SIEMENS

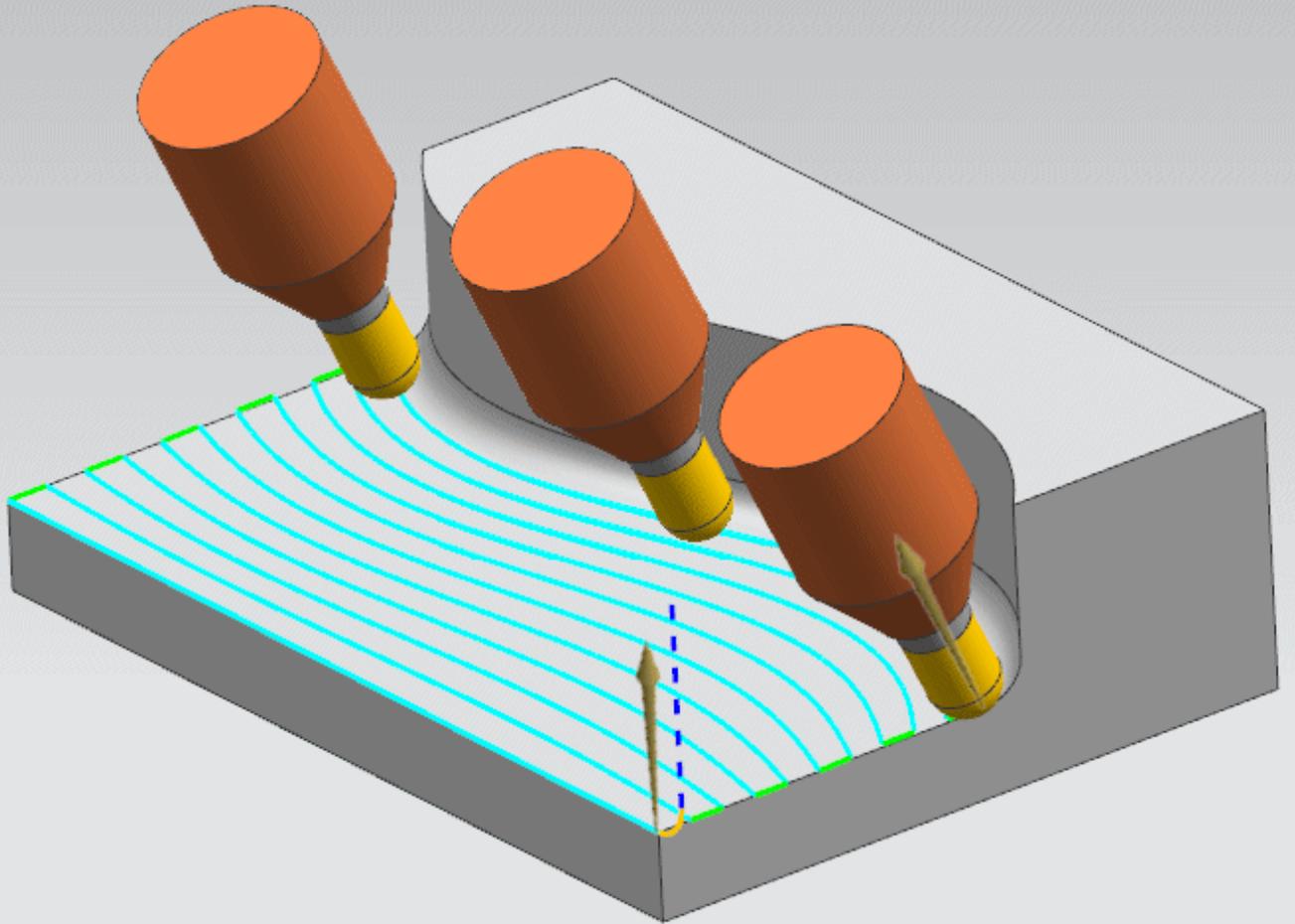**Siemens PLM Software**

NX CAM 11.0.1:
Interpolate Tool Axis Enhancements

Interpolate the tool axis in the U or V direction using a single interpolation vector on each iso curve.

Answers for industry.

About NX CAM

NX^{TM} CAM software has helped many of the world's leading manufacturers and job shops produce better parts faster. You can also achieve similar benefits by making use of the unique advantages NX CAM offers.

