

VM 250 Computational Lab Sessions

Lab #3

Virtual Manufacturing with UniGraphics (UG)

Prepared by TA Group



1. Setup

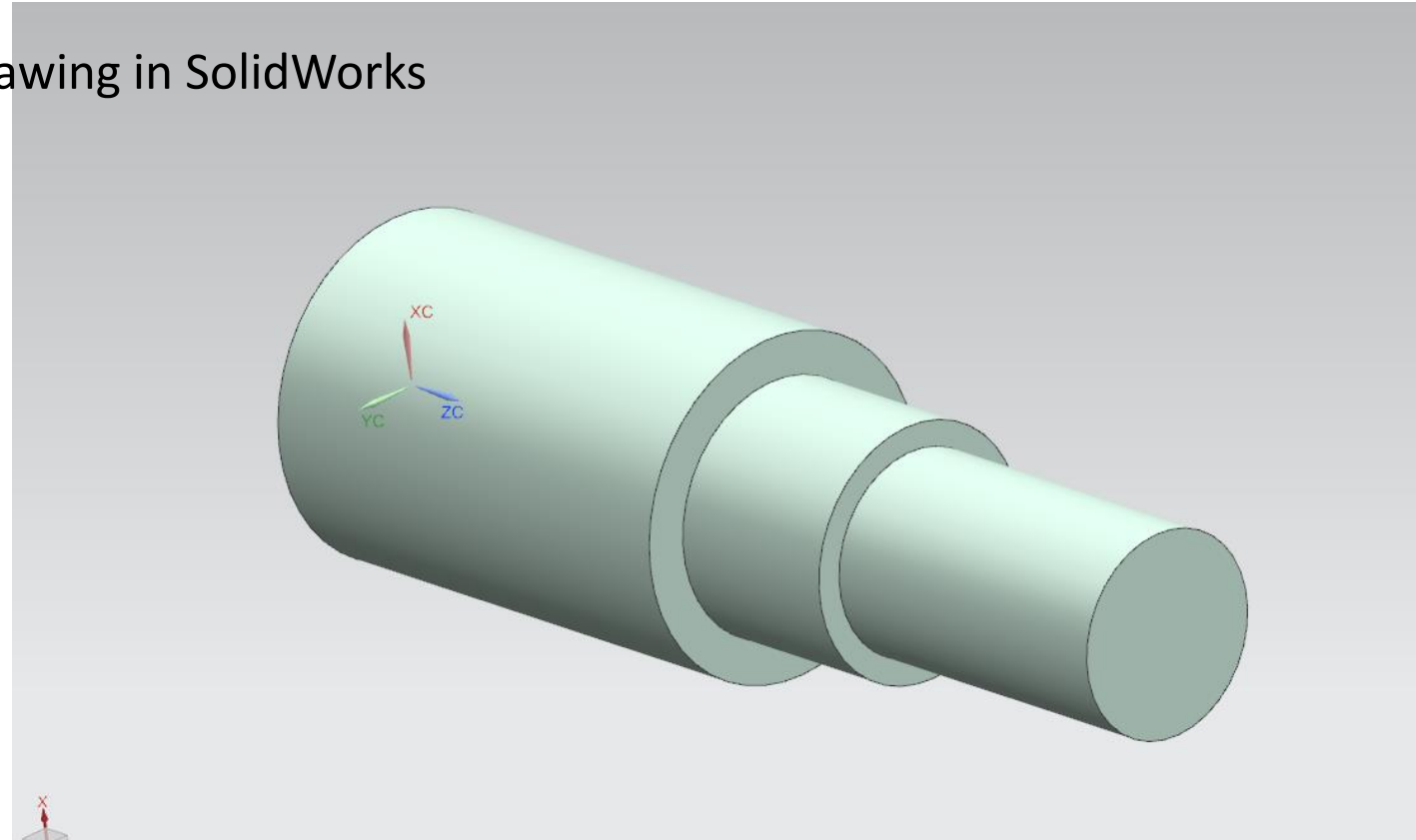
- Import a **Parasolid file in UG** from a drawing in SolidWorks
- Go to the manufacturing module
- Analyze the part.
 - Length (Analysis)
- Define geometry
 - Verify the coordinate systems
 - Define the blank
 - Define part geometry
- Create avoidance geometry
- Create tools

