

What's New in



CAMWorks



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What's New in CAMWorks 2021Plus SP4

Supported Platforms

Supported Platforms for 64-bit	
Solid Modeler:	<p>The 64-bit version of:</p> <ul style="list-style-type: none">- CAMWorks Solids 2022- SOLIDWORKS 2022- SOLIDWORKS 2021- CAMWorks Solids 2021- SOLIDWORKS 2020- CAMWorks Solids 2020
Operating System:	<p>64-bit version of:</p> <ul style="list-style-type: none">- Windows 10- Windows 8.1- Windows 7 (SP1 or higher) <p style="text-align: right;">[*Home Editions are not supported]</p> <p>Note: CAMWorks 2021Plus is supported only on 64-bit Operating systems.</p>

Resolved CPRs Document

Purpose of Document:	The Resolved CPRs (<i>CAMWorks Problem Report</i>) document has been updated to report the software errors that have been resolved in the current Service Pack (2021Plus SP4).
Path to Document:	To view the document, select: <Drive>:\ProgramFiles\CAMWorks2021Plusx64\CAMWorks_VC141\Lang\English\CW2021PlusBuildInfo.pdf.



License

New - License Activation Method: Online Activation using Activation IDs

Purpose:

The **Online Activation** method (introduced from **CAMWorks 2021Plus SP4** version onwards) employs 'Activation IDs' that functions as software keys for activating the products and modules within the **CAMWorks** suite of application.

Implementation:

These Activation IDs for products in the CAMWorks suite are alphanumeric in nature and consist of 32 characters. When renewing/purchasing the CAMWorks subscription, you need to specify your license type (Nodelocked/Floating Network), the desired CAMWorks modules/products you wish to use and then pay the applicable license fees. HCL Technologies Ltd. (IP owners of the CAMWorks software application) will then provide you with one or more Activation IDs for activating the purchased products.

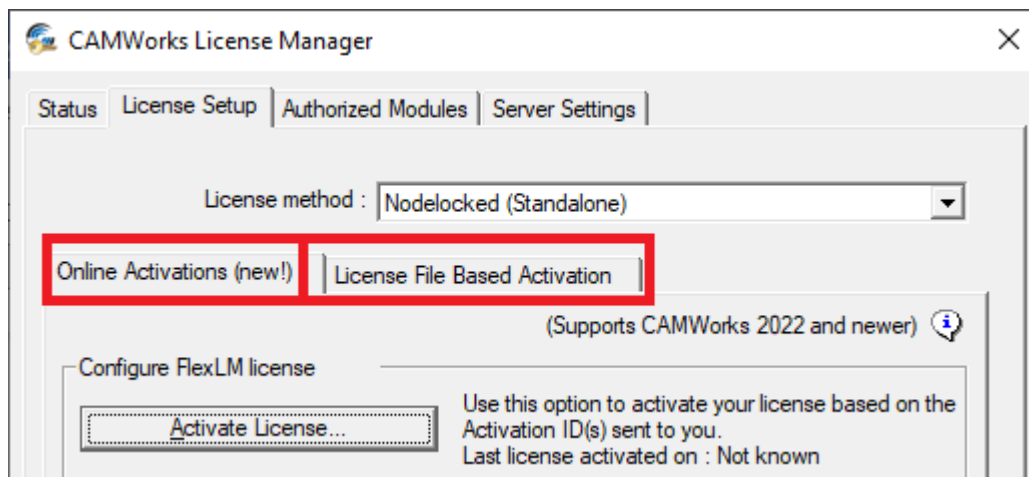
Once received, these Activation ID(s) must be input by you in the relevant user interface of the **CAMWorks License Manager** tool for license activation. These Activation ID(s) are then validated and verified online. If successfully verified, then the CAMWorks application (with specific products and modules paid for by you) will be activated.

Status of Previously Existing License Activation Method of 'License File Based Activation'

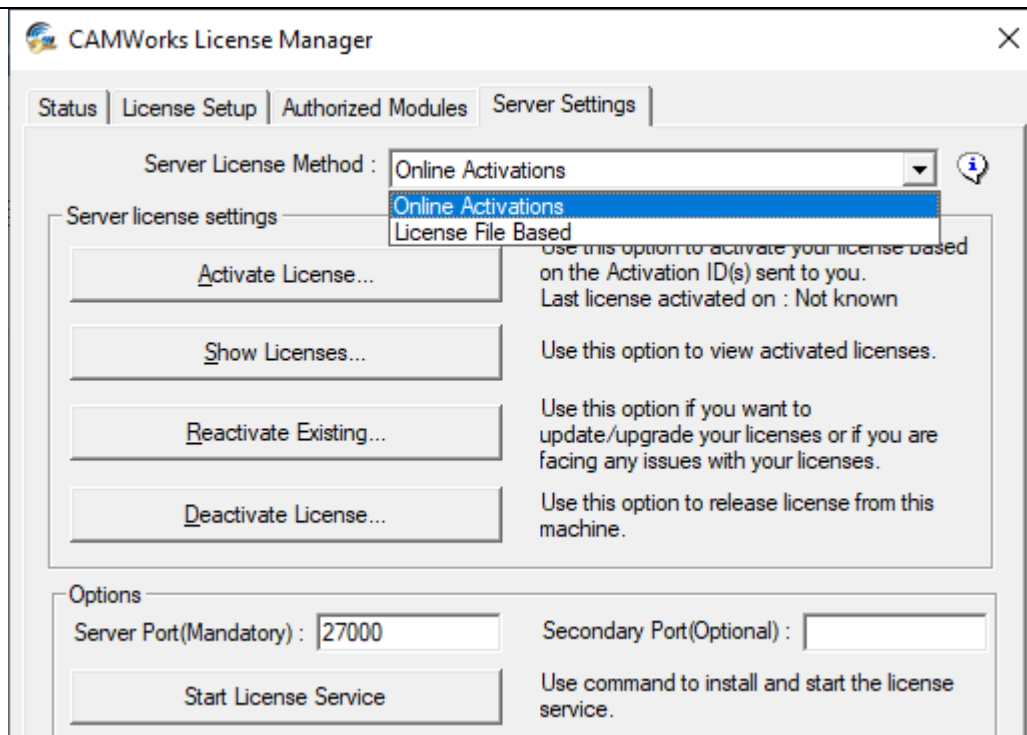
Online Activation method for license activation has been newly introduced in **CAMWorks 2022 SP0** version. The previously existing **License file based** method for license activation will continue to remain available within the **CAMWorks License Manager** tool. However, do note that the license file based method for license activation will gradually be phased out.

As of now, in the **CAMWorks 2021Plus** version, you will have the option to choose either the **Online Activation** or **License file based** method of license activation when purchasing/renewing your CAMWorks subscription.

We recommend that you switch to the more convenient **Online Activation** method.



Nodelocked License: [Separate Tabs in License Setup Tab for Online Activation and License File Based Activation](#)



Floating Network Server License: [Separate Options provided for License Activation in Server Settings Tab](#)

Activation Options For 'Online Activation' Method of License Activation

Depending on whether you have or do not have access to the Internet on the 64-bit Windows system (on which the CAMWorks license will be activated), following two options will be available for Online Activation

Automatic Method:

In **Automatic** method of *Online license* activation, a live Internet connection is required for activating the license. You need to input the Activation IDs provided to you and then have them validated. Once successfully validated, the activated CAMWorks products will be displayed within the **CAMWorks Product Activation - Currently Activated Products** dialog box.

Manual Method:

This option is recommended only if you do not have a live internet connection. In this method of *Online License* activation, you need to create a license request file using the Activation IDs (Entitlement IDs) provided to you and then email it to register@camworks.com. As a response, you will receive a response file attachment via email. You need to load this response file to activate your CAMWorks products. Once successfully validated, the activated CAMWorks products will be displayed within the **CAMWorks - Currently Activated Products** dialog box.

Reactivating your License using Online Activation Method

If you wish to upgrade or renew your CAMWorks license, the **Online Activation** method provides separate **CAMWorks Product Reactivation** user interfaces within the CAMWorks License Manager tool to reactivate your license using your existing Activation IDs. (Both **Automatic** and **Manual** options of license reactivation are available.)



CAMWorks Product Reactivation

Reactivate Your CAMWorks Product
Selected products listed below will be reactivated.

How would you like to reactivate?

☒ Automatically over the Internet (Recommended)
☐ Manually via E-Mail (Add all activation IDs and then click on activate)

Please select the product that need to be reactivated : Select all ☒

	Product	Expiry Date	USP Date	Activation ID	Status
<input checked="" type="checkbox"/>	Commercial	Permanent	31-Oct-2022	2420-4345-38b5-43f5-a717-023a-3663-e514	Active
<input checked="" type="checkbox"/>	CAMWorks Milling Professional	Permanent	31-Oct-2022	2420-4345-38b5-43f5-a717-023a-3663-e514	Active
<input checked="" type="checkbox"/>	CAMWorks Solids P	Permanent	31-Oct-2022	2420-4345-38b5-43f5-a717-023a-3663-e514	Active
<input checked="" type="checkbox"/>	Commercial	Permanent	31-Oct-2022	2420-4345-38b5-43f5-a717-023a-3663-e514	Active

☒ I have read the HCL Technologies [Privacy Policy](#) and agree to its terms and conditions.

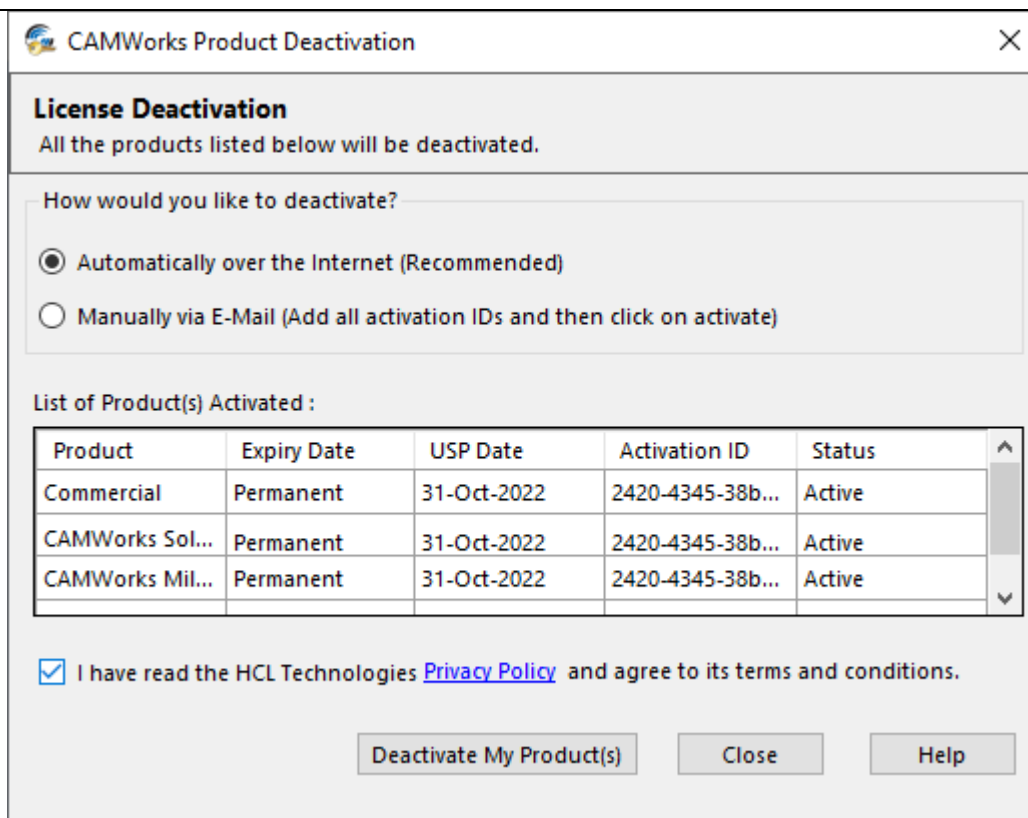
Reactivate My Product(s) Close Help

User Interface for Reactivating your License via Online Activation Method

Advantages of 'Online Activation' Method of License Activation – Prompt Deactivation and Activation

In the previously used **License file based** method, users had to inform support about the intention to switch system, raise a new license request file from the new system, then wait for one business day to get the license file required for product activation. Consequently, shifting a *Nodelocked* or *Floating Network* installation from one system to another was a bit cumbersome.