This is one of many hands-on demonstrations designed to introduce you to the powerful capabilities in NX CAM 11.0.1. In order to run this demonstration, you will need access to NX CAM 11.0.1.

Visit the [NX Manufacturing Forum](#) to learn more, ask questions, and share comments about NX CAM.

Hands-on Demonstration: Interpolate Tool Axis Enhancements

You can now specify either a U or V control direction and ignore system defined vectors, allowing you to interpolate the tool axis for variable axis operations along U or V iso curves with as little as a single interpolation vector for each curve. This capability greatly simplifies the task of specifying a constant tool axis orientation along the entire U or V curve.
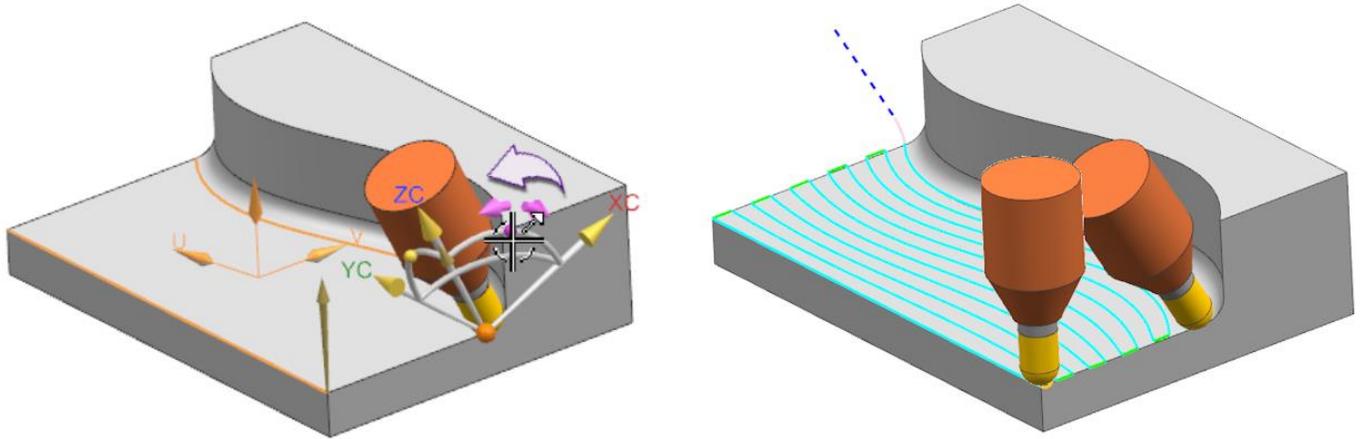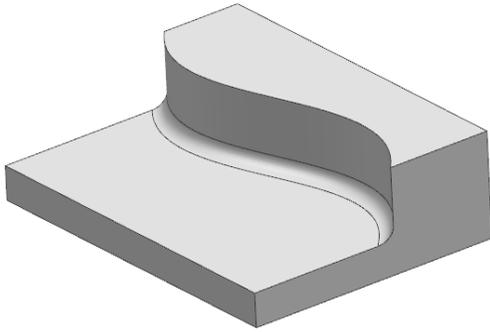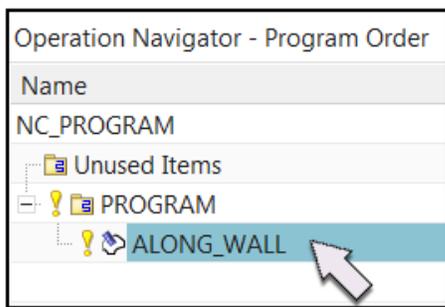
Prerequisites:

1. You will need access to **NX CAM 11.0.1** in order to run this demonstration.
2. If you haven't done so already, download and unzip **interpolate.7z**.

Demo:

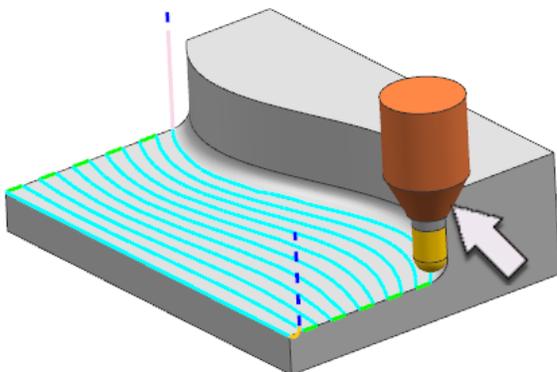1. Open **interpolate_tool_axis.prt** in NX.