2. Program

- Create operation
- Stepover's cut depth
- Simulate machine

3. Output

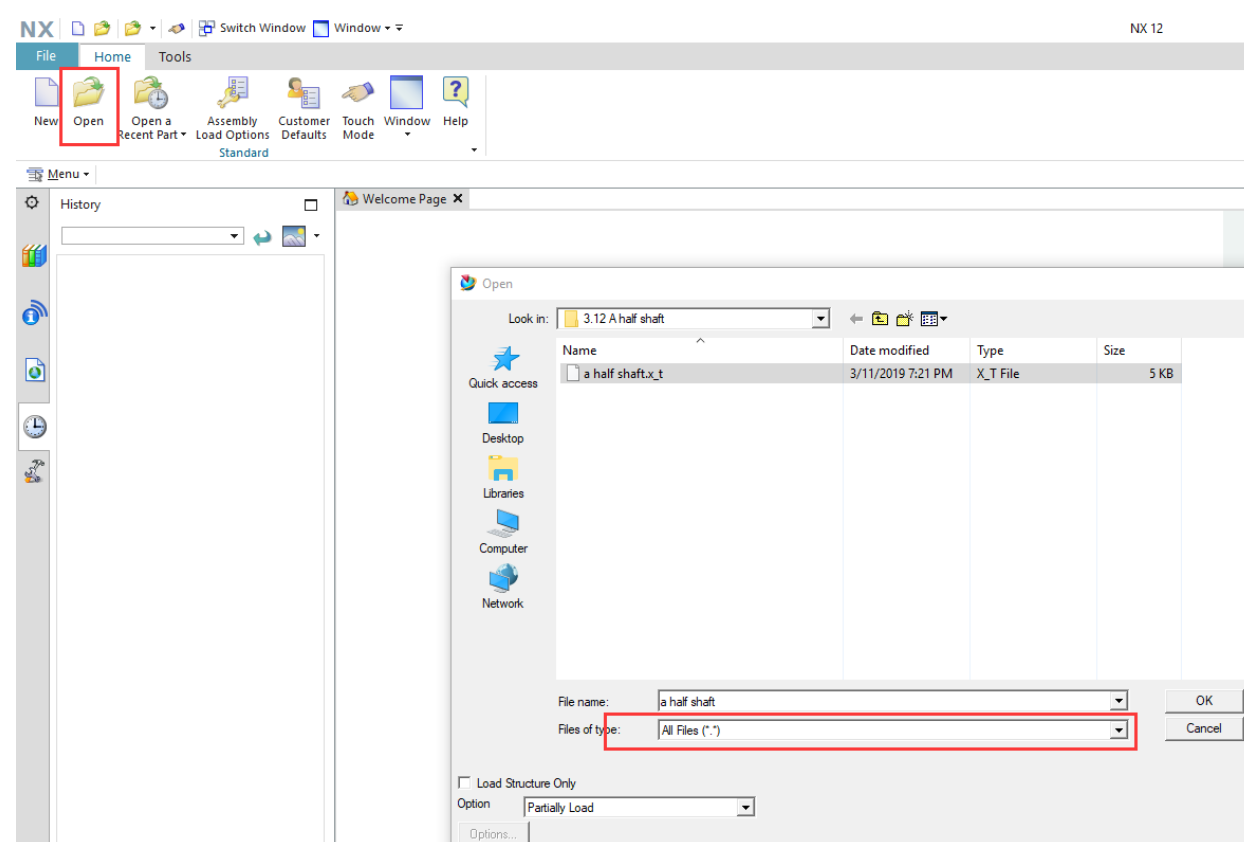
- Post process



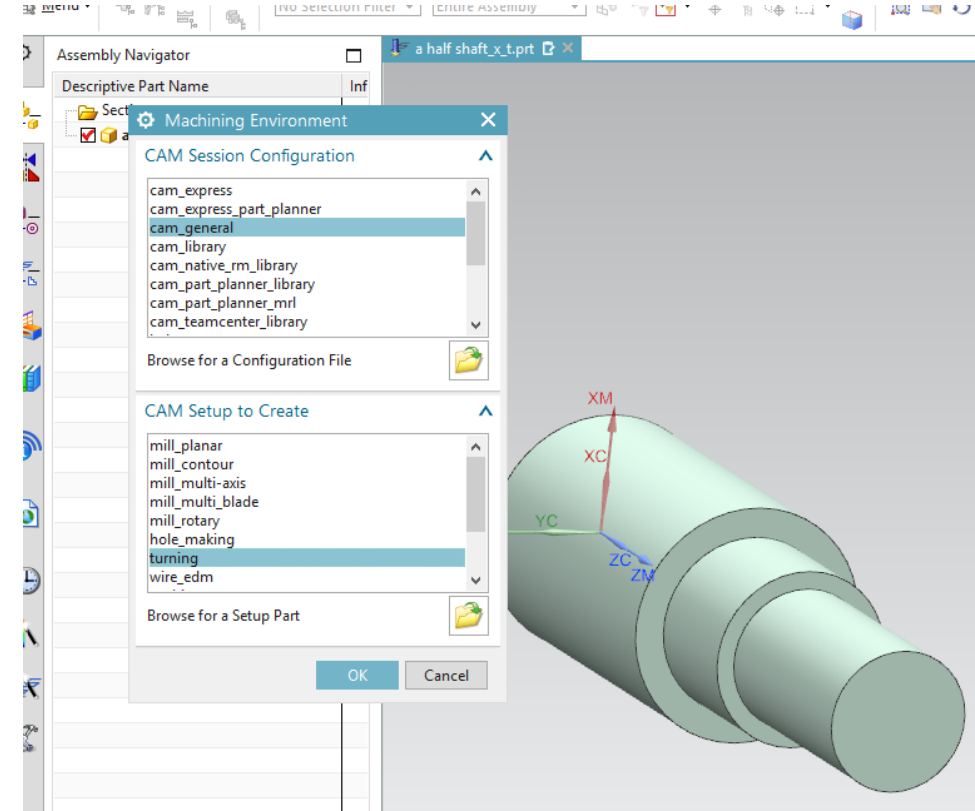
Import a Parasolid file in UG from a drawing in SolidWorks

Setup

- Import a **Parasolid** file in UG from a drawing in SolidWorks
 - A. Save the previous shaft created in SolidWorks as Parasolid (*.x_t)
 - B. Open this file (*.x_t) in UG.
 - C. Go to the manufacturing module and choose **cam_general** and **turning** on the Machining Environment.



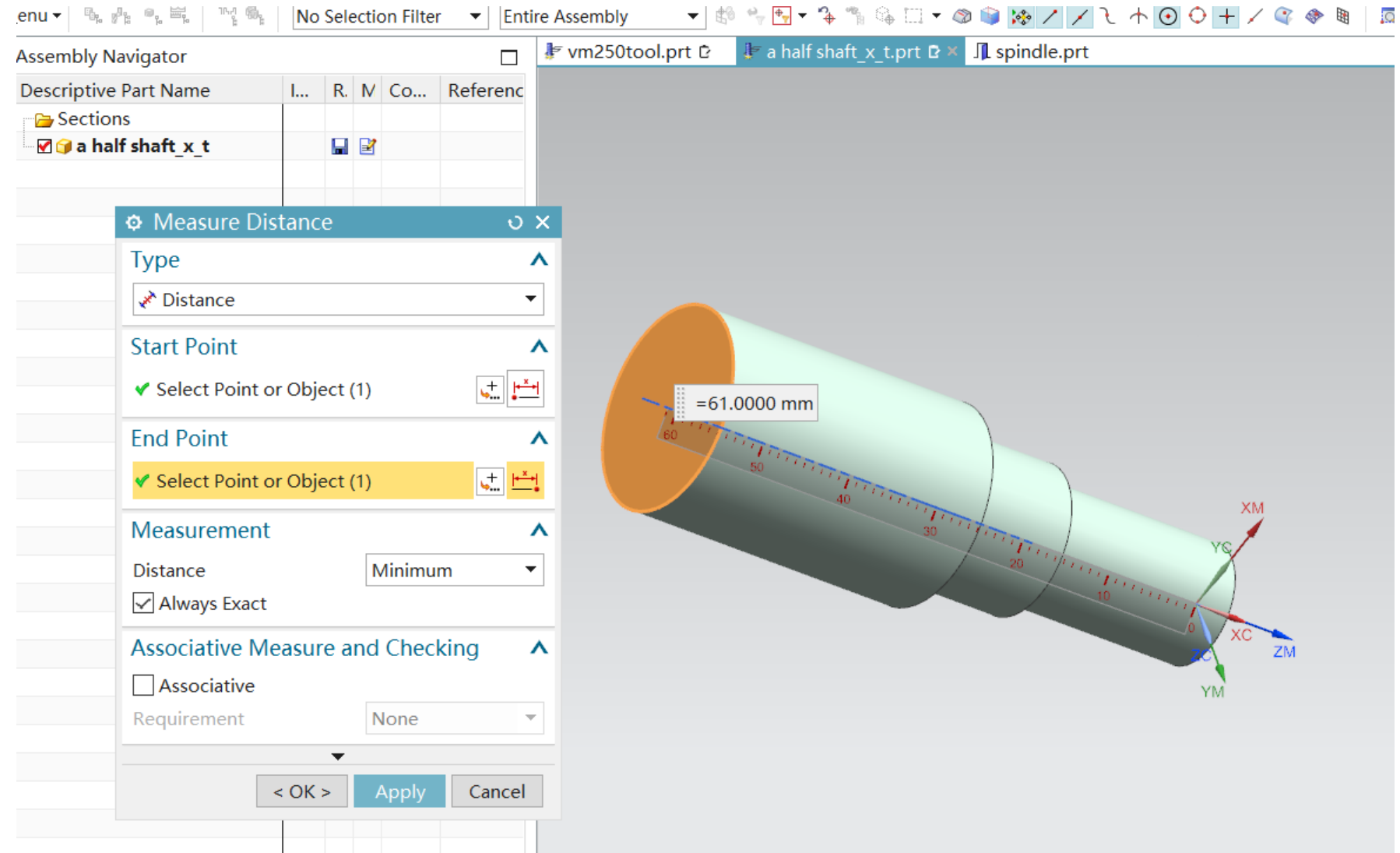
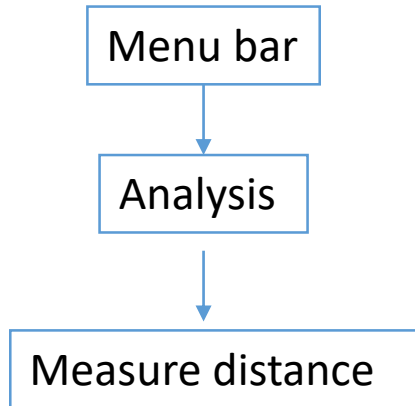
Import Parasolid file in UG from drawing in SolidWorks



choose cam_general and turning

Setup

- Analyze the part.
 - Length (Analysis)