This issue is addressed with the *Automatic* option of *Online Activation*. To switch from one system to another, use the **CAMWorks Product Deactivation** UIs available within the *CAMWorks License Manager* tool to deactivate your products from the current system and then activate it on another system (using the **CAMWorks Product Activation** UIs). This process requires no intervention from CAMWorks Support or waiting for any email replies. (Both **Automatic** and **Manual** options of license deactivation are available.)



User Interface to Deactivate your CAMWorks License

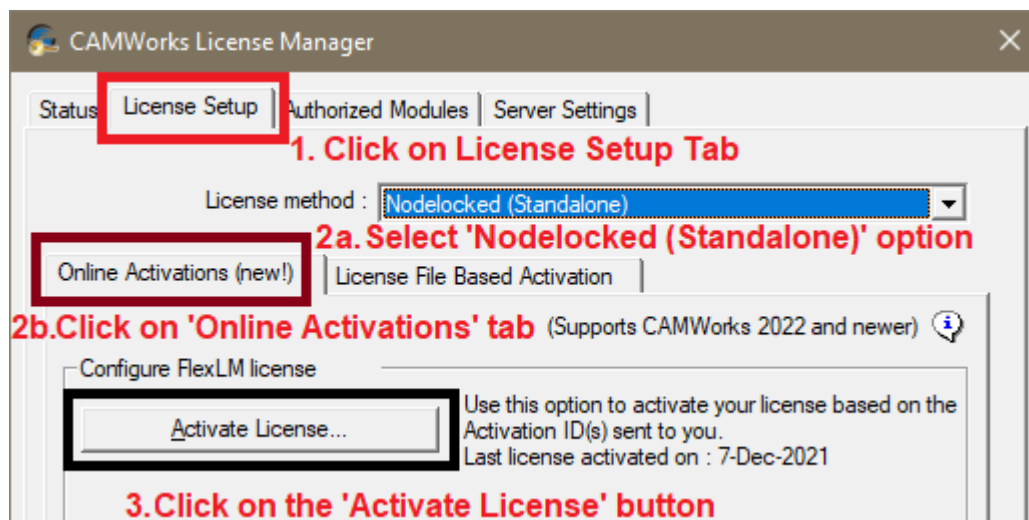
License Activation on Clients of a Floating Network Installation

(After License Activation/Reactivation via Online Activation Method)

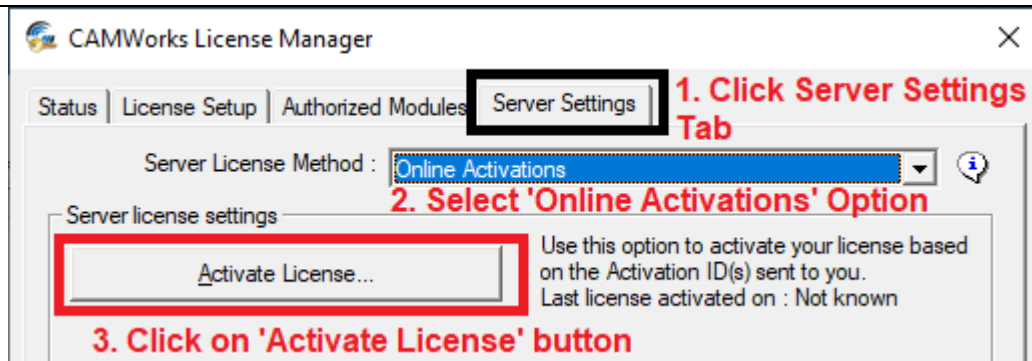
The process of license activation on Client machines (by inputting the **CAMWorks License Server** Host name and Port Number details in **License Setup** tab of the *CAMWorks License Manager* tool) remains identical to the License File Based method of license activation.

Steps to Activate Your CAMWorks Products using 'Automatic' Option of Online Activation

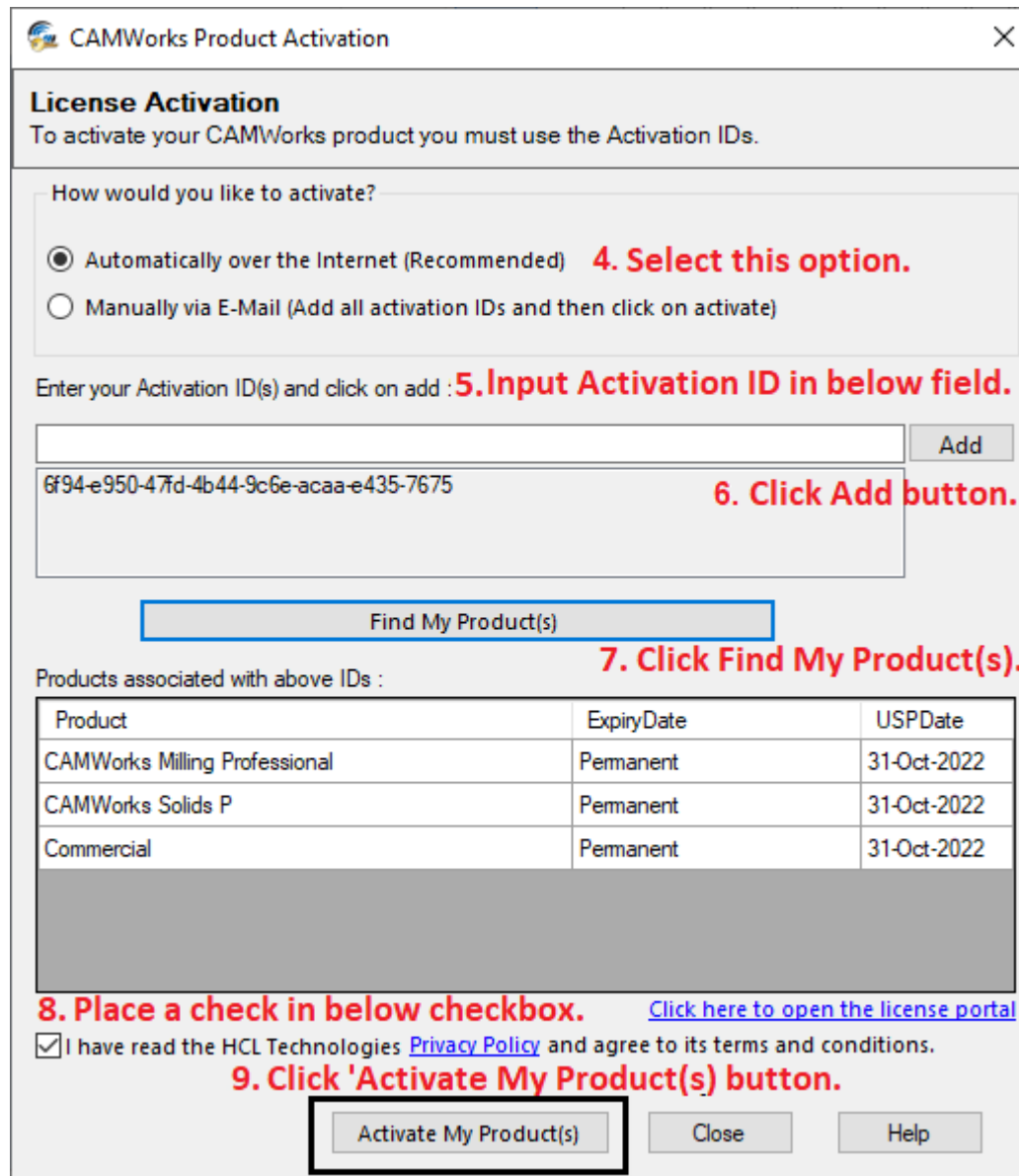
Refer the steps accompanied by user interface images on the next two pages for details on how to activate license using **Automatic** option of *Online Activation*.



Steps 1-3: Click 'Activate License' Button in License Setup Tab for Nodelocked License



Steps 1-3: Click 'Activate License' Button in Server Settings Tab for Floating Network Server License



Step 4-9: In the next UI that is displayed, select 'Automatic' option, input Activation ID(s), Agree to Licensing Terms and click Activate My Products... Button.



CAMWorks Product Activation - User Details

Name* : XYZ

Email-ID* : XYZ@mail.com

OK Close Help

Step 10: In the next UI, input user details and click OK

CAMWorks Product Activation - Currently Activated Products.

Results

The list below shows currently activated products.

Currently Activated Products

Product	Expiry Date	USP Date
Commercial	Permanent	31-Oct-2022
CAMWorks Milling Profess...	Permanent	31-Oct-2022
CAMWorks Milling Profess...	Permanent	31-Oct-2022
CAMWorks Solids P	Permanent	31-Oct-2022

Close Help

Step 11: In the next UI, the products successfully activated will be displayed. Click Close to exit.

Steps to Activate Your CAMWorks Products using 'Manual' Option of Online Activation

Refer the following steps accompanied by user interface images for details on how to activate license using **Manual** option of *Online Activation*.

Note:

Steps 1 to 3 for this option are identical to [Steps 1-3](#) for 'Automatic' Method.

CAMWorks License Manager

Status | License Setup | Authorized Modules | **Server Settings**

1. Click Server Settings Tab

Server License Method : Online Activations

2. Select 'Online Activations' Option

Server license settings

Activate License...

3. Click on 'Activate License' button

Use this option to activate your license based on the Activation ID(s) sent to you.
Last license activated on : Not known

Steps 1-3: Click 'Activate License' Button in Server Settings Tab for Floating Network Server License



CAMWorks Product Activation

License Activation
To activate your CAMWorks product you must use the Activation IDs.

How would you like to activate?

☐ Automatically over the Internet (Recommended)

☒ Manually via E-Mail (Add all activation IDs and then click on activate)

4. Select this option.

5. Input Activation ID in below field.

Enter your Activation ID(s) and click on add :

6. Click 'Add' button.

7. Place a check in below checkbox.

☒ I have read the HCL Technologies [Privacy Policy](#) and agree to its terms and conditions.

8. Click 'Activate My Product(s)' button.

Buttons: **Activate My Product(s)**, Close, Help

Step 4-8: In the next UI that is displayed, select 'Manual' option, input Activation ID(s), Agree to Licensing Terms and click 'Activate My Products...' Button

CAMWorks Product Activation

1) Activation ID(s) which needs to be activated or deactivated

2) Press save to create a request file **9. Input User Details below.**

Name* :

Email-ID* :

10. Click Save to generate Request file. Email Request file to HCL.

Save...

3) Email the request to the following address to get a response file : **11. Download the response file you receive.**

Register@camworks.com

OR Upload File on self service portal. (Login is required)

[Click here to open portal in a web browser](#)

4) Press open to load the response file **12. Click Open to select and activate the Response file.**

13. Click 'Activate My Product(s)' button.

Open...

If you have received the response file, load it by clicking the Open button and then proceed with the below option. To discontinue, click Close. You can rerun the Wizard later.

Buttons: Help, **Activate My Product(s)**, Close

Step 9-13: In the next UI that is displayed, input user details, save and email the request file. Use the 'Open' button to browse and select the response file you receive. Activate this file by clicking the 'Activate My Products...' button.



