What's New in ESPRIT Release 4.1

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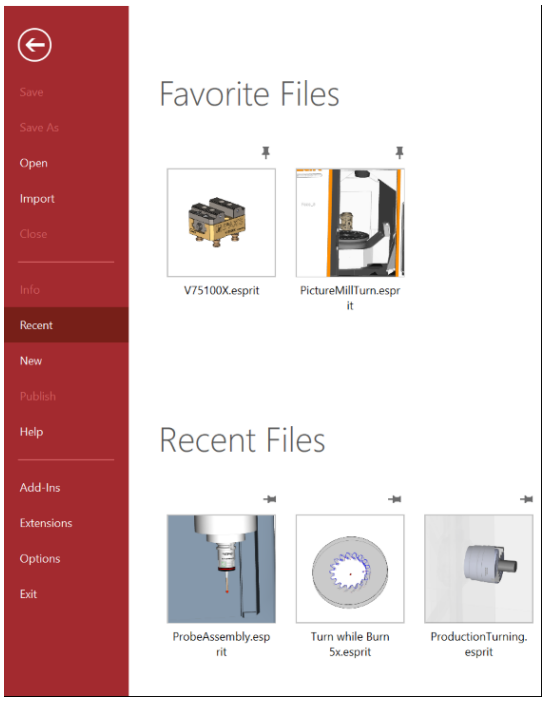
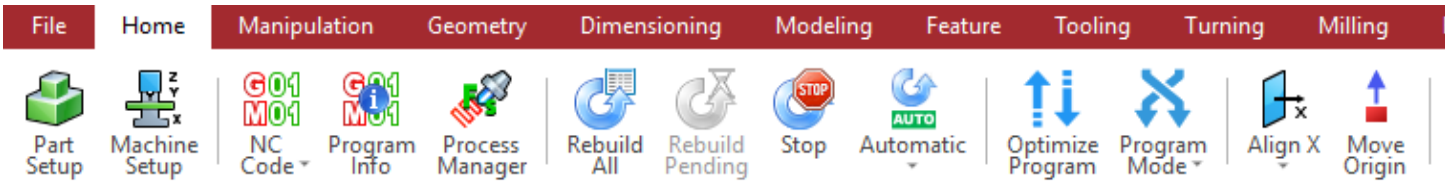
User Interface Enhancements



ESPRIT has a new look and an improved user experience.

Ribbon Enhancements

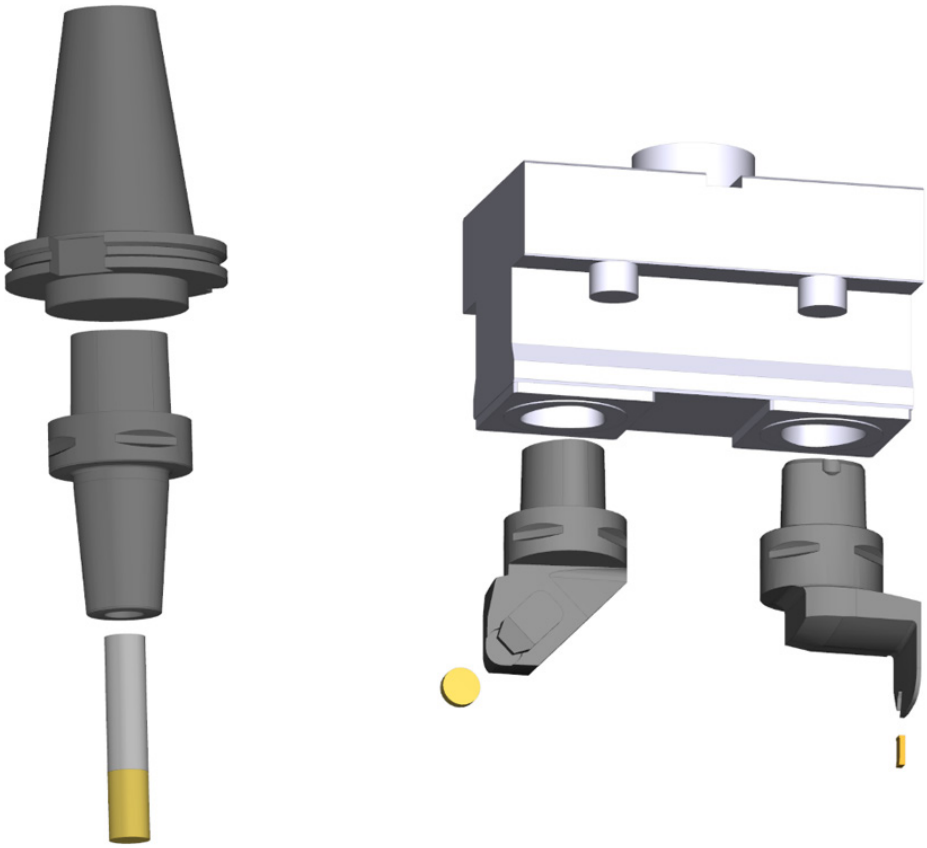
The ribbon menu now features full-size icons for every function, and it has been reduced in overall height to maximize the space in the graphics area.