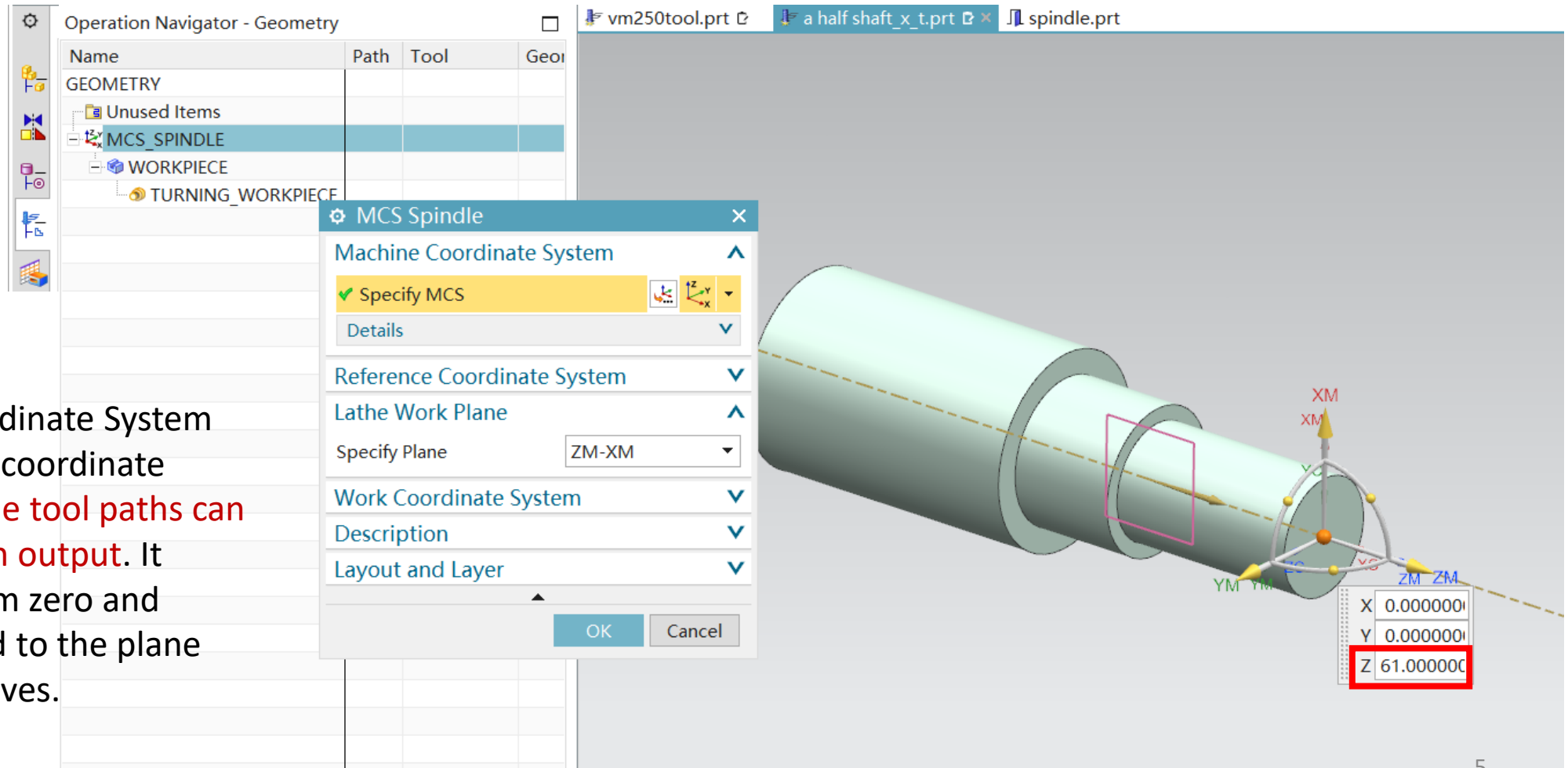
Setup

Define geometry

- Verify the machine coordinate systems (MCS)

- *Note:*

The Machine Coordinate System (**MCS**) defines the coordinate system in which **the tool paths can be generated as an output**. It represents program zero and should be oriented to the plane where a cutter moves.