What's New in CAMWorks 2021Plus SP3

Supported Platforms

Supported Platforms for 64-bit	
Solid Modeler:	The 64-bit version of: <ul style="list-style-type: none">- SOLIDWORKS 2021- CAMWorks Solids 2021- SOLIDWORKS 2020- CAMWorks Solids 2020
Operating System:	64-bit version of: <ul style="list-style-type: none">- Windows 10- Windows 8.1- Windows 7 (SP1 or higher) <p style="text-align: right;">[*Home Editions are not supported]</p> <p>Note: CAMWorks 2021Plus is supported only on 64-bit Operating systems.</p>

Resolved CPRs Document

Purpose of Document:	The Resolved CPRs (<i>CAMWorks Problem Report</i>) document has been updated to report the software errors that have been resolved in the current Service Pack (2021Plus SP3).
Path to Document:	To view the document, select: <Drive>:\ProgramFiles\CAMWorks2021Plusx64\CAMWorks_VC141\Lang\English\CW2021PlusBuildInfo.pdf.



What's New in CAMWorks 2021Plus SP2

Supported Platforms

Supported Platforms for 64-bit	
Solid Modeler:	<p>The 64-bit version of:</p> <ul style="list-style-type: none"> - SOLIDWORKS 2021 - CAMWorks Solids 2021 - SOLIDWORKS 2020 - CAMWorks Solids 2020
Operating System:	<p>64-bit version of:</p> <ul style="list-style-type: none"> - Windows 10 - Windows 8.1 - Windows 7 (SP1 or higher) <p style="text-align: right;">[*Home Editions are not supported]</p> <p>Note: CAMWorks 2021Plus is supported only on 64-bit Operating systems.</p>

Resolved CPRs Document

Purpose of Document:	The Resolved CPRs (<i>CAMWorks Problem Report</i>) document has been updated to report the software errors that have been resolved in the current Service Pack (2021Plus SP2).
Path to Document:	To view the document, select: <Drive>:\ProgramFiles\CAMWorks2021Plusx64\CAMWorks_VC141\Lang\English\CW2021PlusBuildInfo.pdf.



What's New in CAMWorks 2021Plus SP1

Supported Platforms

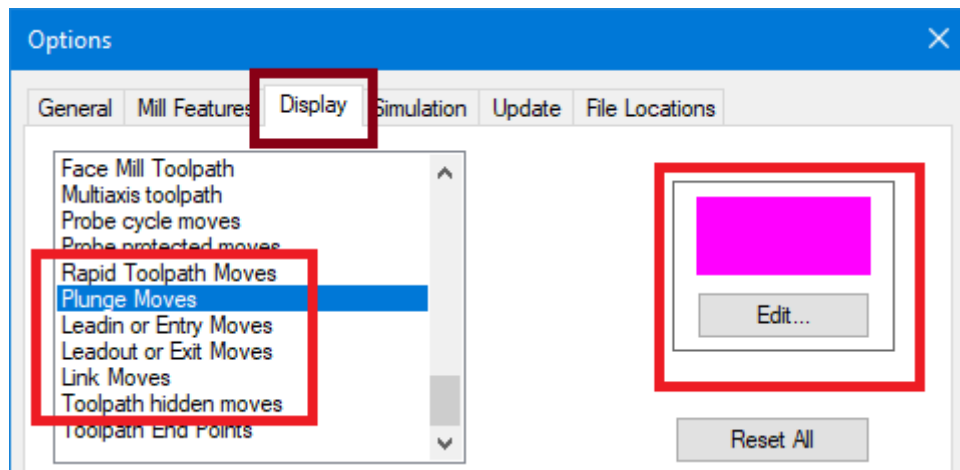
Supported Platforms for 64-bit	
Solid Modeler:	<p>The 64-bit version of:</p> <ul style="list-style-type: none"> - SOLIDWORKS 2021 - CAMWorks Solids 2021 - SOLIDWORKS 2020 - CAMWorks Solids 2020
Operating System:	<p>64-bit version of:</p> <ul style="list-style-type: none"> - Windows 10 - Windows 8.1 - Windows 7 (SP1 or higher) <p style="text-align: right;">[*Home Editions are not supported]</p> <p>Note: CAMWorks 2021Plus is supported only on 64-bit Operating systems.</p>

Resolved CPRs Document

Purpose of Document:	The Resolved CPRs (<i>CAMWorks Problem Report</i>) document has been updated to report the software errors that have been resolved in the current Service Pack (2021Plus SP1).
Path to Document:	To view the document, select: <i>Start>>All Programs>>CAMWorks2021Plusx64>>Resolved CPR's.</i>

New - Functionality to display Tool Moves in User-Assigned Colors for various Toolpath Segments

<p>Purpose:</p> <p>To provide the functionality to filter Mill and Turn tools/assemblies based on user-defined text strings</p>
<p>Implementation:</p> <p>Enhancements added:</p> <p>In the previous versions of CAMWorks, the following enhancements with respect to toolpath moves (Rapid moves, Plunge Moves, Leadin moves, Leadout moves, Link moves, Toolpath hidden Moves) were introduced:</p> <ul style="list-style-type: none"> • Options to enable/disable (hide) the display of specific toolpath moves that comprise the toolpaths • Option to change/reassign the display color for the toolpath moves that comprise the toolpaths • Option to display of hidden toolpath moves in a user-specified color <p>The settings to assign the user-specified colors are available within the Display tab of the CAMWorks Options dialog box.</p>



Settings in Display tab of Options dialog box for assigning desired colors for Toolpath Moves

Toolpath Types for which these Enhancements are applicable:

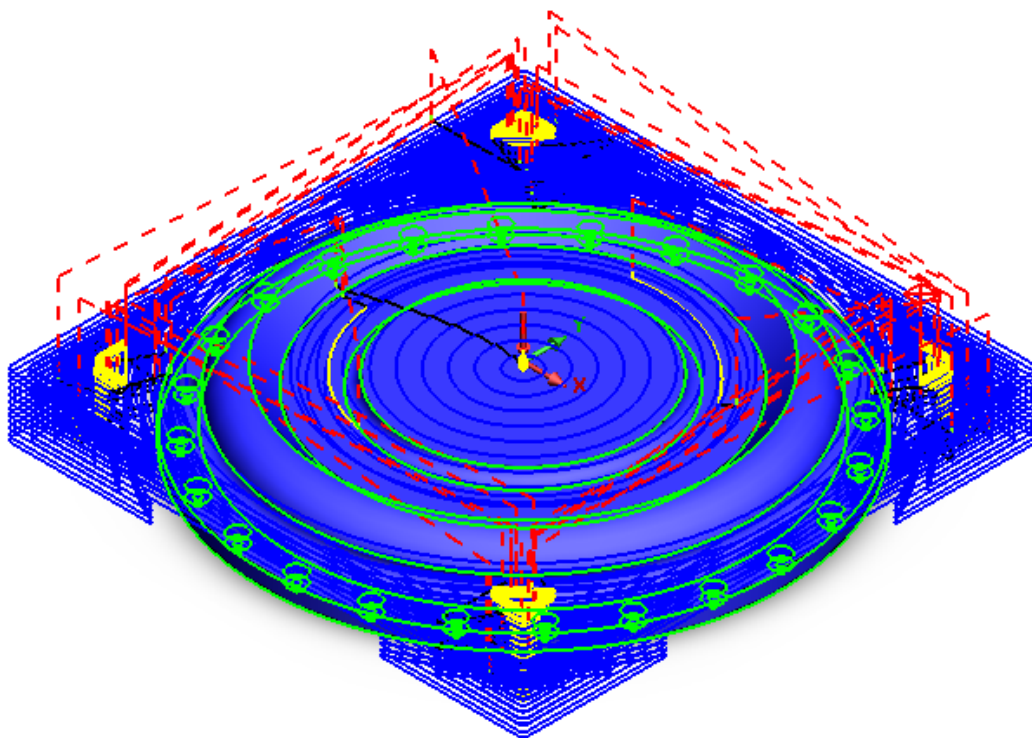
Currently, these enhancements for toolpath moves are available only for toolpath segments of the following Mill toolpath types:

- 3 Axis Mill
- Multiaxis Mill
- VoluMill toolpaths (Both 3Axis and 2.5 Axis Mill)

Scenarios in which the Toolpath Moves can be viewed in the Graphics Area of SOLIDWORKS

These toolpath moves can be viewed in the graphics area whenever you click on the corresponding Operation nodes in the *Operation* tree

Illustrative Example



Illustrative Example of an Area Clearance Toolpath with Leadin moves displayed in yellow color and Rapid Toolpath moves displayed in red color



What's New in CAMWorks 2021Plus SP0

Supported Platforms

Supported Platforms for 64-bit	
Solid Modeler:	The 64-bit version of: <ul style="list-style-type: none">- SOLIDWORKS 2021- CAMWorks Solids 2021
Operating System:	64-bit version of: <ul style="list-style-type: none">- Windows 10- Windows 8.1- Windows 7 (SP1 or higher) <p style="text-align: right;">[*Home Editions are not supported]</p> <p>Note: CAMWorks 2021Plus is supported only on 64-bit Operating systems.</p>

Resolved CPRs Document

Purpose of Document:	The Resolved CPRs (<i>CAMWorks Problem Report</i>) document has been updated to report the software errors that have been resolved in the current Service Pack (2021Plus SP0).
Path to Document:	To view the document, select: <i>Start>>All Programs>>CAMWorks2021Plusx64>>Resolved CPR's.</i>



General

New - Option for Filter Mill and Turn Tools/Assemblies using Text Strings

Purpose:

To provide the functionality to filter Mill and Turn tools/assemblies based on user-defined text strings

Implementation:

In *CAMWORKS*, the options to filter Mill and Turn tools/assemblies based on following parameters are available within the **Tool Select Filter** dialog box:

- Tool Type
- Diameter and End Radius /Insert Radius
- Tool material
- Holder Designation, type, and summary
- Protrusion Length

From *CAMWORKS 2021Plus* version onwards, an additional option to filter Mill and Turn tools based on user-defined text strings will be available within the *Tool Select Filter* dialog box. This option is labelled **Containing text**. This filter has following features:

- i. This text string search is not case sensitive.
- ii. Partial match for text string search is supported.
- iii. The default text within the text field of this filter will be an asterisk symbol (*). This symbol indicates that listed tools are currently not filtered based on any text string. You need to delete this asterisk character before inputting the text string.
- iv. Special characters like quotes ("), space (), hyphen (-), backslash (\), underscore (_), comma (,), hash (#) etc. are supported for the text string.
- v. The text string you enter will be cross-checked for a match with parametric text fields that constitute the definition of the tools. All tools having one or more parameters with text matching the user-defined text string will be filtered and displayed.
- vi. The list of tools displayed in the user interface will be filtered based on the input text string when you tab out of the text string field or shift the mouse focus to another parameter within the user interface.
- vii. For tool entries listed and filtered based on the input text string, the text fields of tool entries containing the matching text will be highlighted.