2. Double-click **ALONG_WALL** to edit the operation.

3. Click **Verify** .

4. Slow down the **Animation Speed** to 7 or 8 and click **Play** .

   Notice that the tool holder collides with the part on the last pass.

You will edit the tool axis by tilting it so that the holder avoids collision and the tool maintains a constant orientation while moving in the U direction.

5. Click **OK** to complete the tool path visualization.

6. In the Tool Axis section of the dialog box, click **Edit** .

7. Select **Linear** from the **Interpolation Method** list.
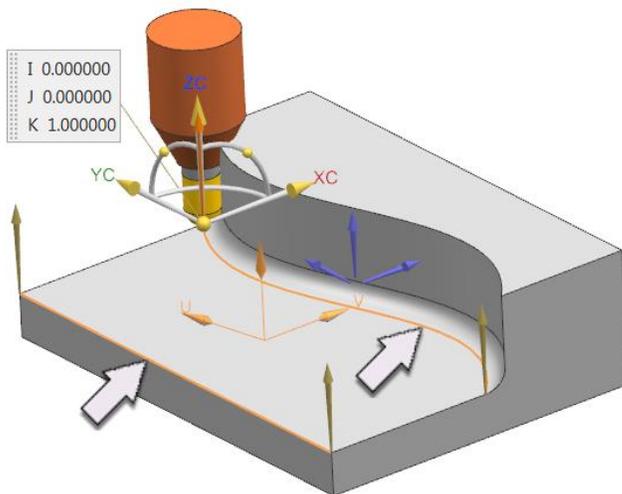
    Control Direction is new.
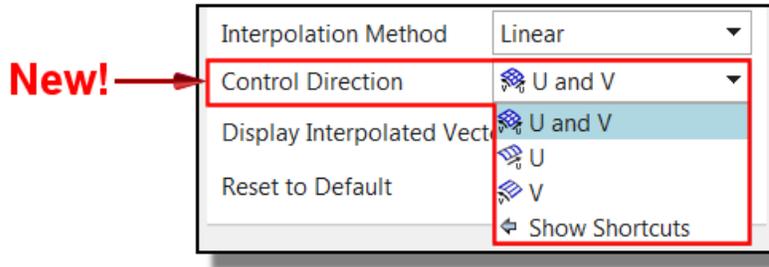
The **U and V** option retains the behavior from previous releases.

The **U** option controls the tool axis in the U direction only. The **V** option controls the tool axis in the V direction only. These two options give the new behavior.

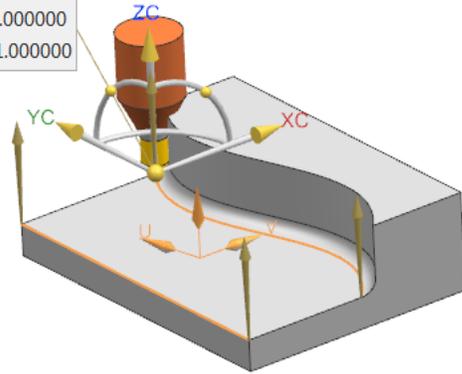8. Select **U** from the **Control Direction** list.