Setup

Define geometry

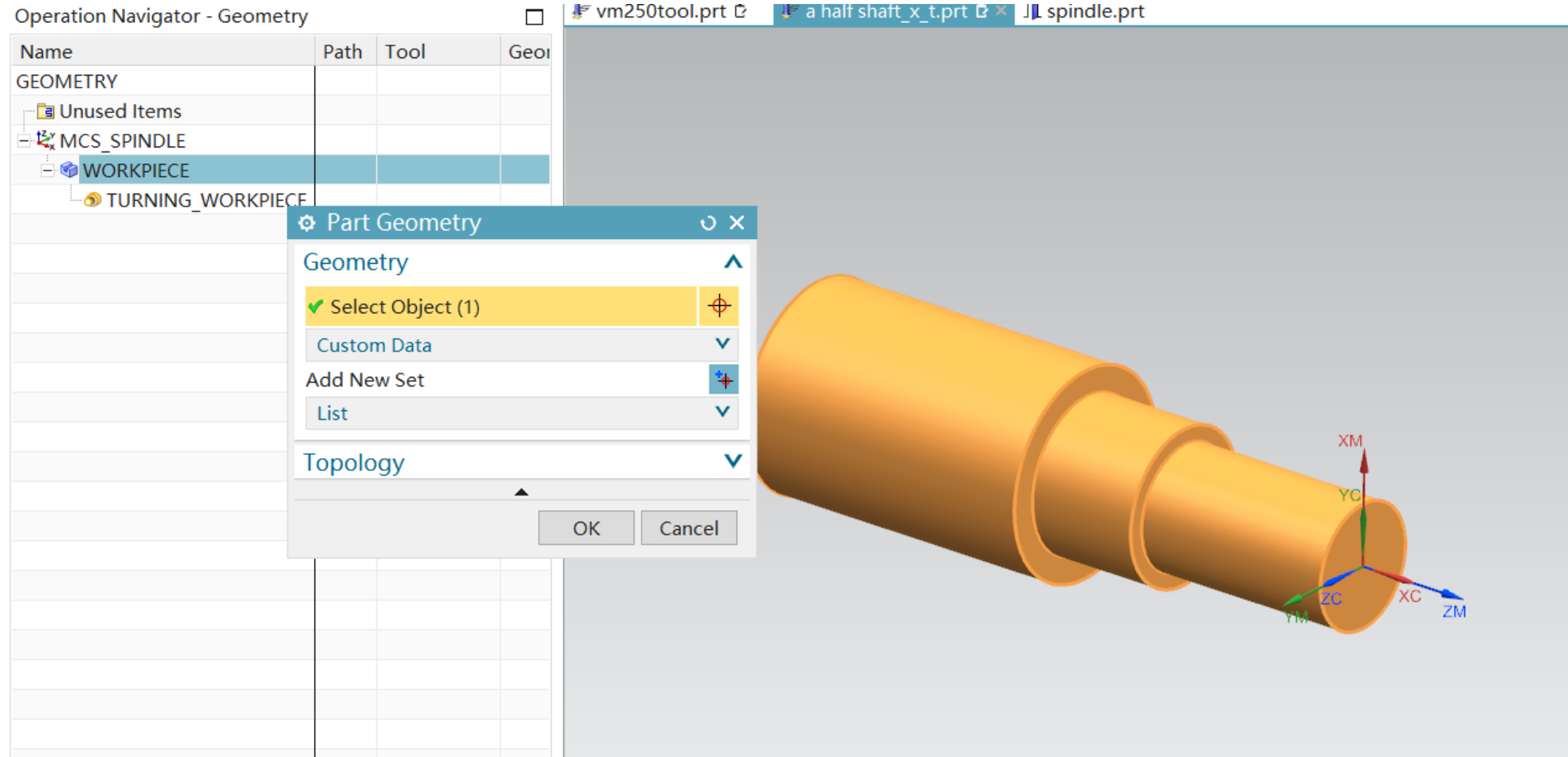
- Define part geometry

1. Right click Workpiece

2.Edit

3. Part Geometry

4. Select the shaft as object



Setup

Define geometry

- Define the blank

1. Right click TURNING_Workpiece

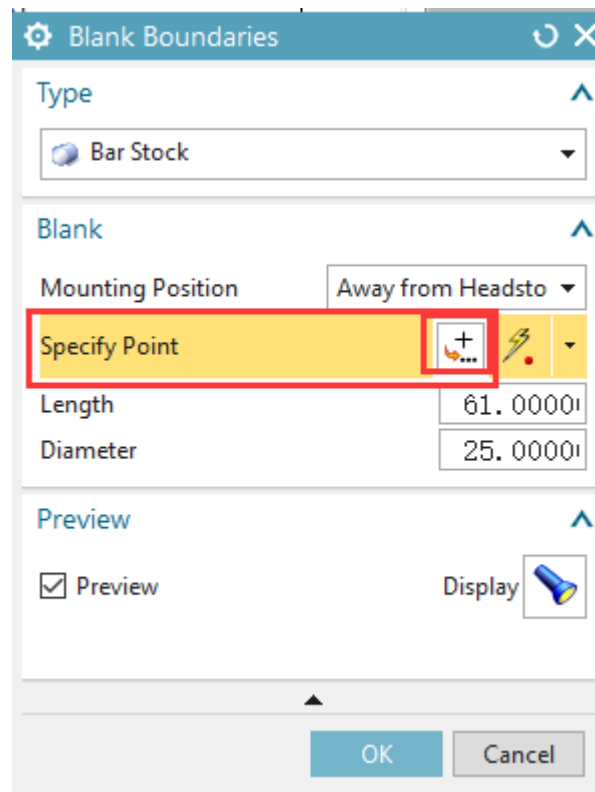
2.Edit

3. Specify Blank Boundaries

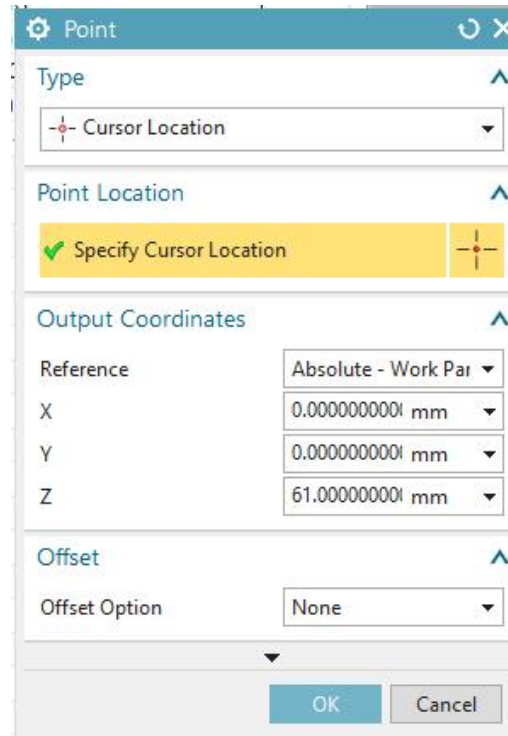