Tool Select Filter

×

Tool type : Hog Nose

Filter by

☐ Diameter

☐ End Radius

☐ Tool material

☐ Holder Designation

☐ Protrusion Length

☒ Containing Text

0in

-

9in

0in

-

9in

Carbide

BT-30

0in

-

9in

Carbide

Preview

Turn (Inches)

	Z	Feedrate	ShoulderDia	ShankLength	TmclD	Spindle_Sp	CoolantType	ShoulderLen	^
1	68.000000	0.312500	0.812500	Carbide	8556.000000	1	0.812500		
2	24.000000	0.437500	1.000000	Carbide	6112.000000	1	1.000000		
3	48.000000	0.437500	1.000000	Carbide	6112.000000	1	1.000000		
4	85.000000	0.125000	0.500000	Carbide	21000.000000	1	0.500000		
5	42.000000	0.125000	0.500000	Carbide	21000.000000	1	0.500000		
6	28.000000	0.187500	0.625000	Carbide	14260.000000	1	0.625000		
7	57.000000	0.187500	0.625000	Carbide	14260.000000	1	0.625000		
8	42.000000	0.250000	0.750000	Carbide	10700.000000	1	0.750000		
9	85.000000	0.250000	0.750000	Carbide	10700.000000	1	0.750000		
10	34.000000	0.312500	0.812500	Carbide	8556.000000	1	0.812500		
11	57.000000	0.375000	1.000000	Carbide	7130.000000	1	1.000000		
12	28.000000	0.375000	1.000000	Carbide	7130.000000	1	1.000000		
13	85.000000	0.500000	1.000000	Carbide	5348.000000	1	1.000000		
14	42.000000	0.500000	1.000000	Carbide	5348.000000	1	1.000000		
15	85.000000	0.500000	1.000000	Carbide	5348.000000	1	1.000000		
16	42.000000	0.500000	1.000000	Carbide	5348.000000	1	1.000000		
17	85.000000	0.500000	1.000000	Carbide	5348.000000	1	1.000000		
18	42.000000	0.500000	1.000000	Carbide	5348.000000	1	1.000000		
19	85.000000	0.500000	1.000000	Carbide	5348.000000	1	1.000000		
20	85.000000	0.500000	1.000000	Carbide	5348.000000	1	1.000000		

OK

Cancel

Help

Options to choose Origin of Mill Part Setup in Origin tab of Part Setup Parameters Dialog Box



New - Display Color Settings for Toolpath End Points




Purpose:

To provide a functionality whereby user-assigned color settings can be applied to Toolpath End Points viewed in the graphics area

Implementation:

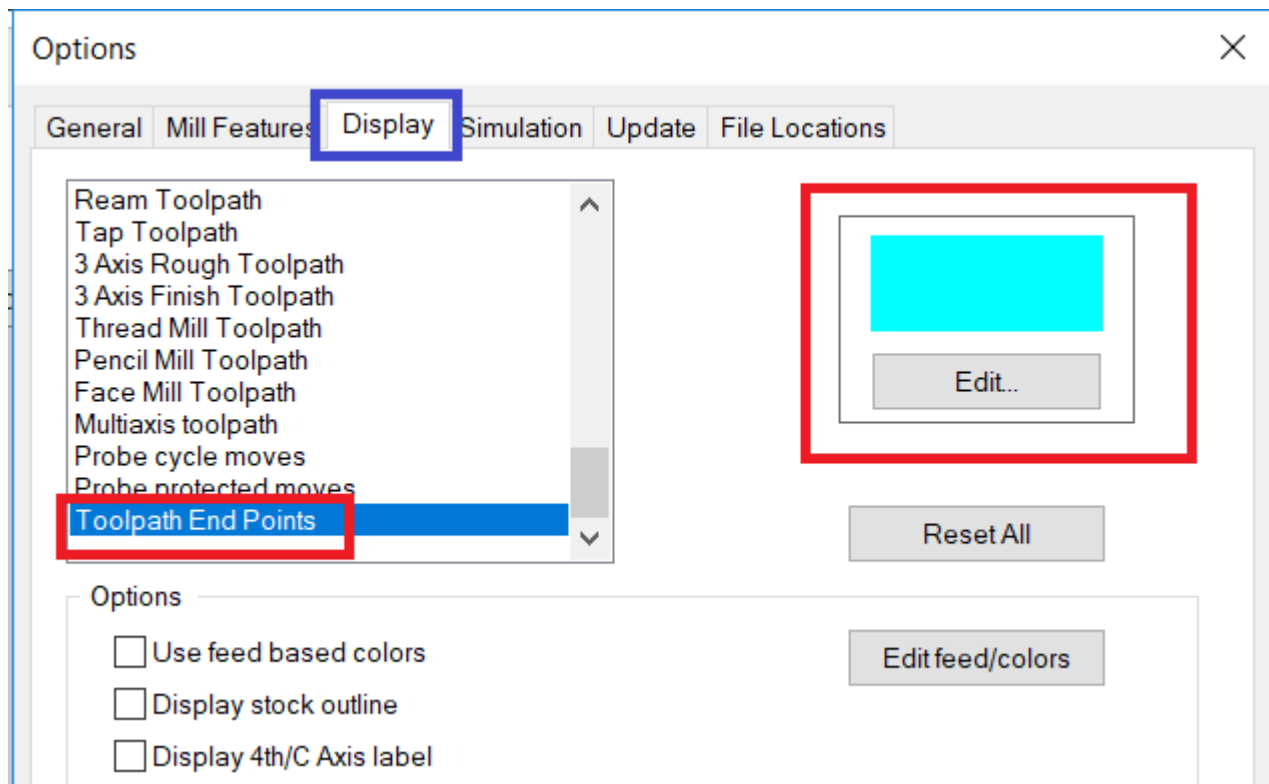
Viewing Toolpath End Points in the Graphics Area

For operations for which toolpaths have been generated, the Toolpath End Points can be viewed in the graphics area in the following scenarios:

- When executing the **Step Through Toolpath** command (provided that the *Show Toolpath End Points*  toggle button is in 'ON' mode)
- When you edit a toolpath using the **Edit Toolpath Dialog Box** (provided that the *Show Toolpath End Points*  toggle button is in 'ON' mode)
- When you execute the **Advance Edit Toolpath** command to edit the toolpath of a Mill operation using the *Advanced Edit Toolpath Dialog Box* (provided that the *Show Toolpath End Points*  toggle button is in 'ON' mode)

In previous version of CAMWorks, there was not setting available to change the default color settings for Toolpath End Points. From *CAMWorks 2021Plus* version onwards, the color display settings for Toolpath End Points can be customized using the *Color Settings* parameters available under **Display** tab of the **CAMWorks Options** dialog box.

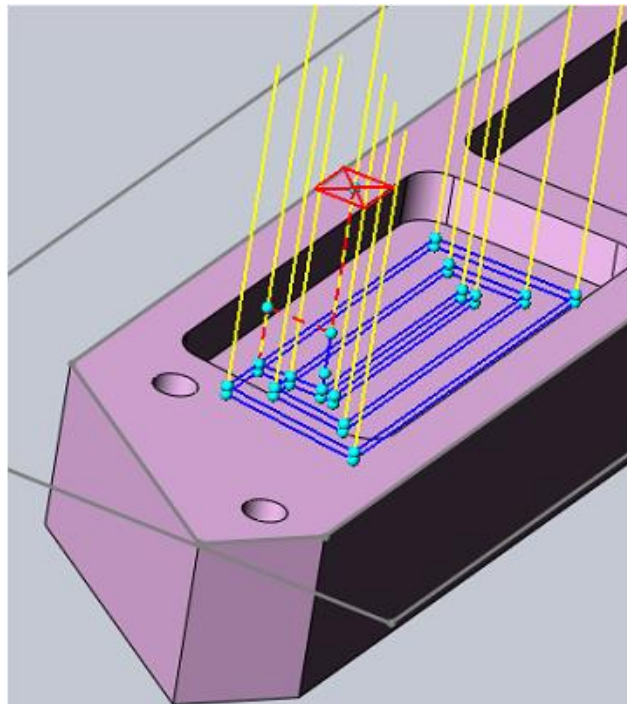
- Navigate to the *Display* tab of the *CAMWorks Options* dialog box.
- 'Toolpath End Points' will be one of the options listed in the Color Settings list box under this tab. Scroll down within this list box and select the 'Toolpath End Points' option.
- The currently assigned color for Toolpath End Points will be displayed adjacent to this list box. (Under default settings, this color will be Cyan for 'Toolpath End Points' option.)



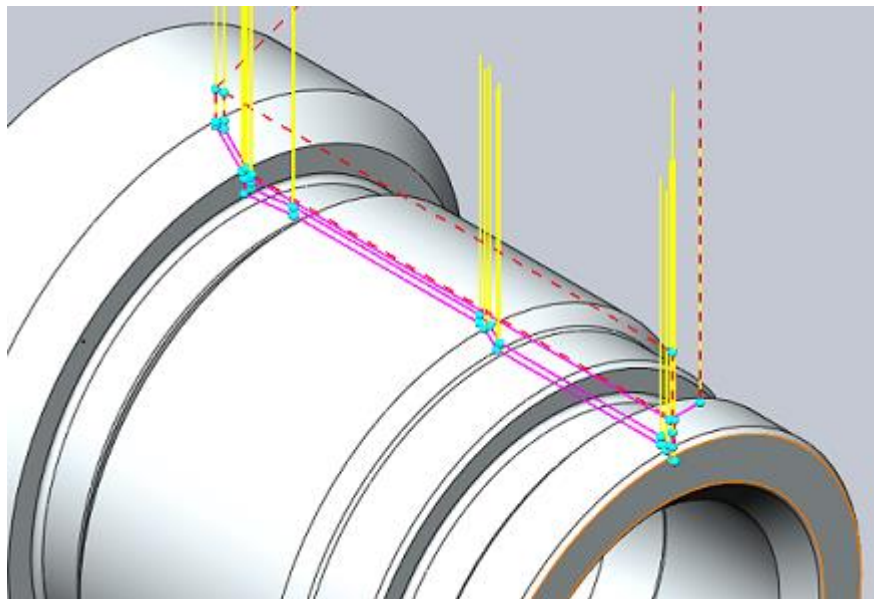
'Toolpath End Point' option in Color Settings list box under Display Tab of options Dialog Box



- iv. Click on the **Edit** button below the color display. Clicking on this button displays the dialog box for color reassignment. Use the settings within this displayed dialog box to assign the color of your choice.
- v. Click on the **OK** button to apply the changes and close the dialog box.



Sample Mill Toolpath showcasing Toolpath End Points in Cyan color



Sample Turn Toolpath showcasing Toolpath End Points in Cyan color



New - CAMWorks Task Pane with Web Browser Controls to Facilitate Communication

Purpose:

To provide an interface within the **CAMWorks** application to facilitate better communication with end users about effective utilization and potential of CAMWorks, product updates and versions, learning tools and resources

Implementation:

Location of CAMWorks Task Pane

A new task pane named **CAMWorks Resources**  has been added to **SOLIDWORKS/CAMWorks Solids** task panes area on the right-hand side of the application.



CAMWorks Resources Task Pane in Task Panes Area of SOLIDWORKS/ CAMWorks Solids

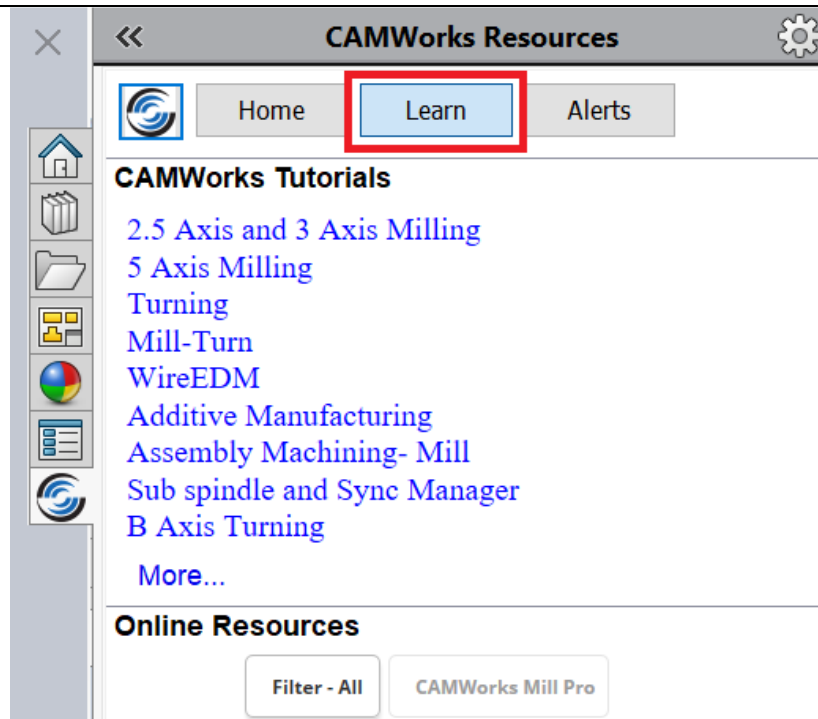
There are three tabs provided within this task pane:

1. Home tab

Click on the various tiles displayed within this tab to know about the various practical and potential industrial applications of CAMWorks. These include CAMWorks success stories, case studies, blogs, webinars, announcements, promotional offers, etc.

