

## / Verify your installation

### Check your PyAnsys Geometry version

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

```
PyAnsys Geometry version: 0.10.9
```

## / 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 (0x7f97662034d0)
```

```
Ansys Geometry Modeler Client (0x7f9766203770)
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 0x7f976627cec0
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 0x7f976627dd30
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

```
sdoccx_path = design.export_to_sdoccx()
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()
disco_path = design.export_to_disco()
```

## / 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"},
)
```