5. Enter the coordinate of the point

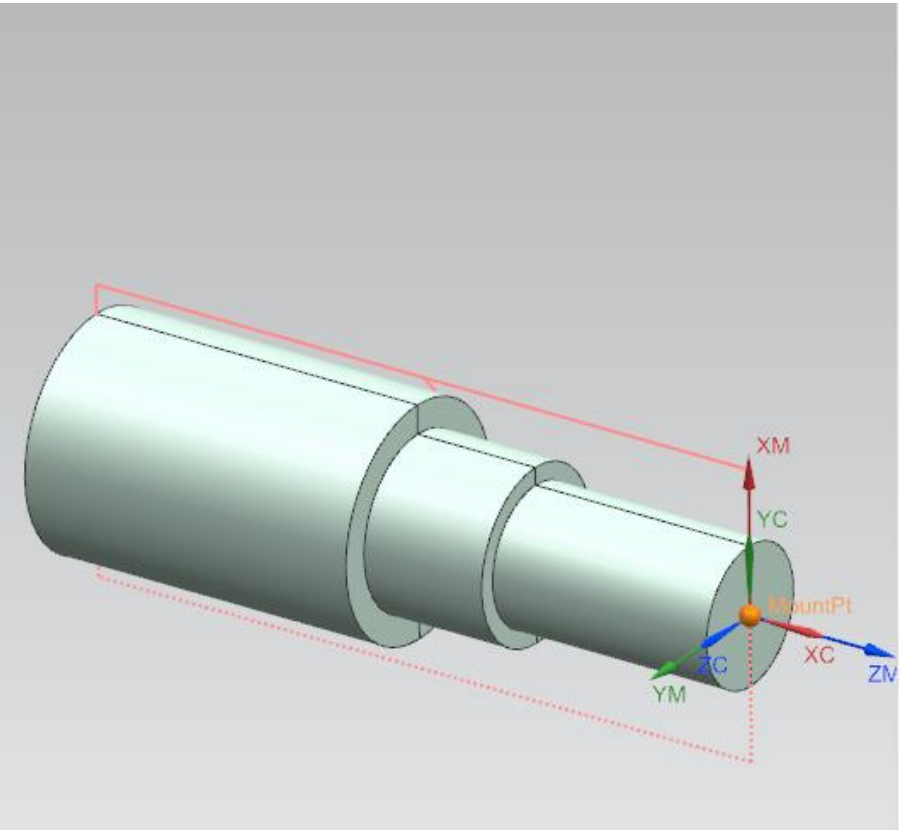
4. Specify Point



4. Specify Point



5. Enter the coordinate of the point



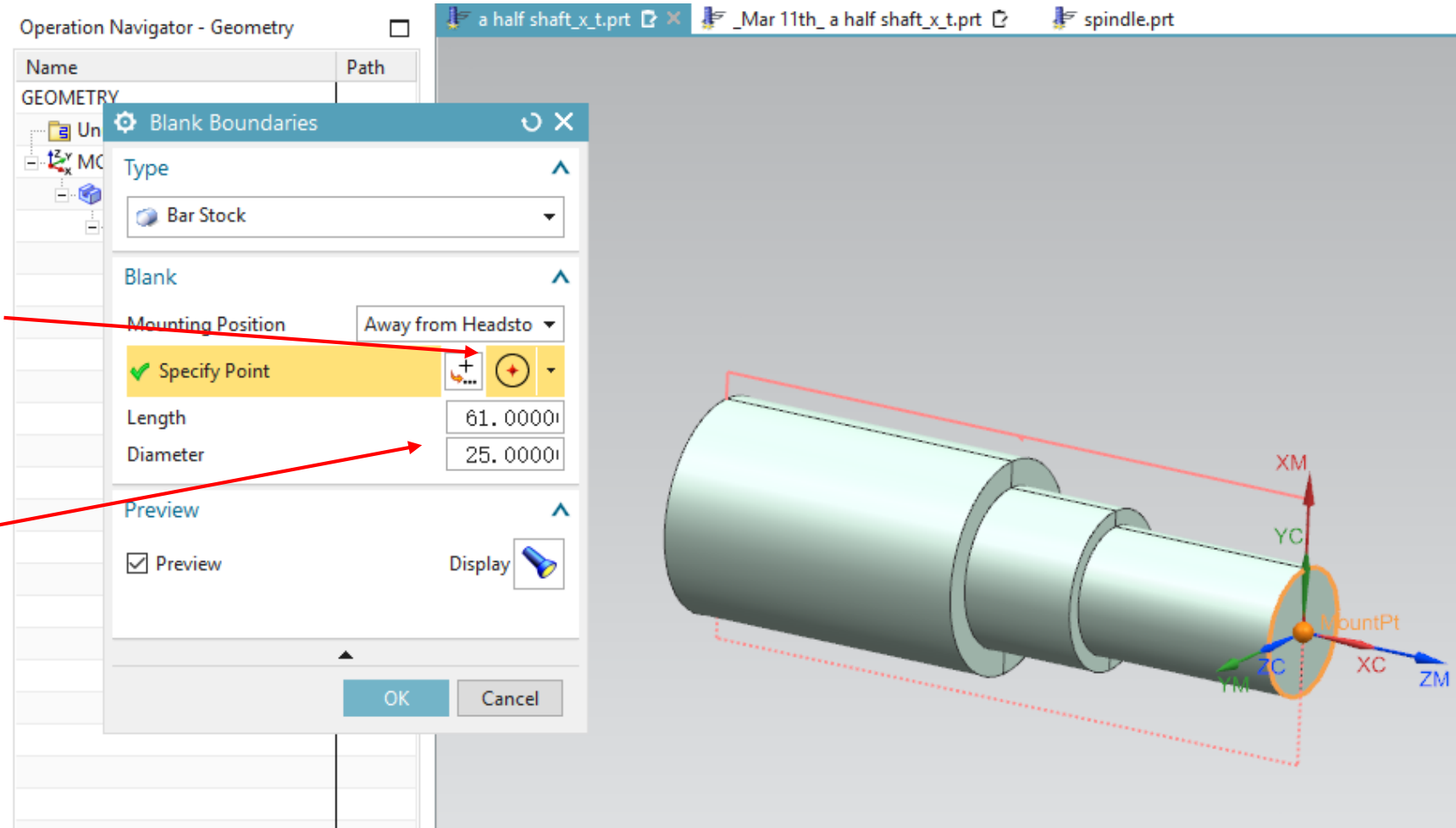
Setup

Define geometry

- Define the blank

6. Set a point as
Arc/Ellipse/Sphere
center

7. Modify
parameters



Setup

Create avoidance geometry