2. Learn Tab

This tab lists the various learning resources (both in-app resources as well as online resources) available to users for acquainting themselves with the finer details and nuances of CAMWorks. The aim is to help users exploit the full potential of CAMWorks.



Learn Tab of CAMWorks Task Pane with Learning Resources listed


3. Alerts Tab

The purpose of the **Alerts** tab is to provide an interface for users to view and download the CAMWorks versions released periodically. All the versions are listed in descending chronological order of release.



Alerts tab of CAMWorks Task Pane

Important Notes:

- An active Internet connection is required to access information within the CAMWorks task pane.
- When you click on the  icon adjacent to the **Home** tab, the default web browser will launch the CAMWorks website.



Mill

Improved - Renaming and Rearrangement of existing CNC Parameters for Clarity

Purpose:

Renaming and rearranging of existing CNC Finish parameters to ensure intuitive nomenclature and facilitate easier understanding by users

Implementation:

In CAMWorks Mill mode, the following **CNC Finish parameters** in **NC** tab of **Operation Parameters** dialog box have been renamed:

	Previous Labels of CNC Parameters	Renamed Labels of CNC Parameters
1.	Off	None
2.	On	Yes (For example G41/G42)
3.	With Compensation	With compensation (Toolpath is offset by tool radius)
4.	Without compensation	Without compensation (Tool center is on feature geometry)
5.	Gouge check	Limited look ahead (Gouge check)
6.	Sharp corner (Corner radius <= Tool radius)	Internal sharp corners (Corner radius <= Tool radius)
7.	Add tool radius to leadin/leadout	Add tool radius to leadin/leadout

Post renaming, the existing parameters of **Gouge check** and **Sharp corner** have been moved inside a new sub-group box labelled **Look ahead** within the **CNC Finish parameters** group box.

In the **Technology Database** too, the corresponding **CNC Finish Parameters** have been renamed in the **NC** tab for Mill operations.

Operation Parameters

Save Copy Delete Move up Move down New Load Defaults

Distance : 1 in

Use setup definition : ☐

> Clearance plane is

> Feed plane is

> Retract between Feature

Use skim plane : ☐

Skim distance : 0.1 in

> CNC finish parameters

CNC compensation : Yes (For example G41/G42)

Toolpath Center : With Compensation

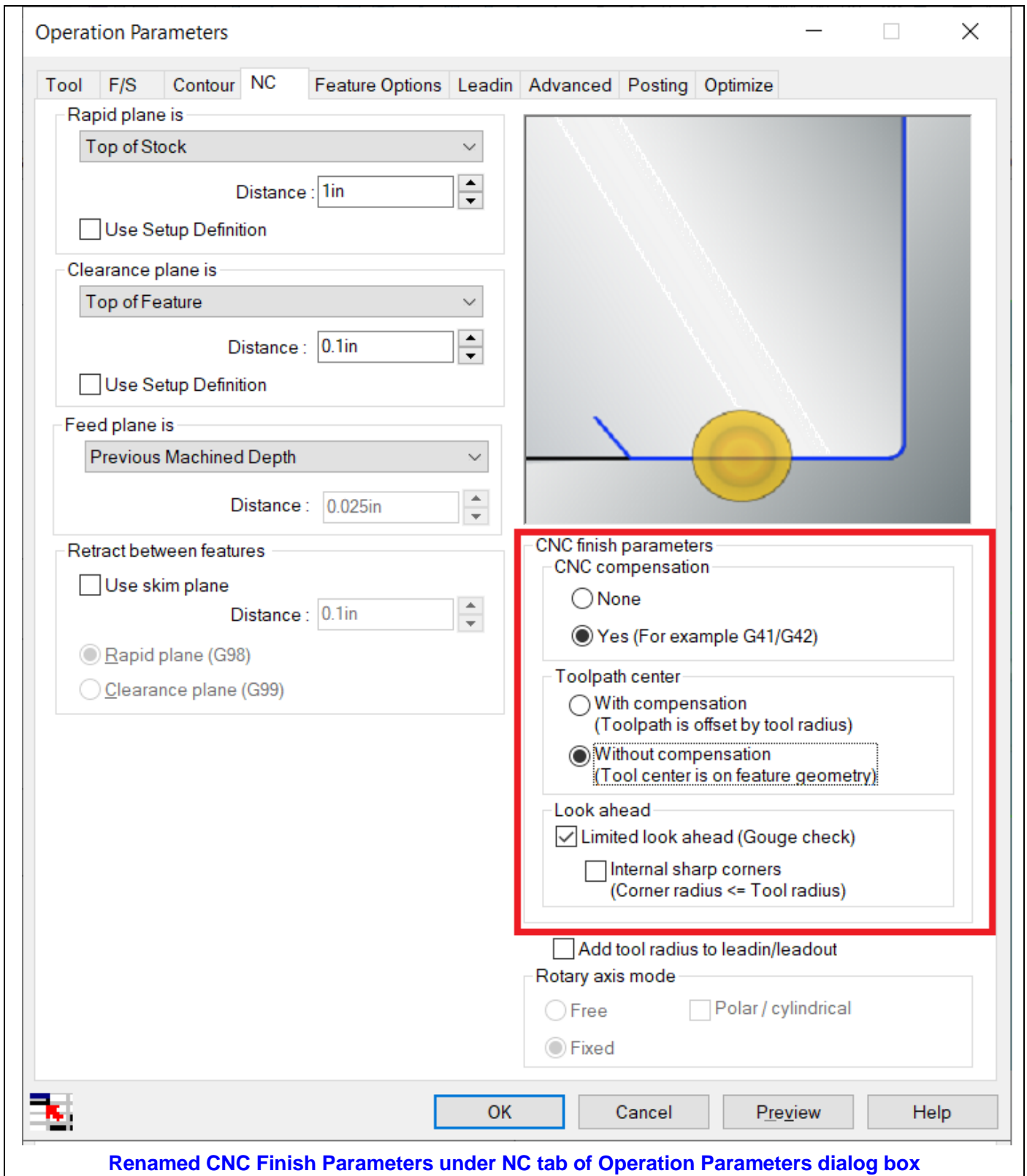
Limited look ahead (Gouge check) : ☒

Add tool radius to leadin/leadout : ☐

Internal sharp corners(Corner radius <= Tool radius) : ☐

> For Mill Turn Machine

Renamed CNC Finish Parameters under NC tab of Operation Parameters UI of Technology Database





New - Option to display Hidden Toolpath Moves in a User-assigned Color

Purpose: To provide the option whereby users can enable the display of hidden toolpath moves in a user-specified color

Implementation:

For 3 Axis Mill, Multiaxis Mill and VoluMill toolpaths, the toolpath moves (Rapid moves, Plunge Moves, Leadin moves, Leadout moves and Link moves) can be viewed in the graphics area in the following scenarios:

- Whenever you click on the corresponding operation node in the *Operation* tree
- When you execute the *Step Through Toolpath* command
- When you edit a toolpath using the *Edit Toolpath* Dialog Box
- When you edit a toolpath by executing the *Advanced Edit Toolpath* command

In the previous versions of CAMWorks, the following enhancements with respect to toolpaths were introduced:

- Options to enable/disable the display of specific toolpath moves that comprise the toolpaths
- Option to change/reassign the display color for the toolpath moves that comprise the toolpaths

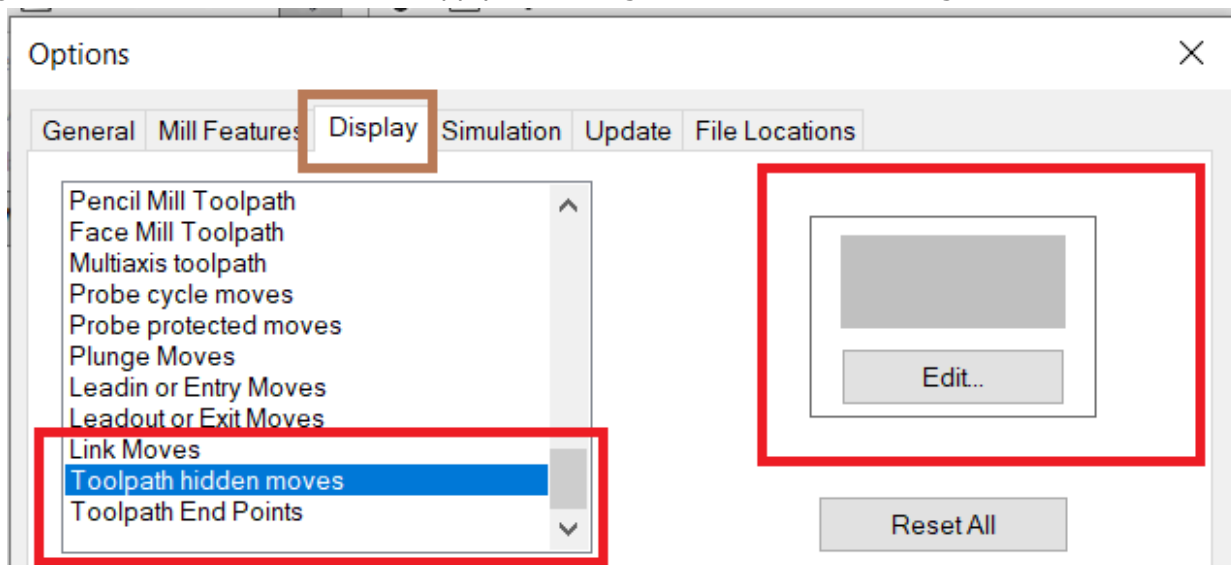
In *CAMWorks 2021Plus* version, an additional option has been introduced for toolpath moves which has been explained below.

Assigning Display Color for Hidden Toolpath Moves

You can choose to either display or not display such toolpath hidden moves in the graphics area. In case you choose to display hidden moves in a specific color, you can do so by using settings available within the **Display tab of the CAMWorks Options** dialog box.

The color display settings for such hidden moves can be customized using the **Color Settings** parameters available under **Display** tab of the **CAMWorks Options** dialog box.

To change the display color associated with a hidden toolpath moves, highlight the **Toolpath Hidden moves** option within the **Color Settings** list box. The currently assigned color for this option will be displayed adjacent to the list box. (Default color for 'Toolpath Hidden Moves' is gray.) Click on the **Edit** button below it. Clicking on this button displays the dialog box for color reassignment. Use the settings within this dialog box to select the color of your choice. Once the desired color settings are assigned, click on the **OK** button to apply the changes, and close the dialog box.