More Information at a Glance

The Heads-up toolbar now displays the names of the current layer, view, and work plane.

Tool Assembly



With the new tool assembly features in ESPRIT 4.1, build realistic tools from modular parts and save them as GDML files for easy reuse and better flexibility. Save tool assemblies individually or grouped into libraries. Easily find tool assemblies again with an interactive, 3-D preview.

Full API support works with your existing tool management applications.

Use the new Tool Assemblies Manager to easily sort, renumber, and edit tools with an intuitive click-and-drag interface.

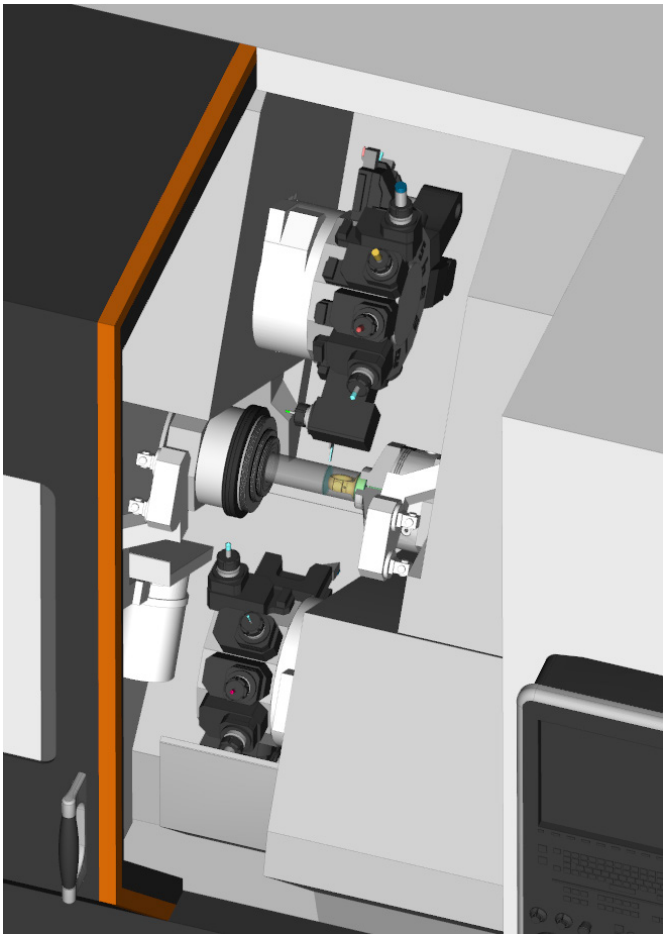
Probing Cycles

Quickly and easily define probe cycles for:

- Workpiece location
- Misload detection
- Dynamic tool offsets
- On-machine inspection

Select the faces to probe and ESPRIT automatically selects an appropriate probing cycle (single point, internal/external corner, bore/boss, etc.). Fine-tune the probing options to create a custom cycle, and add optional NC code to handle probe data.

