is calculated with its part status.
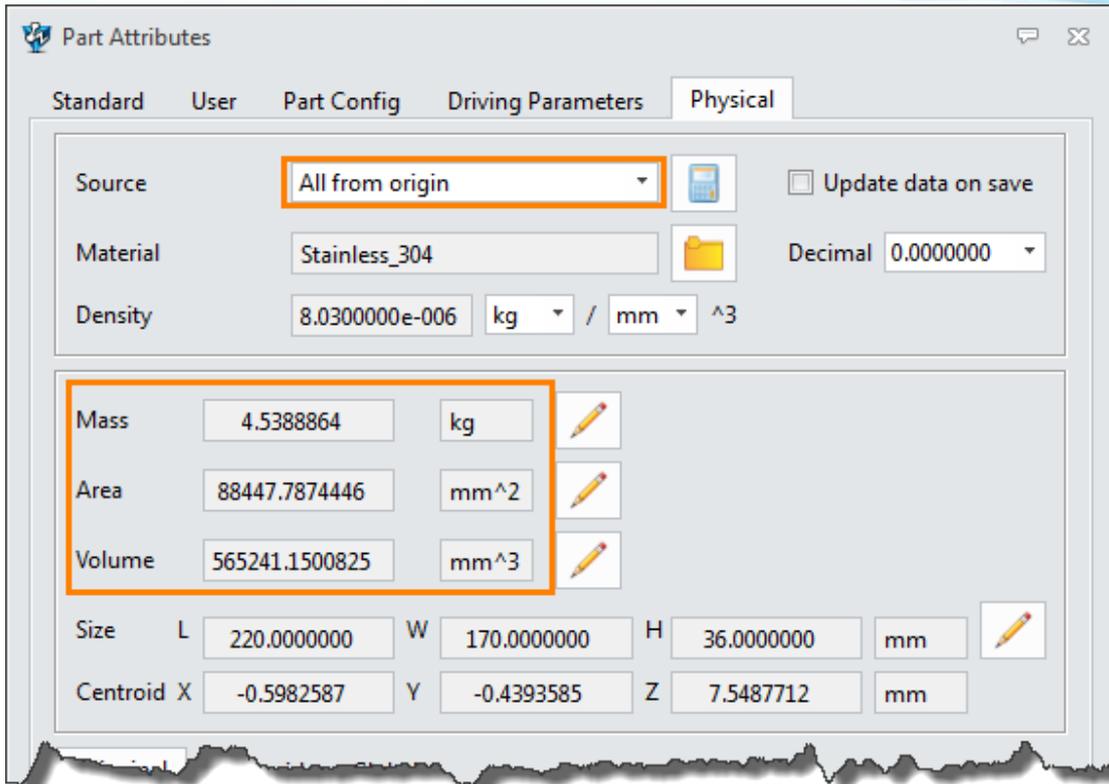
Figure 9. All from origin

According to the above instructions, we can understand the difference between the "All" and "Only part", "in current" and "from origin". So users can infer the meaning of each different calculation scopes.
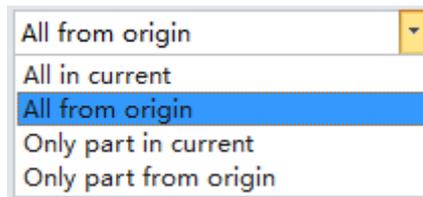

Figure 10. Different calculation scopes

These four types of sources can be used in different application. Chose a suitable one to calculate the physical attribute according to real requirement.