'Toolpath Hidden Moves' option in the Display tab of CAMWorks Options Dialog Box

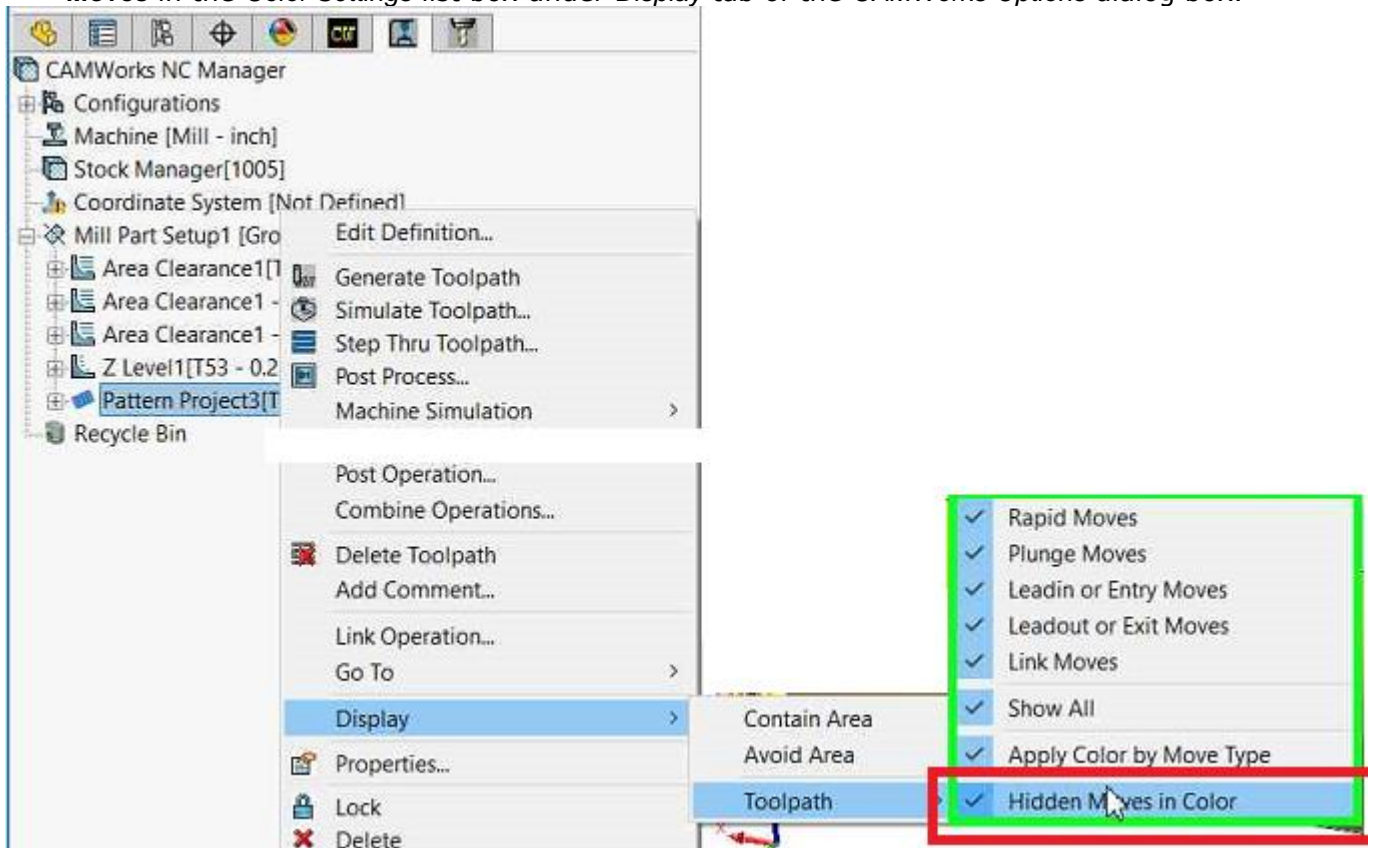
Enabling the Display of Hidden Toolpath Moves using the 'Hidden Moves in color' Option

If one or more toolpath move options displayed in the cascading menu does not have a check mark adjacent to it, then it will be considered as a hidden toolpath move.

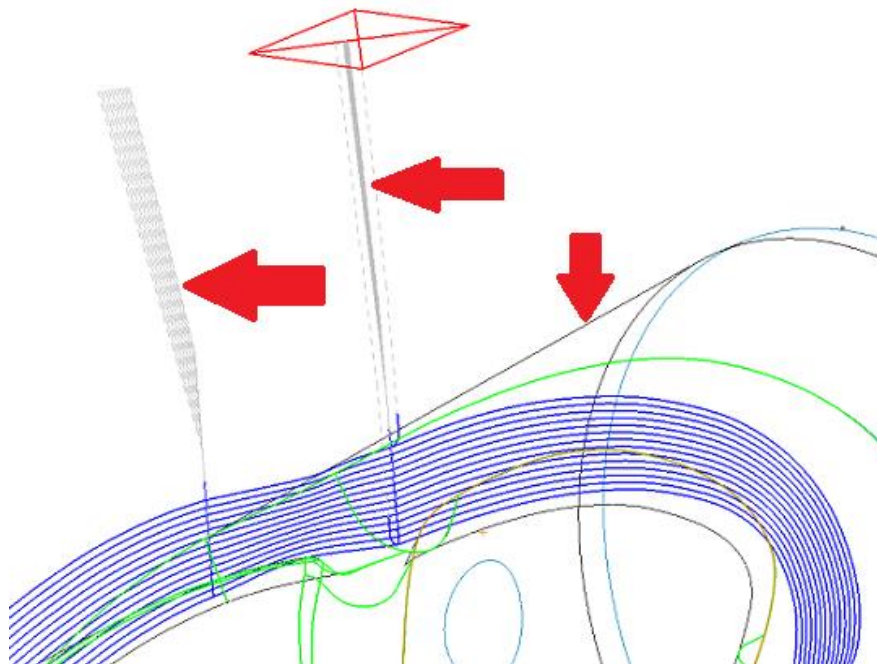
- If the **Hidden moves in color** option in the cascading menu is not checked, then none of the toolpath moves currently marked as hidden will be displayed in the graphics area.
- If the **Hidden moves in color** option in the cascading menu is checked, then all the hidden



toolpath moves will be displayed in the graphics area in the color assigned for **Toolpath Hidden Moves** in the *Color Settings* list box under *Display* tab of the *CAMWorks Options* dialog box.



'Hidden Moves in Color' option within Cascading menu for Toolpaths



Hidden Toolpath Moves Displayed in Gray Color within Graphics Area

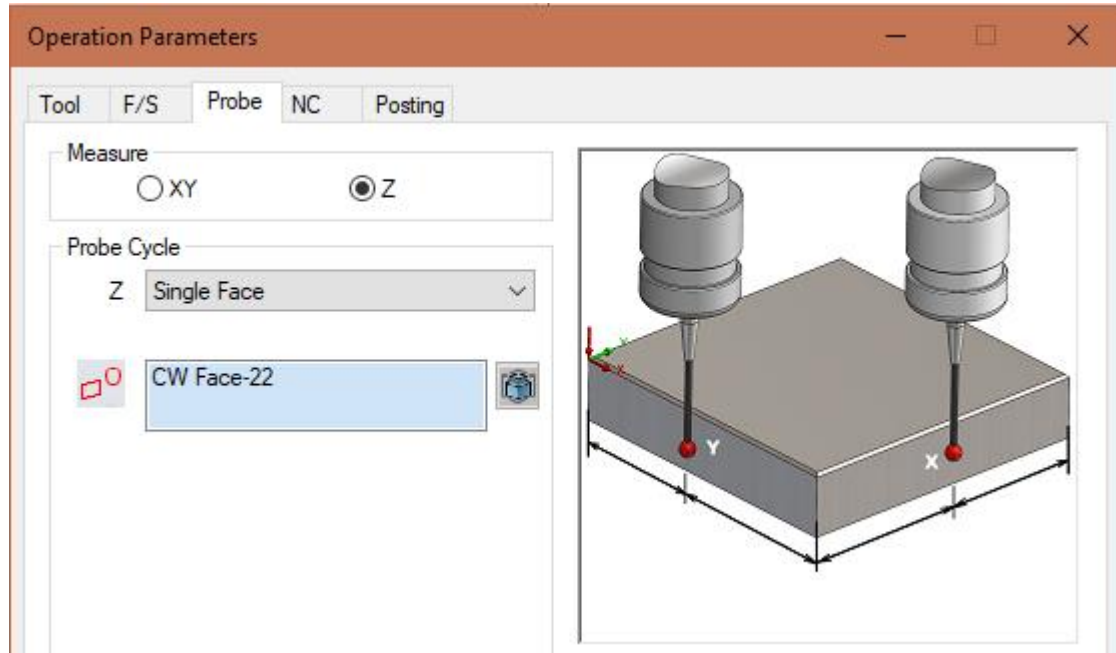


New - Support for non-planar surfaces for Z Axis Probe Cycles

Purpose: To allow non-planar surfaces to be selected during Z Axis Probing

Implementation:

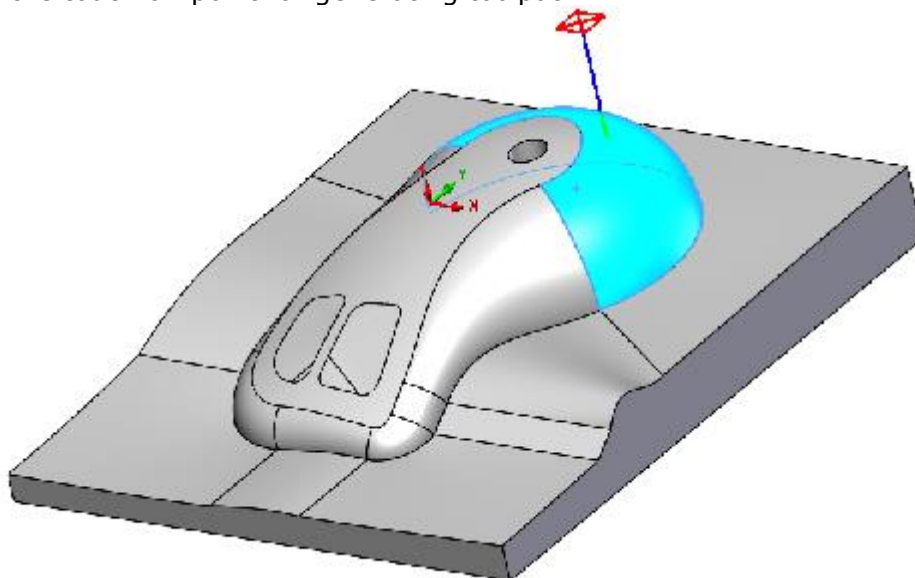
When Z Axis probing option is selected in the *Probe* tab of *Operation Parameters* dialog box, the only Probe Cycle option available is **Single Face**.



Z Probe Cycle selected in Probe tab of Operation Parameters Dialog Box

In previous versions of CAMWorks, only planar surfaces could be selected during Z Axis Probe Cycles. This was limiting as Z touch offs could happen on any surface.

From *CAMWorks 2021Plus* version onwards, non-planar surfaces too are supported for Z Probe cycles. The default touch off point that will be considered for toolpath generation will be the top-most point of the selected face in Z direction. If you moves the touch off point, then a ray would be fired in the direction of the -Z axis to find the intersection point. This intersection point will then be used as the touch off point for generating toolpath.