2-Channel Programming



ESPRIT 4.1 brings the first commercial release of programming for 2 channels, with improvements to stability and performance, and options for advanced concurrency of operations with overlapping kinematic chains.

A new Spindle Control Point option simplifies the creation of pickup operations: digitize a point directly on the fixture or the jaws to specify the control point location when positioning the spindle on the workpiece.

Refer to Post Processor Help for details on new keywords to support multichannel machining.

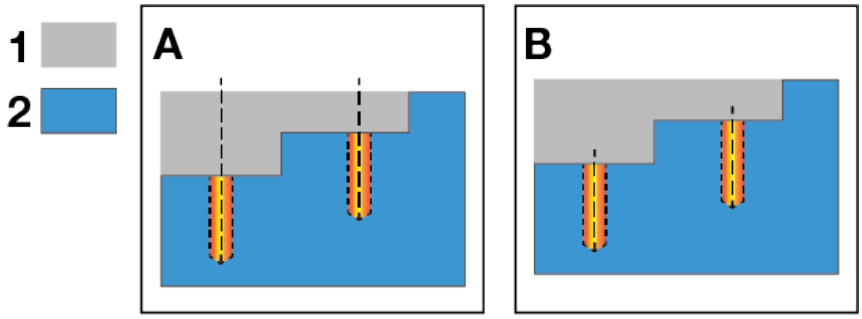
Custom Hole Splitting

This new hole recognition option automatically creates a separate feature for each segment of a custom hole, letting you easily apply the correct machining operation to each segment.

Stock Awareness for Drilling Cycles

To simplify the programming of drilling cycles on irregular shapes or on unfinished stock areas, the Use Previous Stock option is now available. This option uses the current state of the stock at the time of the drilling cycle to determine the cycle's starting depth.

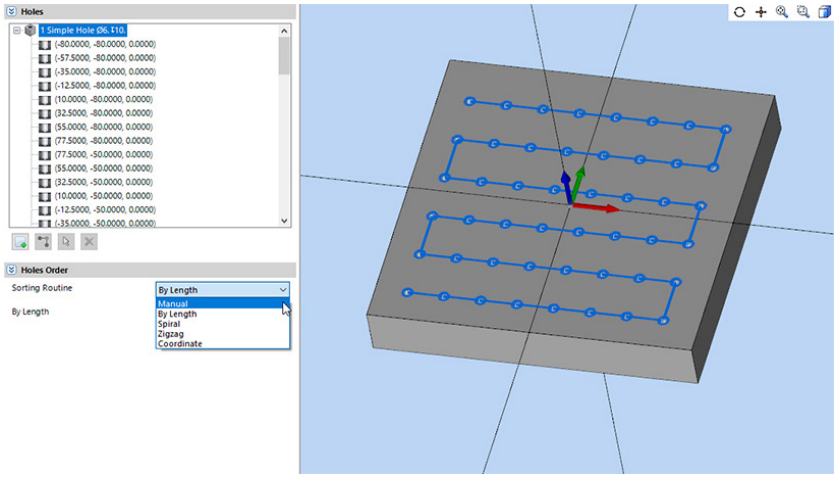
Drilling Cycle Stock Aware Example. [1] Stock Model, [2] Part Model. [A] Use Previous Stock is on. The drilling cycle starts above the unfinished stock. [B] Use Previous Stock is off. The drilling cycle starts inside of the unfinished stock.



Hole Sorting

The new Holes Order function in ESPRIT 4.1 gives you control over the machining order of groups of holes that have the same orientation, with the ability to preview changes to the toolpath while you work. Choose a preset sorting routine, or choose manual sorting to change hole order by drag-and-drop.