    Notice the two iso curves. Each iso curve contains a system defined vector at each end. Only one vector is now necessary to define the tool axis along each iso curve.
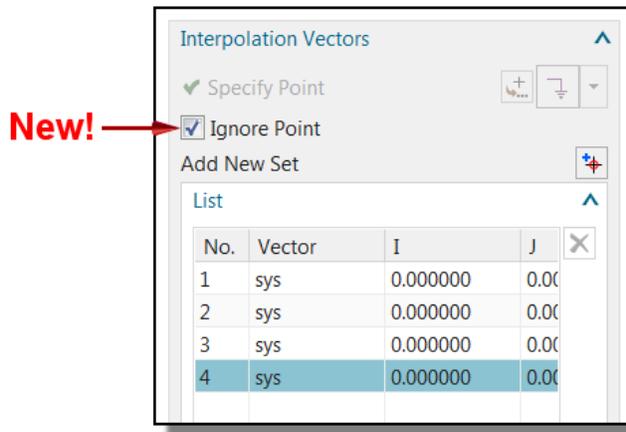
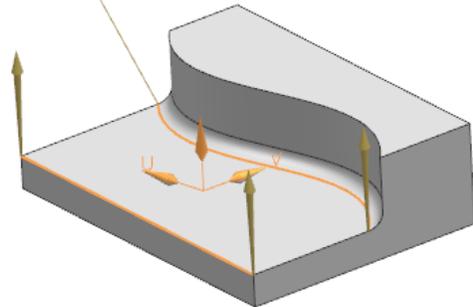9. Select vector **4** from the list.
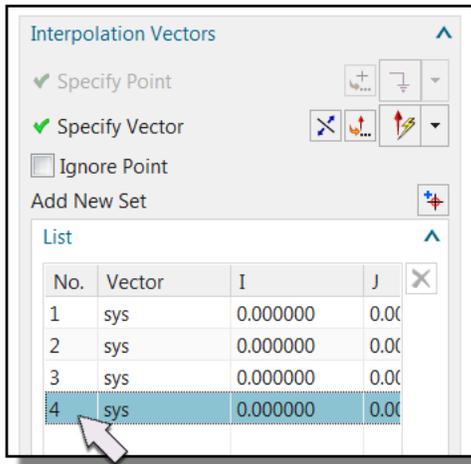
Note: You may also select the vector by single-clicking in the graphics display. Double-clicking reverses the vector direction.

10. Select the **Ignore Point** check box ✓.

    This option is new. It allows you to ignore system defined vectors so that they are not considered when interpolating the tool axis.
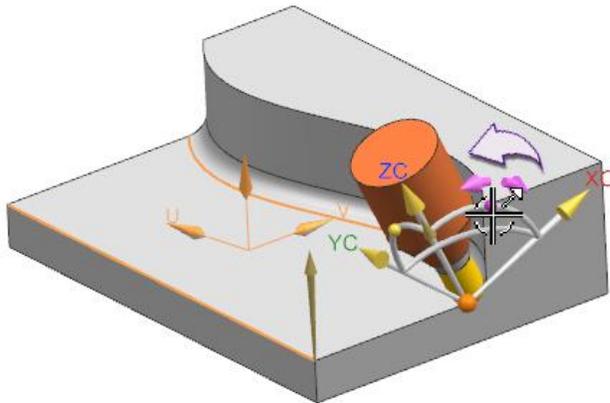

11. Select vector **2** from the list and select the **Ignore Point** check box.
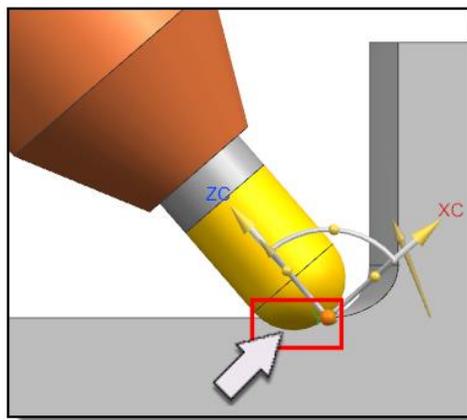
12. Select vector **3** from the list.

13. In the graphics window, rotate vector 3 about the YC axis so that the holder no longer collides with the part wall.
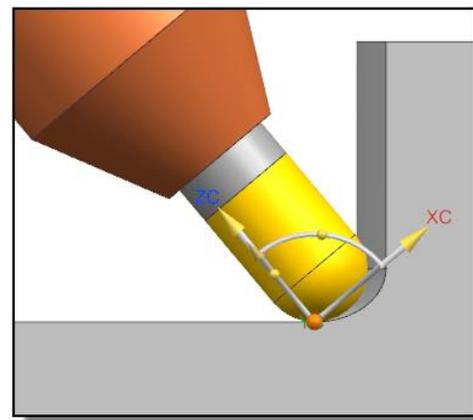

In previous releases, the tool was rotated about the tool tip resulting in the tool cutting below the part surface. The tool now rotates about the contact point and no longer violates the part.