Example of Non Planar Surface that can now be Probed with Z Axis Probe Cycles



Turn/ Mill-Turn

New - Turn Toolpath Support for Prime Inserts

Purpose:

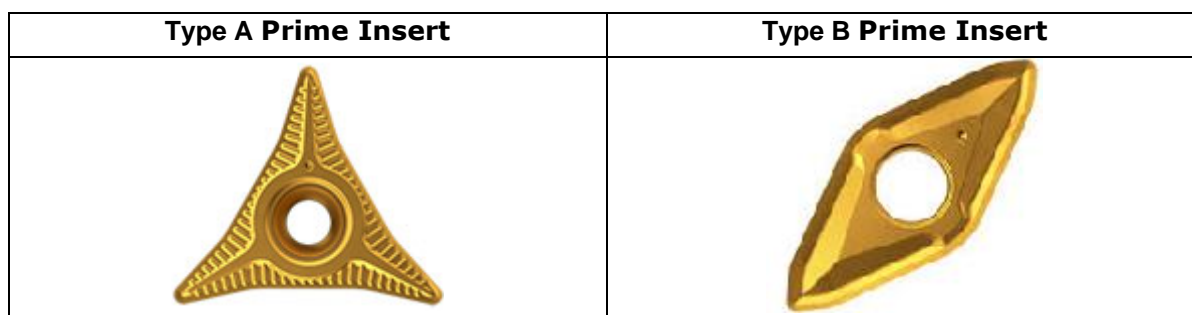
Support for Prime Inserts and Holders within CAMWorks

Implementation:

What is PrimeTurning™?

PrimeTurning™ is a pattern of high-speed turning (Roughing and Finishing) using patented insert shapes. The profiles of the Prime Inserts are patented and offered by Sandvik. The geometry of these inserts is available on the Sandvik web portal in the form of *.stp and *.dxf files.

There are two types of Prime Inserts viz. Type A and Type B.



Advantages of PrimeTurning™

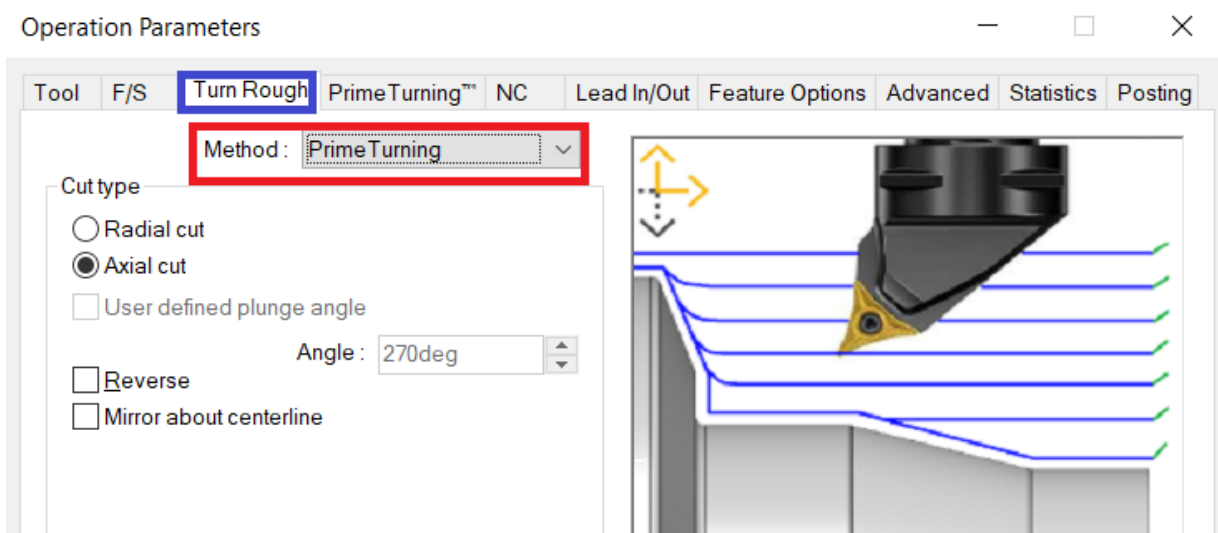
- High material removal rate compared to conventional turn patterns
- Improved tool life
- Bidirectional material removal. (Zigzag)

Turn Operations in CAMWorks that Support PrimeTurning™

- Turn Rough
- Turn Finish

Activating PrimeTurning™ for Supported Turn Operations

For Turn Rough and Turn Finish operations, **PrimeTurning™** functionality can be activated by selecting the **PrimeTurning** option in **Method** dropdown list of the corresponding **Turn Rough** or **Turn Finish** tabs.



Set Method to 'PrimeTurning' in Turn Rough/Turn Finish Tab of Operation Parameters



What's New in CAMWorks 2021Plus SP0

Tool Inserts to be used for PrimeTurning™

When the Turning method is set to **PrimeTurning**, only Prime Inserts can be assigned to these operations.

Support for Prime Inserts in CAMWorks

CAMWorks supports Prime Inserts for *PrimeTurning*™ operations. Almost all the Prime Inserts offered by Sandvik are shipped with CAMWorks and are available at the following location (after installation of CAMWorks):

Drive:\CAMWorksData\CAMWorks2021Plusx64\Tooling\PrimeTurnTools

These Prime Inserts available within the Technology Database can be viewed in its corresponding user interface available under Turn Tooling.

CAMWorks 2021Plus Technology Database

Turn Tooling > Inserts

Prime Insert

Id	Thickness	Relief Angle	Tool Material	Coolant	Description	Coordinate Syst...
1	0.2	6	Carbide	Flood	Prime turn inse...	Coordinate System1
2	0.2	6	Carbide	Flood	Prime turn inse...	Coordinate System1
3	0.2	6	Carbide	Flood	Prime turn inse...	Coordinate System1
4	0.2	6	Carbide	Flood	Prime turn inse...	Coordinate System1
5	0.2	6	Carbide	Flood	Prime turn inse...	Coordinate System1
6	0.2	6	Carbide	Flood	Prime turn inse...	Coordinate System1
7	0.2	6	Carbide	Flood	Prime turn inse...	Coordinate System1
8	0.2	6	Carbide	Flood	Prime turn inse...	Coordinate System1
9	0.2	6	Carbide	Flood	Prime turn inse...	Coordinate System1
10	0.2	6	Carbide	Flood	Prime turn inse...	Coordinate System1
11	0.2	6	Carbide	Flood	Prime turn inse...	Coordinate System1
12	0.2	6	Carbide	Flood	Prime turn inse...	Coordinate System1
13	0.2	6	Carbide	Flood	Prime turn inse...	Coordinate System1
14	0.2	6	Carbide	Flood	Prime turn inse...	Coordinate System1
15	0.2	6	Carbide	Flood	Prime turn inse...	Coordinate System1
16	0.2	6	Carbide	Flood	Prime turn inse...	Coordinate System1
17	0.2	6	Carbide	Flood	Prime turn inse...	Coordinate System1

Prime Insert (ID: 1)

Thickness (T) : 0.2 in

Relief angle : 6 deg

Tool material : Carbide

Coolant type : Flood

Tool file path : C:\CAMWorksData\CAMWo...

Comment : CP-B1108-H3 1115

Tool ID : CP-B1108-H3 1115

Vendor : Sandvik

Description : Prime turn insert B type

Coordinate System : Coordinate System1

Component Name : C5-CP-70BL00115-11B_CUT

2d section of the insert (Optional) : C:\CAMWorksData\CAMWo...

Prime Inserts UI within Technology Database (Available in Turn Tooling Menu)

License Module for PrimeTurning™ Functionality

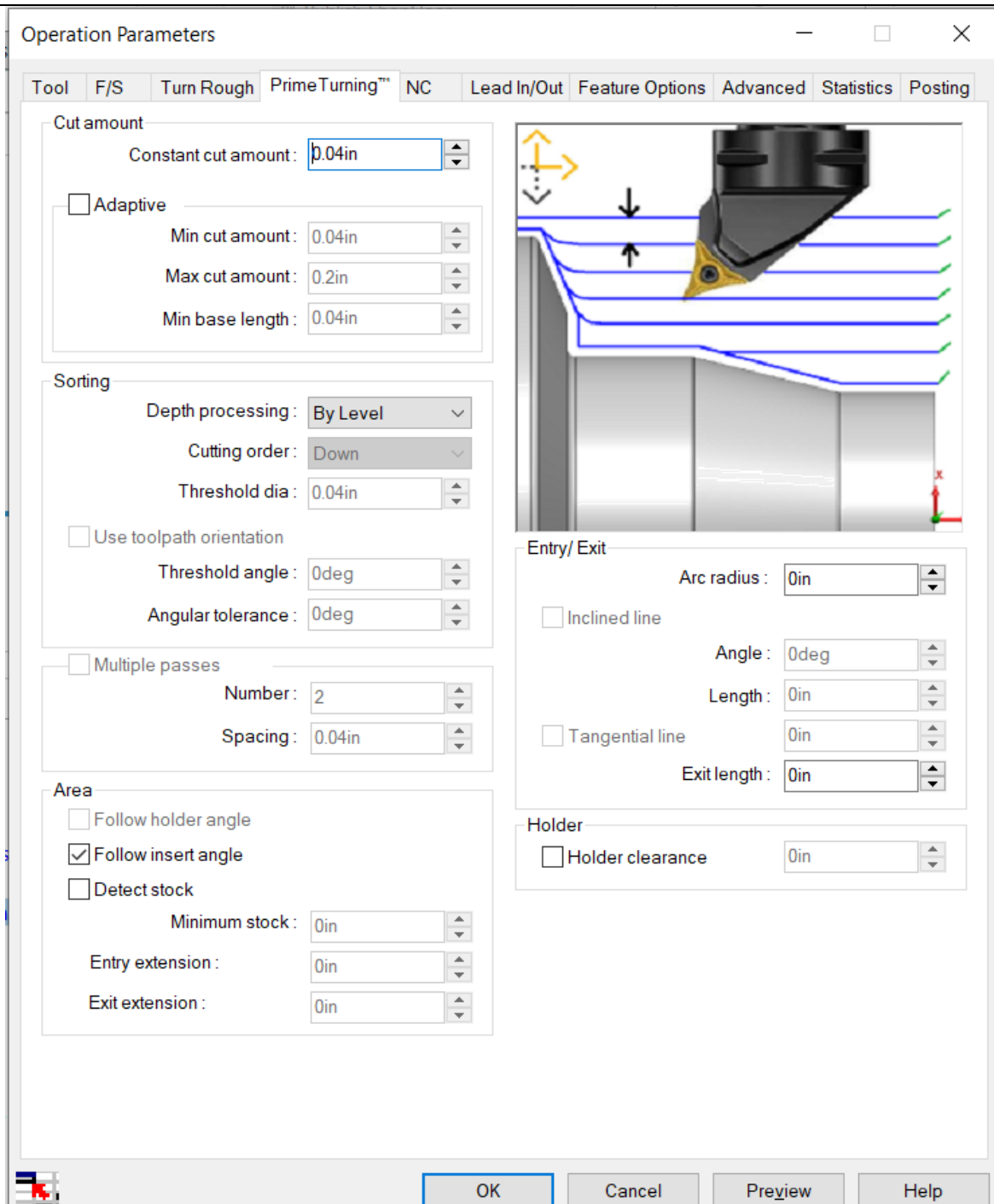
To use *PrimeTurning*™ functionality, your license must be configured to run the *PrimeTurning*™ module. Contact your reseller if you wish to have your license reconfigured to activate this module.

Note:

If your current license is not configured to run the *PrimeTurning*™ module, then none of the parameters associated with the *PrimeTurning*™ functionality will be displayed within the CAMWorks user interface.

Parameters and User Interfaces associated with PrimeTurning™

Once *PrimeTurning*™ functionality is activated for supported Turn operations (by selecting PrimeTurning in the **Method** dropdown list of the operation specific tab), the **PrimeTurning** tab will appear within the **Operation Parameters** dialog box. Use the parameters within this tab to edit/assign settings associated with PrimeTurning™.