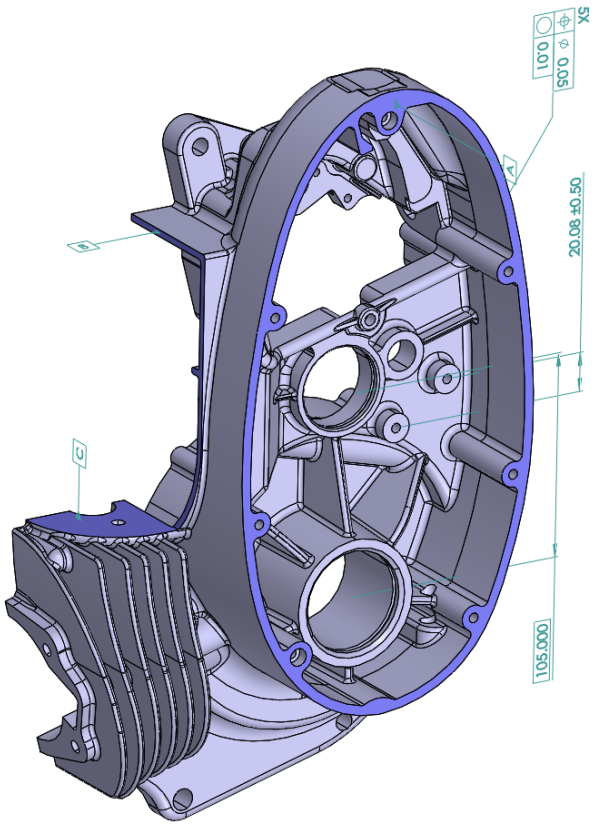
Hole Sorting screen



Spiral Machining on Holes with Different Orientations

It is now possible to create a single spiral operation on multiple holes with different orientations.

PMI Data in ESPRIT Features



Features created in ESPRIT retain PMI data in the feature properties, making this data available for automation. View this data in the Property Manager.

PMI Data Import for SolidWorks Files

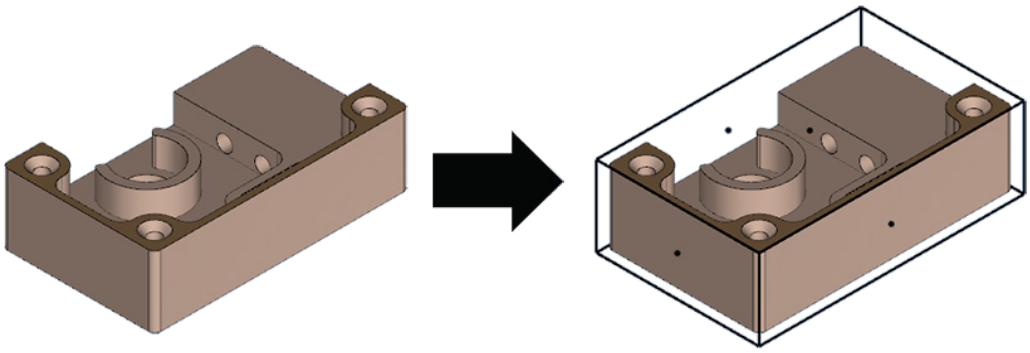
ESPRIT can import PMI data with SolidWorks files, with no need for an additional plugin. The complete list of file formats that include the option to import PMI is now as follows:

- UG
- ProE
- Catia
- STEP
- SolidWorks

Enclosure (Bounding Box)

Use the new **Enclosure** command on the Modeling tab to quickly create bounding geometry as a wireframe and/or a solid. Choose a box or cylindrical shape for the enclosure, and optionally generate points at the center of each of the enclosure's planar faces.