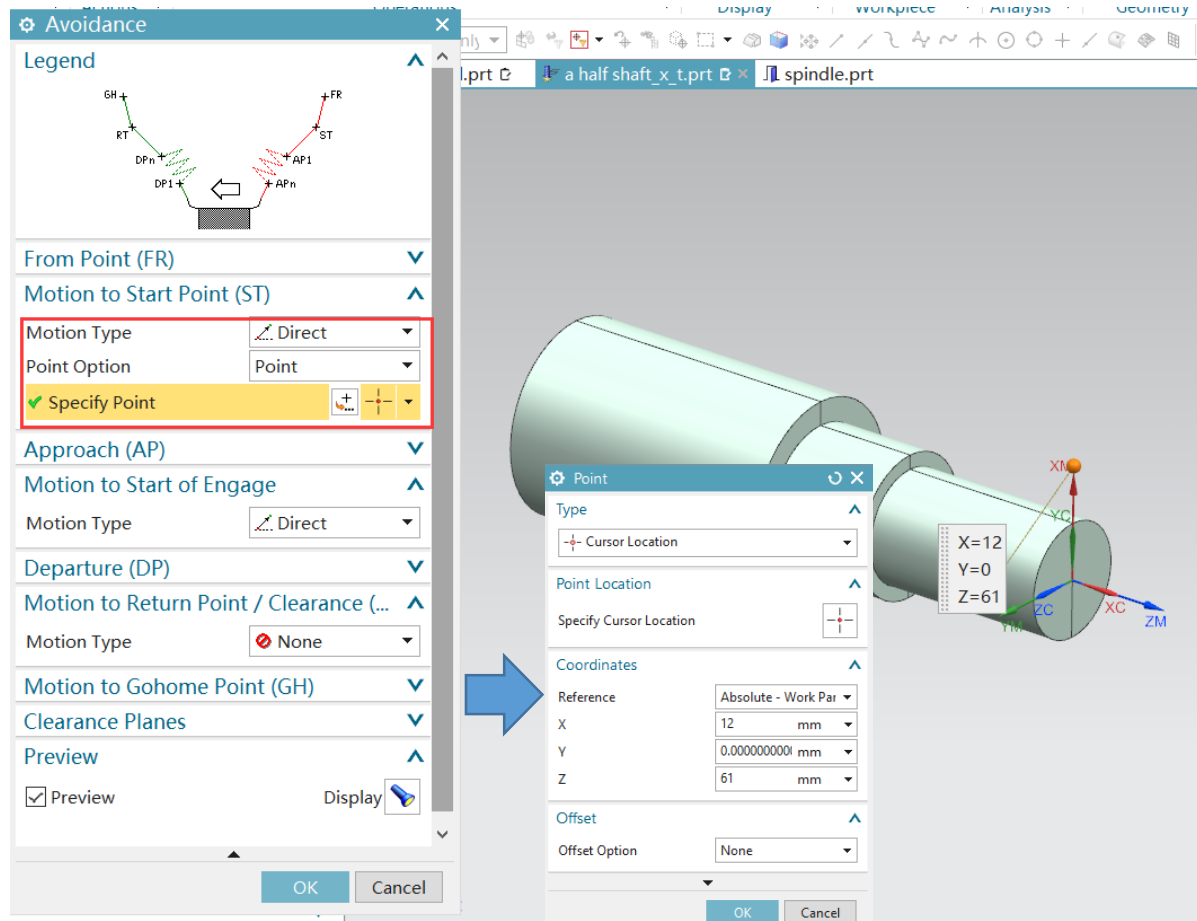
- Define start and return points

1. Right click "Turning _ Workpiece"

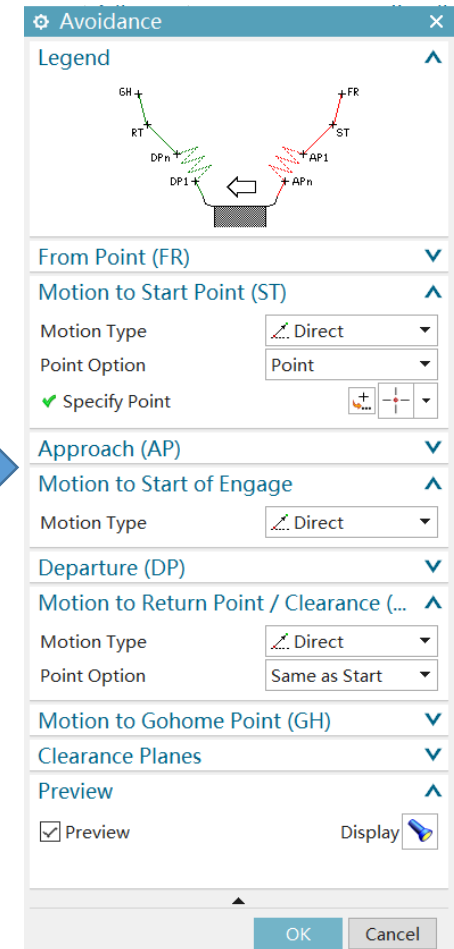
2. Insert

3. Geometry

4. Choose AVOIDANCE as Geometry Subtype



5. Set the motion type and specify point

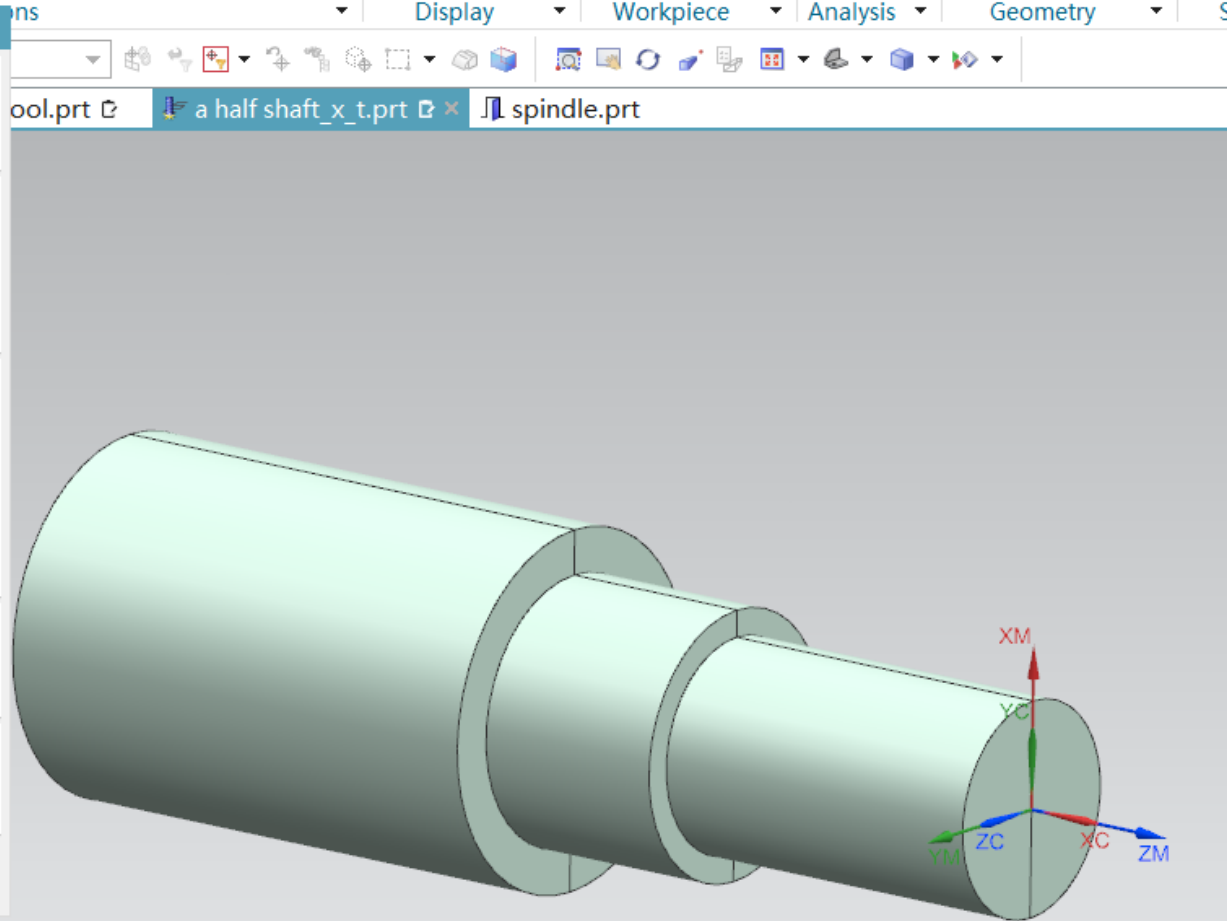
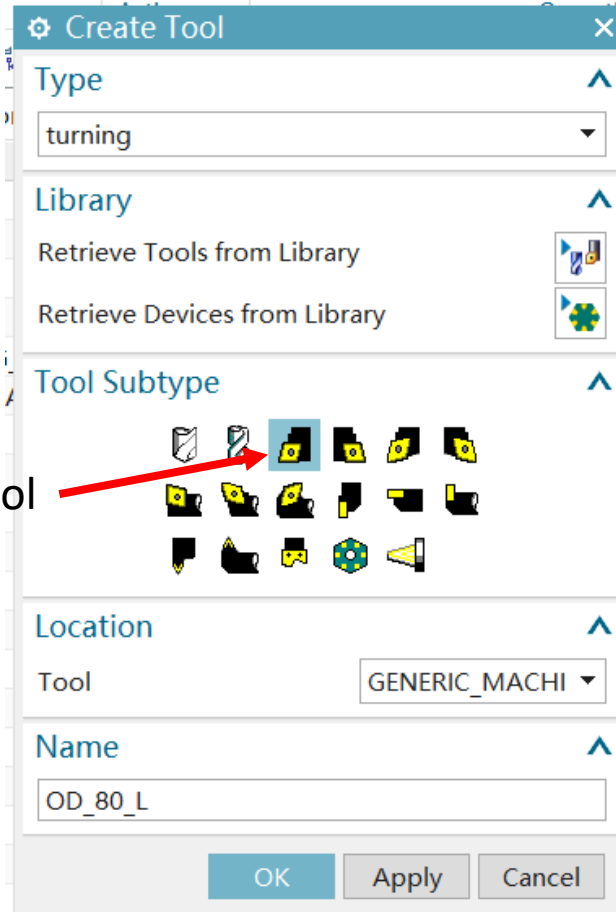
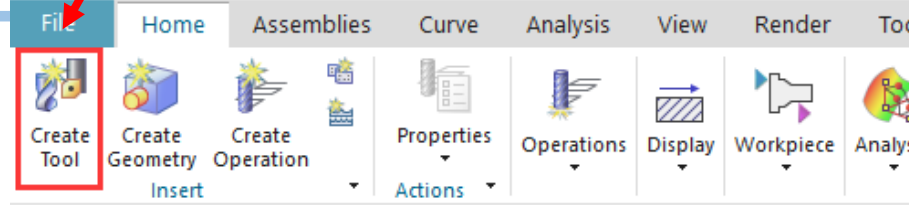