PrimeTurning™ Tab within Operation Parameters Dialog Box

The parameters which are applicable for *PrimeTurning™* remain enabled while the other parameters are disabled on the different tabs of Operation Parameters. Also, some feed/speed parameters specific to *PrimeTurning™* are enabled.



Operation Parameters

Tool

F/S

Turn Rough

PrimeTurning™

NC

Lead In/Out

Feature Options

Advanced

Statistics

Posting

Defined by: Library

Library

Reset

Conditions

Stock material: 6061-T6

Machine duty: Medium duty

Spindle

Mode: SFM

Surface Speed: 1800.00ft/min

☐ Surface speed RPM max: 5000.00rpm

Spindle Speed: 2987.92rpm

Direction: ☒ CW

☐ CCW

Override spindle direction: ☒

Feed

FPM ☐ 48.11in/min

FPR ☒ 0.02in/rev

☐ System Calculated Arc Feedrates

Feed direction for prime turn: Right

Overrides

<input type="checkbox"/>	Entry feedrate:	0.01in/rev	<input checked="" type="checkbox"/>	%:	75
<input type="checkbox"/>	Exit feedrate:	0.01in/rev	<input checked="" type="checkbox"/>	%:	75
<input type="checkbox"/>	First cut feedrate:	0.01in/rev	<input checked="" type="checkbox"/>	%:	75
<input type="checkbox"/>	Final cut feedrate:	0.01in/rev	<input checked="" type="checkbox"/>	%:	75
<input type="checkbox"/>	Arc feedrate:	0.01in/rev	<input checked="" type="checkbox"/>	%:	75
<input type="checkbox"/>	Entry arc feedrate:	0.01in/rev	<input checked="" type="checkbox"/>	%:	75
<input type="checkbox"/>	Exit length feedrate:	0.01in/rev	<input checked="" type="checkbox"/>	%:	75

☒ Convert repositioning moves to high feed moves

New Parameter “Entry arc feedrate” and “Exit length feedrate in F/S tab when PrimeTurning™ is Active

(Observe that most other parameters within this tab are disabled as they are not applicable for *PrimeTurning™*)



Technology Database

New - Option to create a list of Multiple available TechDBs and assign Active TechDB from that list

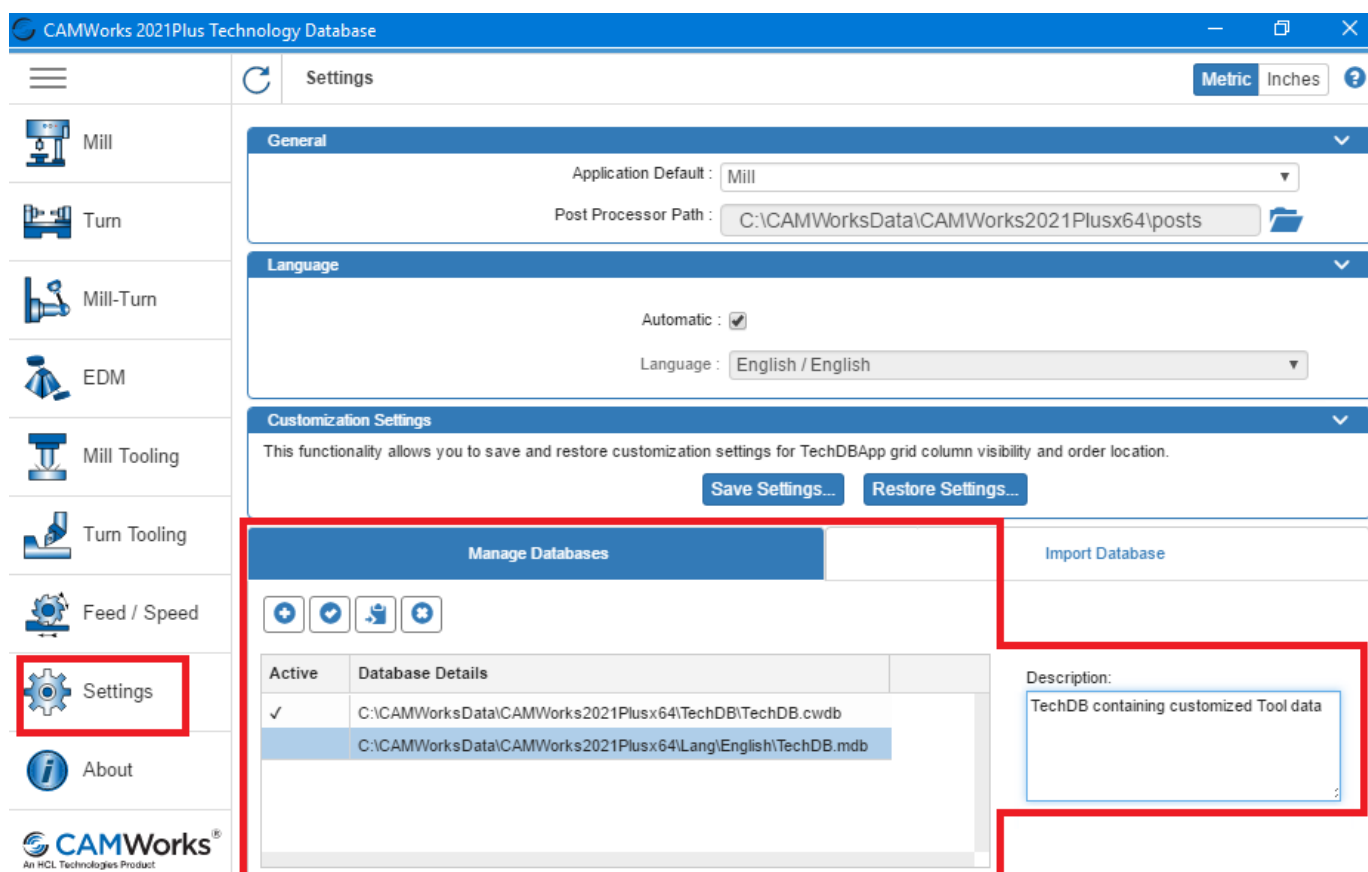
Purpose:

To provide the option whereby users can create a list of available TechDBs (in all supported formats) on the local machine or network and allow any one selected TechDB from that list as the active TechDB

Implementation:

In the **Settings** user interface of the TechDB App, the formerly **Link Database** tab has been renamed to **Manage Databases** tab.

In addition to all existing functions served by the **Link Database** tab, the **Manage Databases** tab allows you to add multiple TechDB data source files (in all supported formats) and list them as available TechDBs. Though multiple TechDB data files can be listed within this tab, only one among them can be assigned as the active TechDB linked to the application. The active TechDB can be visually identified by the check mark in the corresponding Active column field adject to that TechDB entry.



'Manage Databases' Tab in Settings User Interface of TechDB App

Add TechDB Command Button



Use the **Add** button to add a new TechDB data file (in any one of the supported formats) to the list of available TechDBs listed in the **Manage Databases** tab. Clicking on this displays a pop-up window. Select the format of the database to be added by clicking on the applicable option at the top of the window. For example, if you intend to add an **MS Access** based TechDB, click on the **MS Access** button located at the top of the pop-up window.




Once the database format is selected, click on the **Browse** button within this window. Select the file. Click on the **Open** button of the *Windows File Explorer*. The *Windows File Explorer* will close, and the user interface will revert to the pop-up window. The path to the newly selected TechDB file will be displayed adjacent to the **Browse** button.

Place a check in the **Set as active** checkbox at the bottom of the pop-up window in case if you want to set the database file as active one.



Pop-up window for adding a new TechDB source file

Click on the **OK** button  to confirm the selection. Observe that the newly selected TechDB will be listed in the list of available Technology Databases. (If the **Set as active** checkbox was checked within the pop-up window, then the new database will have a check mark adjacent to its name within the list of available Technology Databases.

Set as Active (Command Button)

In case of multiple TechDB entries within the list of available Technology Databases, only one TechDB entry can be set as the default TechDB.

If desired, you can set database within this list as the active TechDB. To do so, highlight the desired entry within the list of available Technology Databases and click on the **Set as active** button.

Copy TechDB (Command Button)

If desired, you can create copies of Technology Databases listed within the list of available Technology Databases.

To create a copy, highlight the TechDB from the list of available Technology Databases whose copy you wish to create and click on the **Copy** button. Use the displayed window to set the folder path and name of the copy and click the **Save** button.

Observe that the newly created copy will now be listed in the list of available Technology Databases.

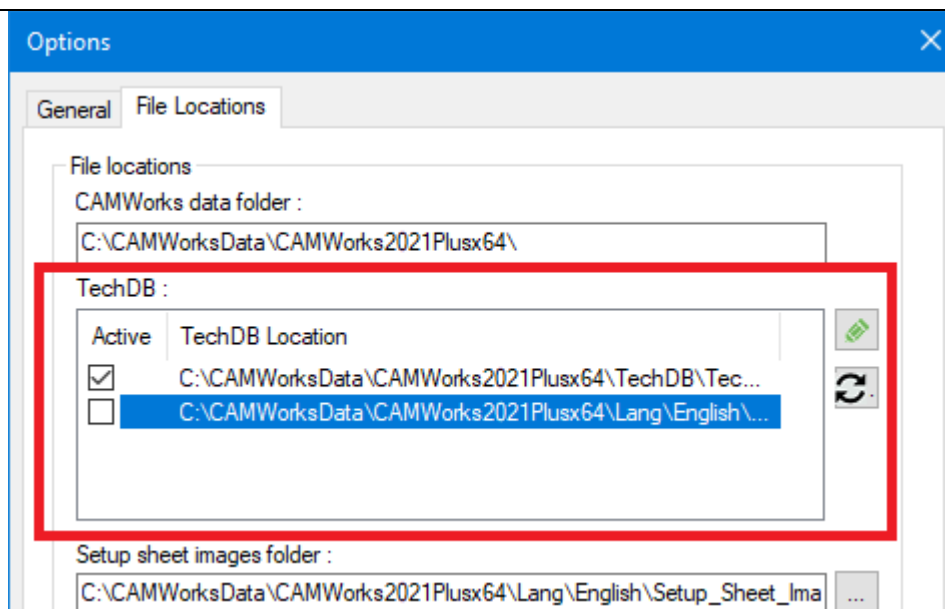
Remove TechDB (Command Button)

Execute the **Remove TechDB** command if you wish to remove any TechDB listed within the list of available Technology Databases. To remove a database from the list of available Technology Databases, highlight that entry within the list and click on the **Remove TechDB** command button. Executing this Remove TechDB command does not delete the selected TechDB file. It only removes the database from the list of available Technology Databases.

Note that only TechDB entries that are not assigned as the active TechDB can be removed from the list of available Technology Databases.

Implementation within CAMWorks Application



The TechDB Settings available under **File Locations** tab of **CAMWorks Options** dialog box within the **CAMWorks** application has been updated to display the list of TechDBs defined in the **Manage Databases** tab of TechDB App.



TechDB group box under File Locations Tab of CAMWorks Options Dialog Box

The active TechDB can be identified by a checkmark in its corresponding **Active** column field. If you wish to change the TechDB assigned as the active TechDB, then ensure that no active part or assembly programmed using the active TechDB is open and then place a check in the Active column of the desired entry and apply the changes. Not that this change will be limited to the CAMWorks application and will not be reflected in corresponding TechDB settings.

If you wish to apply the changes in the TechDB settings too, then click on the **Launch the TechDB**

App to Manage List of Connections button  to the right of the group box. This action will launch the *TechDB App* with *Manage Databases* tab in focus. Assign the desired TechDB file as the active TechDB and close the *TechDB App*. Click on the **Update the TechDB List** button  to sync the TechDB listings in the TechDB group box with those in the *Manage Databases* tab. Observe that the group box now reflects the newly assigned TechDB as the active file.