

## / Verify your installation

### Check your PyAnsys Geometry version

```
from ansys.geometry.core import __version__
print(f"PyAnsys Geometry version: {__version__}")
```

```
PyAnsys Geometry version: 0.8.2
```

## / Sketching

There are two ways of creating 2D sketches in PyAnsys Geometry.

```
from ansys.geometry.core.sketch import Sketch
from ansys.geometry.core.math import Point2D
```

### Functional-style sketching

```
sketch = Sketch()

(
    sketch
    .segment_to_point(Point2D([3, 3]), "Segment2")
    .segment_to_point(Point2D([3, 2]), "Segment3")
    .segment_to_point(Point2D([0, 0]), "Segment4")
)
```

You can visualize the sketch by calling the plot method.

```
sketch.plot()
```

### Object-oriented sketching

```
sketch = Sketch()

sketch.triangle(
    Point2D([-10, 10]),
    Point2D([5, 6]),
    Point2D([-10, -10]),
)
```

## / Modeling

### Launch a modeling session

```
from ansys.geometry.core import launch_modeler
modeler = launch_modeler()
print(modeler)
```

```
Ansys Geometry Modeler (0x24cb3a73ad0)
```

```
Ansys Geometry Modeler Client (0x24cb3ae3dd0)
Target:      localhost:700
Connection: Healthy
```

By default, it will detect which modeling service is available on your system and launch it. If you have multiple modeling services installed, you can specify which one to use by passing the mode argument.

```
modeler = launch_modeler(mode='spaceclaim')
modeler = launch_modeler(mode='discovery')
modeler = launch_modeler(mode='geometry_service')
```

### Connect to an existing modeler

```
from ansys.geometry.core import Modeler
modeler = Modeler()
print(modeler)
```

### Create a design

```
design = modeler.create_design("MyDesign")
print(design)
```

```
ansys.geometry.core.designer.Design 0x24cb3b9dc70
Name                                : MyDesign
Is active?                          : True
N Bodies                           : 0
N Components                        : 0
N Coordinate Systems                : 0
N Named Selections                  : 0
N Materials                         : 0
N Beam Profiles                     : 0
N Design Points                     : 0
```

### Create a body by extruding a sketch

```
body = design.extrude_sketch("MyBody", sketch, 2)
print(body)
```

```
ansys.geometry.core.designer.Body 0x24cb3bf7bf0
Name                                : MyBody
Exists                              : True
Parent component                    : MyDesign
MasterBody                          : 0:22
Surface body                         : False
Color                               : #D6F7D1
```

### Plot the design

```
design.plot()
```

### Export the design to a file

```
sdocx_path = design.export_to_sdocx()
pmdb_path = design.export_to_pmdb()
para_txt_path = design.export_to_parasolid_text()
para_bin_path = design.export_to_parasolid_bin()
fmd_path = design.export_to_fmd()
step_path = design.export_to_step()
iges_path = design.export_to_iges()
```

## / Extra: Product scripting

Ansys SpaceClaim and Ansys Discovery support product scripting, and so does the Ansys Geometry service. If you have a product script you want to run, you can use the `run_discovery_script_file` method available on the `Modeler` object. The `script_args` parameter is optional and they will be made available to the script inside a dictionary called `argsDict`.

```
result = modeler.run_discovery_script_file(
    file_path="path/to/script.py",
    script_args={"arg1": "value1", "arg2": "value2"},
)
```