Wireframe enclosure example

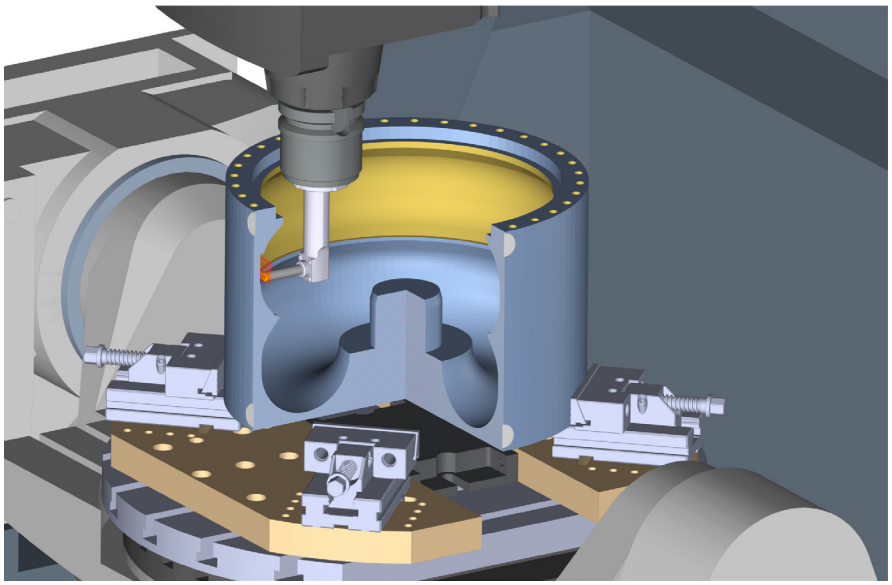


Z-Level Roughing Inside Stock Cavity

Specify a stock cavity operation when a z-level roughing feature is enclosed within a bore or cavity and is to be machined with an angled head. These options let you quickly define the operation without the need to split or alter the stock.

To compute these stock cavity operations, ESPRIT temporarily and invisibly creates a section of the stock from the whole stock where it would "cover" the machined feature along the cutting direction.

Z-level Roughing Inside Stock Cavity. Section view for clarity; ESPRIT does not modify the workpiece itself for this function.



Wire Frame Milling - Tangent Extensions

The new tangent extension options for wire frame milling let you quickly and easily extend the toolpath along the start/end of the drive curve and/or the start/end of the base curve. Simply enter the extension distance in the desired field(s).

WEDM - AgieVision Now Uses EDM Expert System

ESPRIT now uses the EDM Expert System instead of the AgieVision Expert System to view and choose cut data for AgieVision machines. Some fields found in the AgieVision Expert System are now available in the Cut Data tab of the operation technology page. You can get the new xml-format cut databases on the Machine Center > AgieCharmilles > EDM Series > AgieVision.

KBM Improvements for FreeForm Cycles

You can now save sub technologies in the KnowledgeBase, making it possible to fully automate FreeForm cycles.

CAD for Machining - Improvements

ESPRIT R4.1 includes the following new commands and enhancements to CAD for machining functions:

New Commands

- Edit Chamfer - Lets you change or delete an existing chamfer.
- Split - Lets you split geometry (including curves) at a predefined point, or at a point nearest to your selection.

Enhanced Commands

- Grid Mode - It is now possible to digitize points with Grid Mode set to OFF for Geometry commands. Previously, in order to create geometry that utilizes digitized points such as Rectangle, Circles, Manual Curves, it was necessary to set Grid Mode to ON.
- Element to Curve - This command now supports solid edges as elements from which to create curves. In addition, to connect to a single curve, it is no longer necessary to select items individually after the command has been started. Select the items and click Element to Curve, all connected items are converted to a curve, regardless of their element type.
- Curve from Surface - This command now includes an option to manually project a curve onto a surface.
- Offset Surface - You can now create an offset surface directly from a solid face, with no need to first smash geometry.

Configurable Custom Settings (MTB)

Custom settings for operations and tools are now configurable in Machine Tool Builder. Assign a caption to rename the custom setting in ESPRIT, add a description to act as a tooltip when users hover over the setting, and hide/show custom settings to constrain the list to only include the settings that you want to make available. You can also specify default metric and/or inch values for each setting.

Operation settings are available for many 3-axis, 5-axis, turning, milling, and drilling operations. Custom settings for tools become available for all tools used on the machine.

5-Axis Swarf by Faces

5-Axis swarf cycles now accept as input the set of faces included in the Part field of a FreeForm feature, without the need to create profiles or ruled features. ESPRIT automatically extracts the upper and lower profiles from the borders of these Part faces. You define only the start and end points for each of these profiles. The options to use upper/lower profiles or ruled features are also still available.

3-Axis Parallel Planes Milling - Enhanced Stepover Driven by Scallop Height

To achieve a more consistent surface finish, scallop-height-driven stepover in 3-axis parallel planes milling has been enhanced with improved response to changes in the part's surface slope.