NX11   **NX11.0.1**
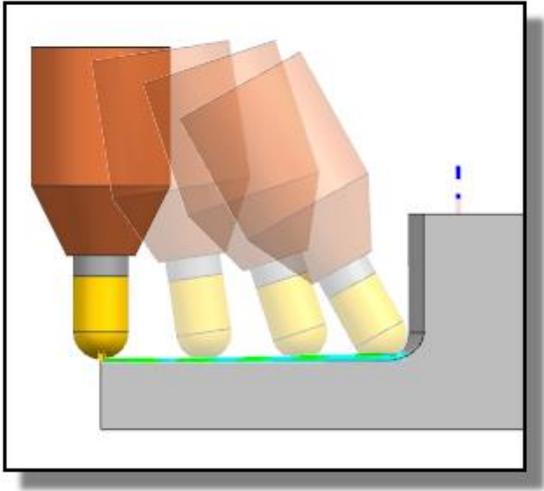

11. Click **OK** to save the vector definitions.

12. Click **Generate** .

13. Click **Verify** .

14. Click **Play** .

The tool holder no longer collides with the part wall, but the tool axis begins tilting sooner than necessary. This is because NX tilts the tool axis continuously as it interpolates the tool axis between the two U curves.
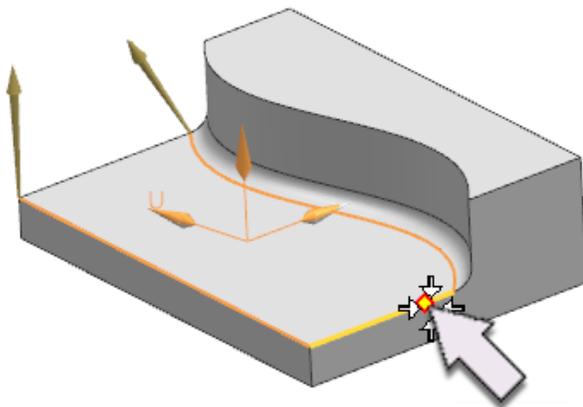

15. Click **OK** to complete the tool path visualization.

   Adding an iso curve allows you to control how long the tool remains vertical before tilting.

16. In the Tool Axis section of the dialog box, click **Edit** .

17. Click **Add New Set** .

18. Select a point on the edge at the approximate location indicated below.

This defines an additional iso curve with a vector that can be used to control the tilt of the tool. By leaving the ZC vector vertical, the tool axis will remain vertical as it approaches the wall until reaches this curve.
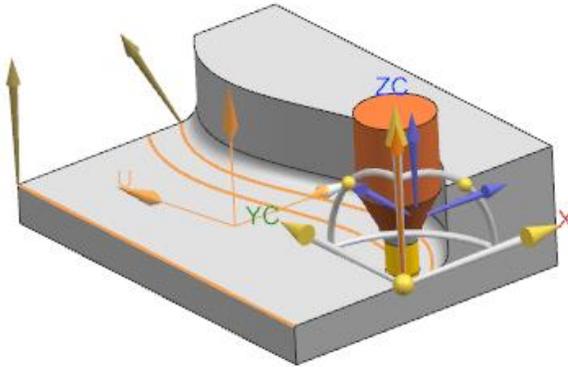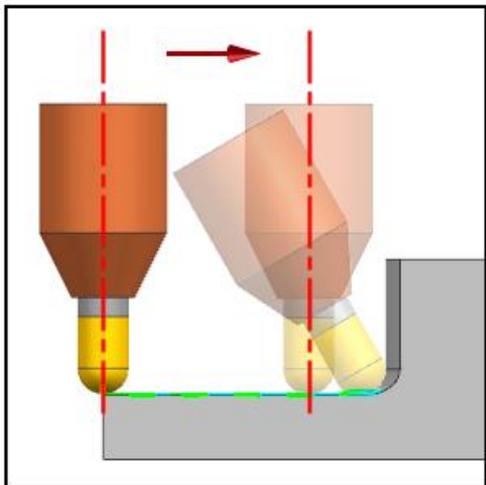

19. Click **OK** to save your vector settings.

20. Click **Generate** .

21. Click **Verify** .

22. Click **Play** .

The tool axis remains vertical until it reaches the added iso curve. It then begins to tilt as it approaches the next iso curve.

8. Click **OK** to complete the tool path visualization.
9. Continue practicing.
10. When you are finished, close the part without saving.

About Siemens PLM Software
Siemens PLM Software, a business unit of the Siemens Industry Automation Division, is a leading global provider of product lifecycle management (PLM) software and services with seven million licensed seats and more than 71,000 customers worldwide. Headquartered in Plano, Texas, Siemens PLM Software works collaboratively with companies to deliver open solutions that help them turn more ideas into successful products. For more information on Siemens PLM Software products and services, visit www.siemens.com/plm.