6. Same start and return point

Setup

1. Click this one

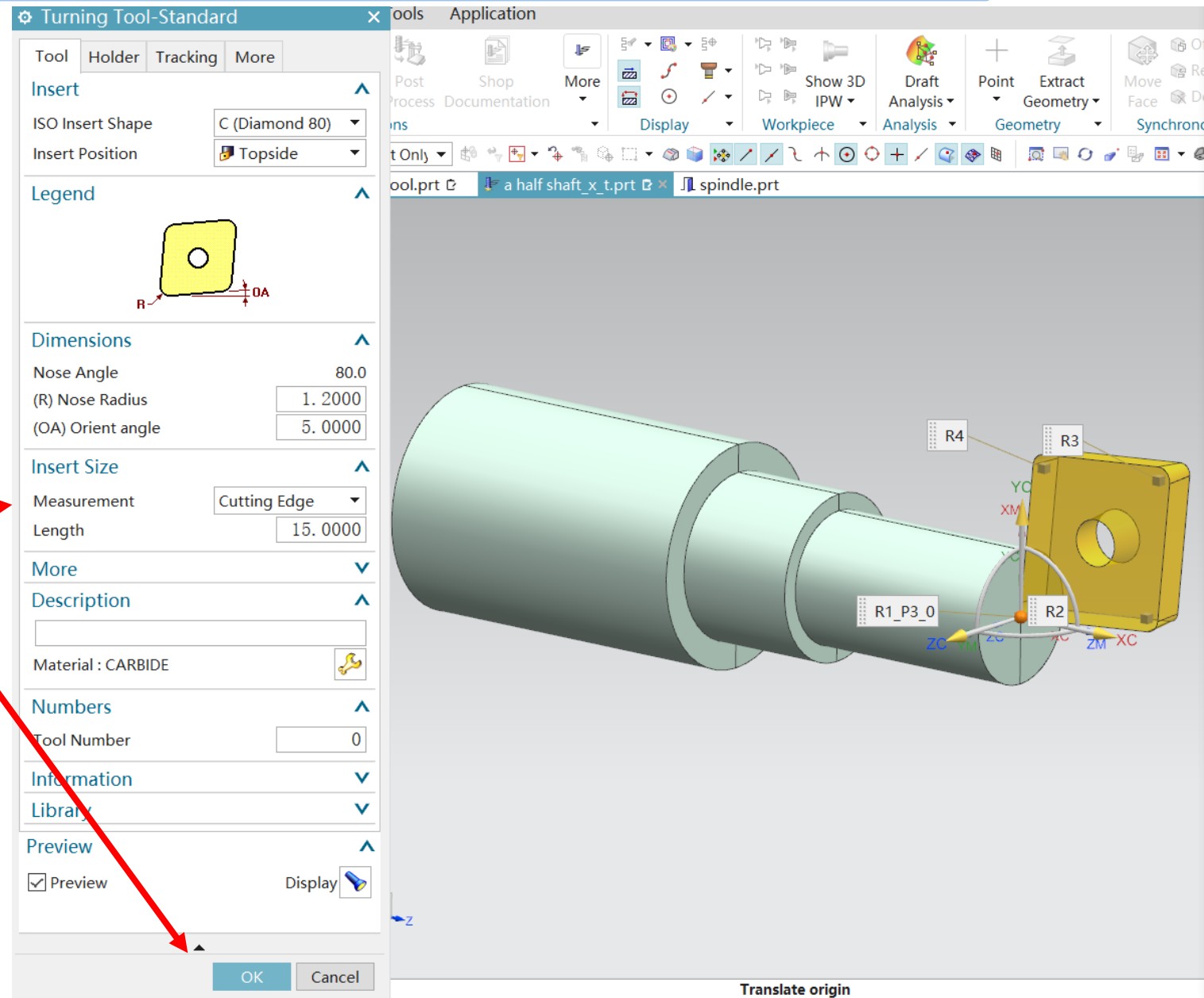
- Create tools



Setup

- Create tools

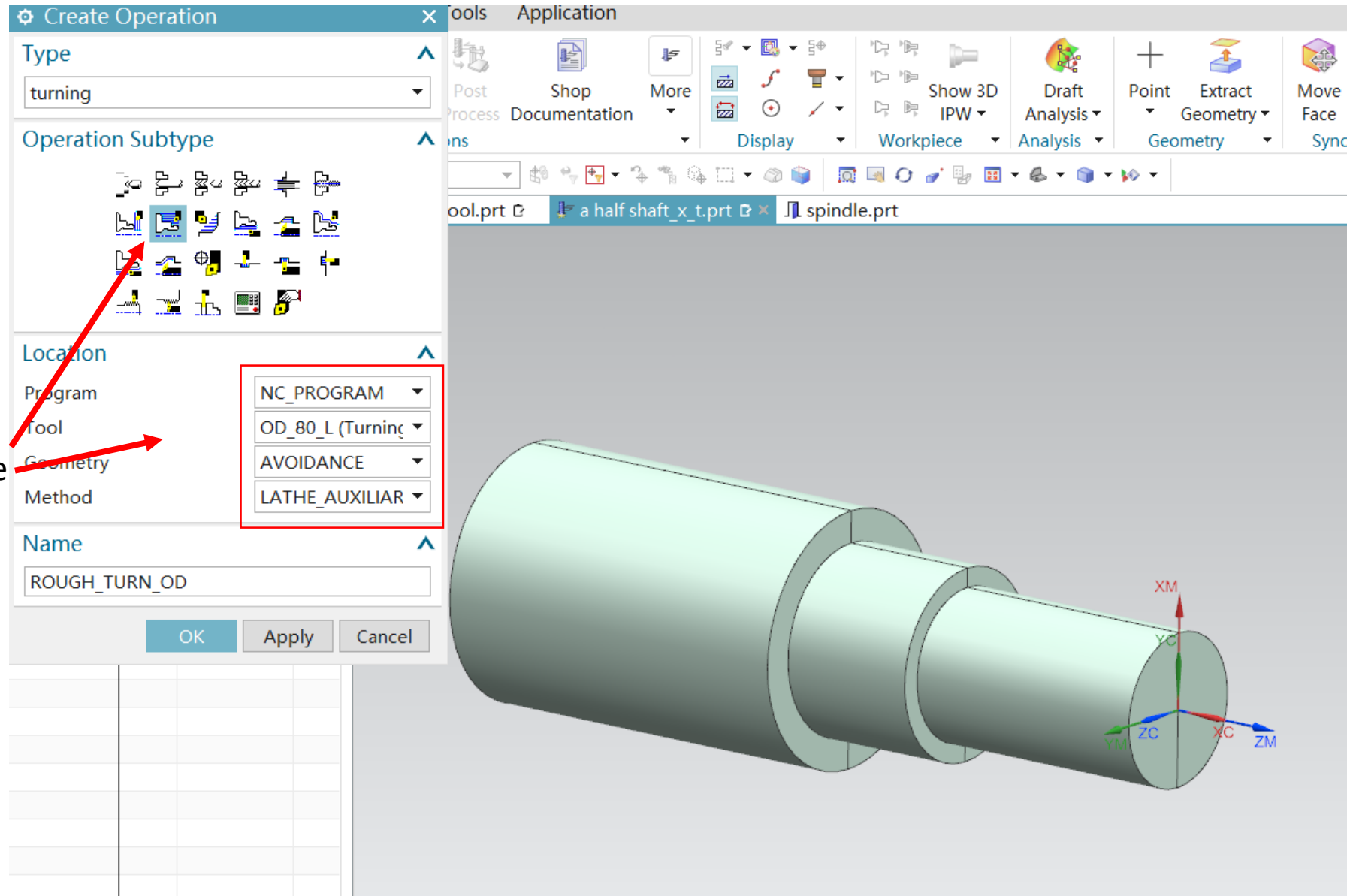
Verify these parameters
And click OK



Program

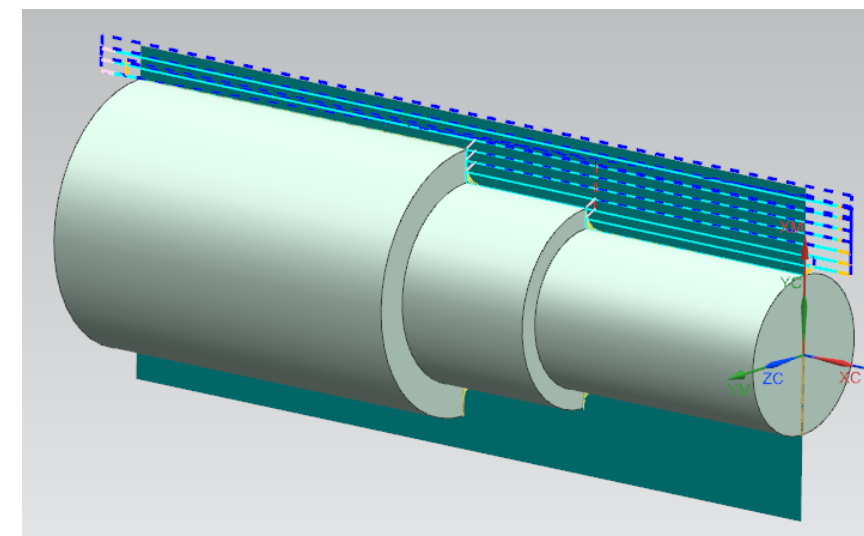
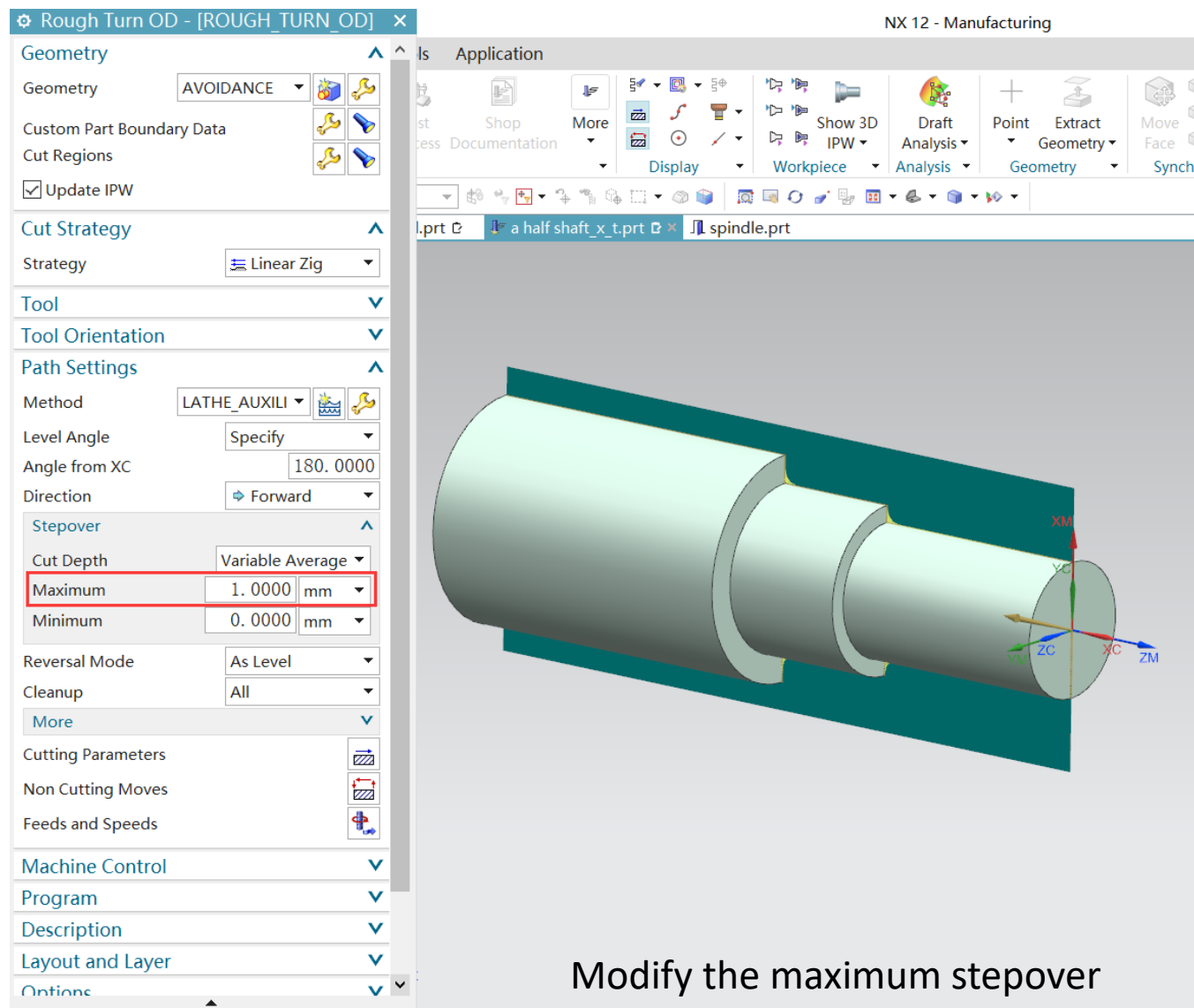
- Create operation

1. Create operation



Program

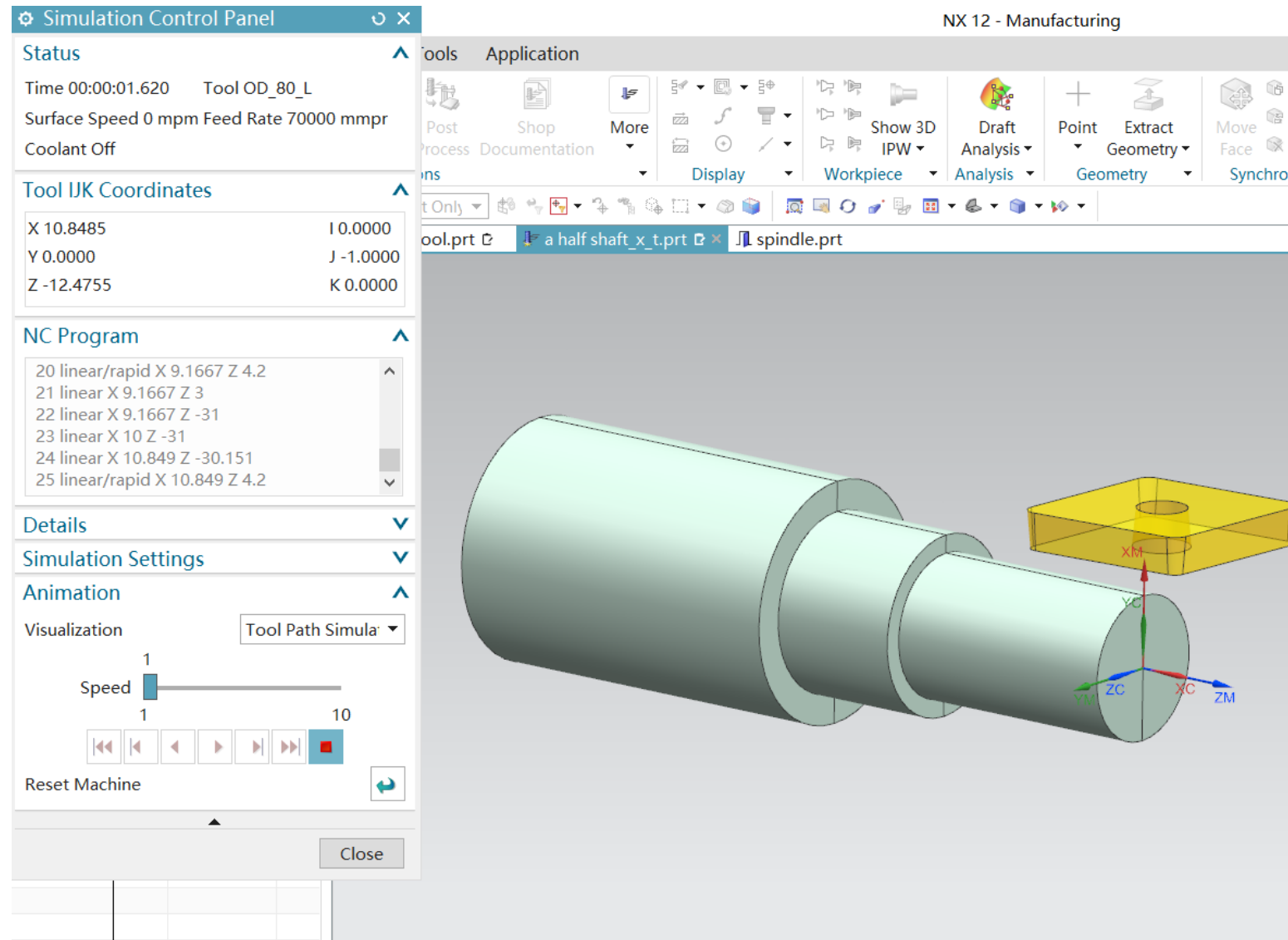
- Set stepover's maximum cut depth



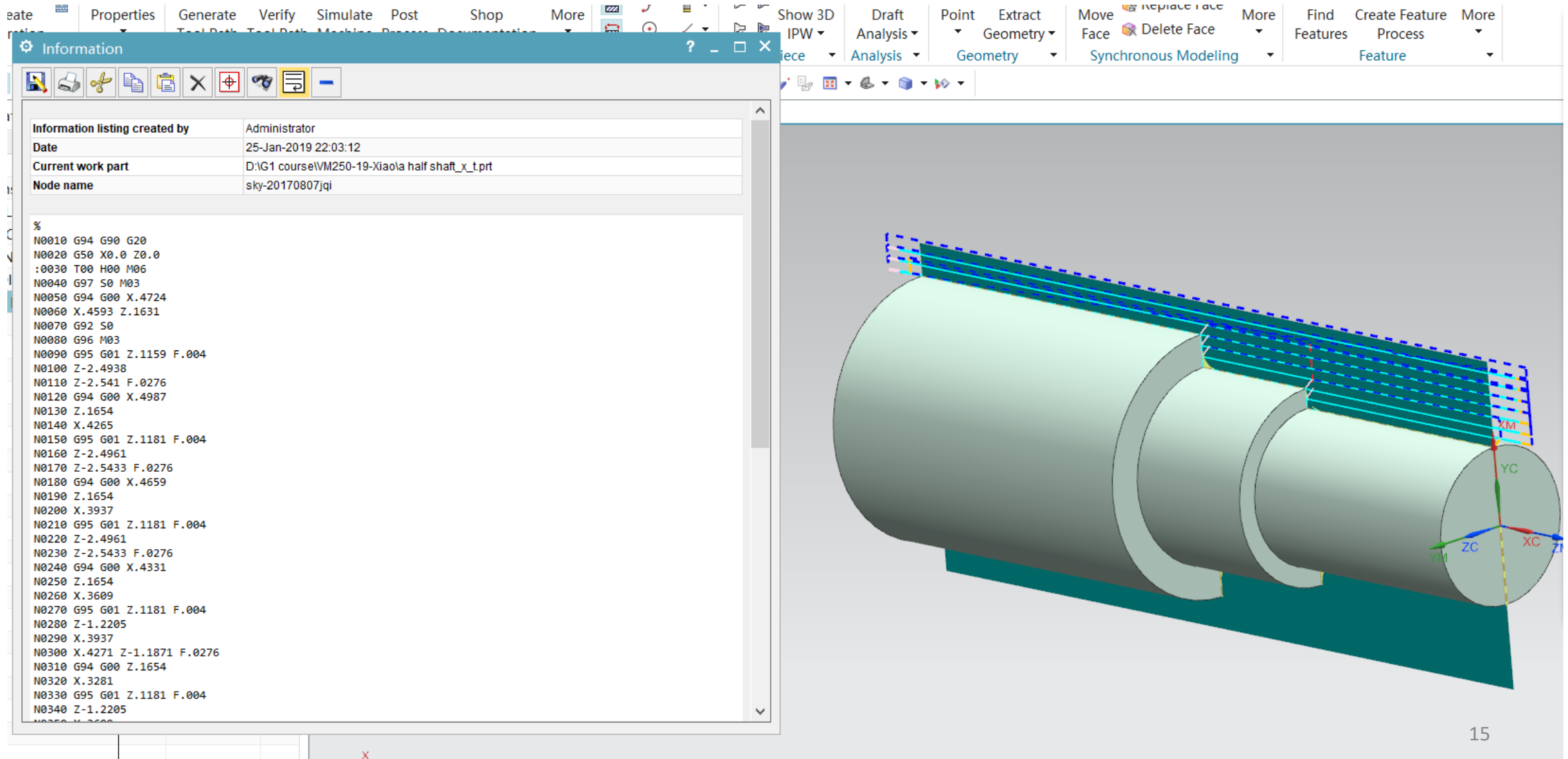
Generate the operation

Program

- Simulate machine



- Post process



The screenshot displays a CAD software interface with a 3D model of a mechanical part on the right and a post-processor window on the left. The 3D model is a cylindrical component with a central hole and a flange, rendered in a light blue color. A coordinate system (XC, YC, ZC) is visible at the bottom right of the model. The post-processor window, titled "Information", shows a list of information created by the Administrator on 25-Jan-2019 22:03:12. The current work part is "D:\G1 course\VM250-19-Xiao\half shaft_x.tprt" and the node name is "sky-20170807jq". Below this, a list of numerical data is displayed, including values for G94, G90, G20, X0.0, Z0.0, T00, H00, M06, G97, S0, M03, G94, G00, X.4724, X.4593, Z.1631, G92, S0, G96, M03, G95, G01, Z.1159, F.004, Z-2.4938, Z-2.541, F.0276, G94, G00, X.4987, Z.1654, X.4265, G95, G01, Z.1181, F.004, Z-2.4961, Z-2.5433, F.0276, G94, G00, X.4659, Z.1654, X.3937, G95, G01, Z.1181, F.004, Z-2.4961, Z-2.5433, F.0276, G94, G00, X.4331, Z.1654, X.3609, G95, G01, Z.1181, F.004, Z-1.2205, X.3937, X.4271, Z-1.1871, F.0276, G94, G00, Z.1654, X.3281, G95, G01, Z.1181, F.004, Z-1.2205, and X.3609.

Information listing created by	Administrator
Date	25-Jan-2019 22:03:12
Current work part	D:\G1 course\VM250-19-Xiao\half shaft_x.tprt
Node name	sky-20170807jq

```
%  
N0010 G94 G90 G20  
N0020 G50 X0.0 Z0.0  
:0030 T00 H00 M06  
N0040 G97 S0 M03  
N0050 G94 G00 X.4724  
N0060 X.4593 Z.1631  
N0070 G92 S0  
N0080 G96 M03  
N0090 G95 G01 Z.1159 F.004  
N0100 Z-2.4938  
N0110 Z-2.541 F.0276  
N0120 G94 G00 X.4987  
N0130 Z.1654  
N0140 X.4265  
N0150 G95 G01 Z.1181 F.004  
N0160 Z-2.4961  
N0170 Z-2.5433 F.0276  
N0180 G94 G00 X.4659  
N0190 Z.1654  
N0200 X.3937  
N0210 G95 G01 Z.1181 F.004  
N0220 Z-2.4961  
N0230 Z-2.5433 F.0276  
N0240 G94 G00 X.4331  
N0250 Z.1654  
N0260 X.3609  
N0270 G95 G01 Z.1181 F.004  
N0280 Z-1.2205  
N0290 X.3937  
N0300 X.4271 Z-1.1871 F.0276  
N0310 G94 G00 Z.1654  
N0320 X.3281  
N0330 G95 G01 Z.1181 F.004  
N0340 Z-1.2205  
N0350 X.3609
```