

## Predator Virtual CNC™ v9.0 – What’s New

*Latest features and benefits in v9.0*

### Before Installing v9.0

Predator Virtual CNC v9.0 has a minimum RAM requirements of 512 Megs. Like other CAD/CAM applications more memory will improve performance with large parts and complex operations. Our recommendation is to have 1 Gig of RAM for v9.0 of Predator Virtual CNC.

Microsoft Internet Explorer v5.x or later is required to be installed before installing Predator Virtual CNC v9.0.

Backup everything; especially your data and any customized reverse posts you have been using. V9.0 is 98% backwards compatible with v8.x previous releases but there are a few reverse post changes that might be necessary. These changes primarily affect Fanuc style G28, G29 and G53. Remove the following registers from your reverse posts:

r_reference_pos_X	r_reference_pos_V
r_reference_pos_Y	r_reference_pos_W
r_reference_pos_Z	r_reference_pos_4th
r_reference_pos_U	r_reference_pos_5th

Remove the following parameters from your reverse posts:

Mill_W_Axis	Reference_Point
Reference_Axis	

Remove the multi@ patterns from the following keywords:

ReturnToRefP	ReturnFromRefP
MoveInMchCoord	

Move the GoHome keyword from the ToolChange section to the RefPointReturn section.

### Why v9.0?

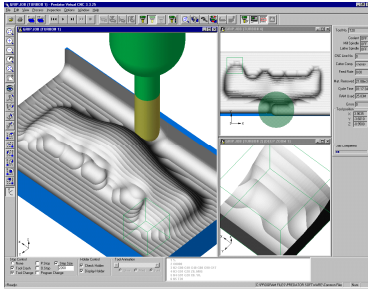
By design, the primary goal of this release is to improve 3D machine simulation and verification via Predator Dynamic Graphics™, extend Fanuc and Heidenhain CNC support and improve overall product quality. Details of what’s new are explained throughout this document and within the online help.

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## Predator Virtual CNC



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### Installing v9.0

A new Install Wizard has been developed for v9. It is based on a single .MSI image. If you are running Windows 98, ME or NT v4.0 you must upgrade to Windows 2000, XP, 2003 Server, Vista or 2008 Server prior to installing v9.0 of Predator Virtual CNC.

By default installation occurs in the \program files\predator software\virtual cnc 9.0 directory. If you were previously running v8.x we recommend uninstalling v8.x prior to installing v9.0.

Predator Virtual CNC v9.0 by default will also install Predator Editor v9.0. If the Predator Editor v9.0 is already installed it will not appear during the install.

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### Network Installations of v9.0

By committing to store the product installation on a server, users will enjoy automatic healing of all critical files upon running Predator Virtual CNC. For example, suppose a user accidentally deletes pvcnc.exe. Under normal circumstances he would be down and the software would fail to run. With v8.0 when the user double clicks the desktop shortcut all critical files are checked and if necessary restored from the network server and the software begins to run automatically.

The easiest way to perform a network installation is to step through the following:

1. Copy the contents of the CD to a \predator cd images\CD40\ or similar directory.
2. Run the setupvirtual.exe from the CD40 directory.

**NOTE:** Should any automatic healing be necessary, Predator Virtual CNC will be able to automatically extract the necessary files from the appropriate cab files stored in the CD40 directory. If you install from a CD, Predator Virtual CNC will be forced to prompt for the CD.

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### What's New in v9.0?

#### New! Microsoft Windows 2008 Server Support

Support for Microsoft Windows 2008 Server has been added with v9.0 of Predator Virtual CNC. This includes support for the x64 editions.

NOTE: Predator Virtual CNC is a 32 bit application and installation of Predator Virtual CNC under Windows 2008 Server x64 edition defaults to the following folder

\program files (x86)\predator software\virtual cnc 9.0

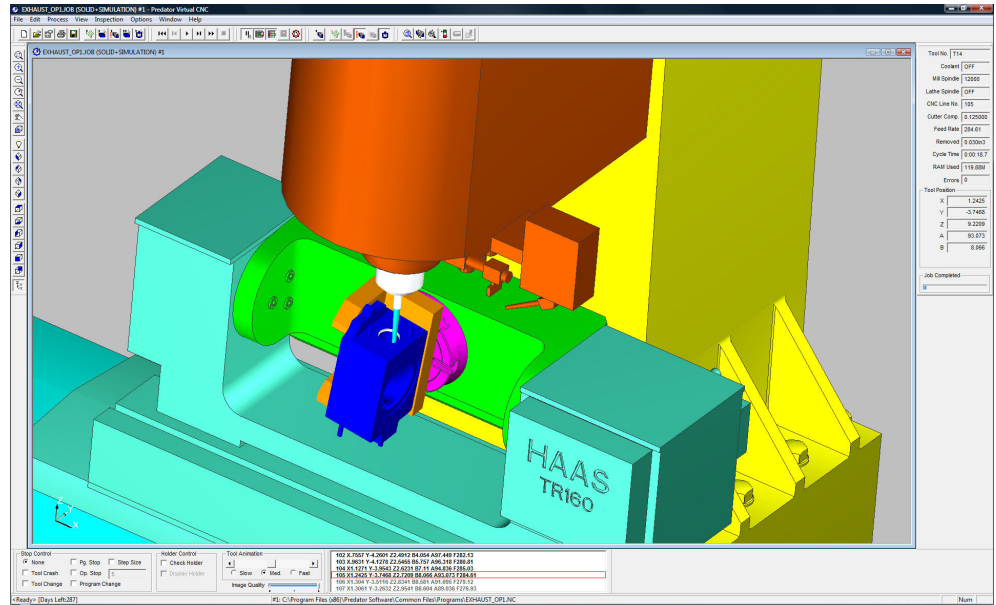
#### New! Software Transparency

New option for software transparency has been added to V9.0 of Predator Virtual CNC for Intel and other graphics cards that don't support hardware based transparency.

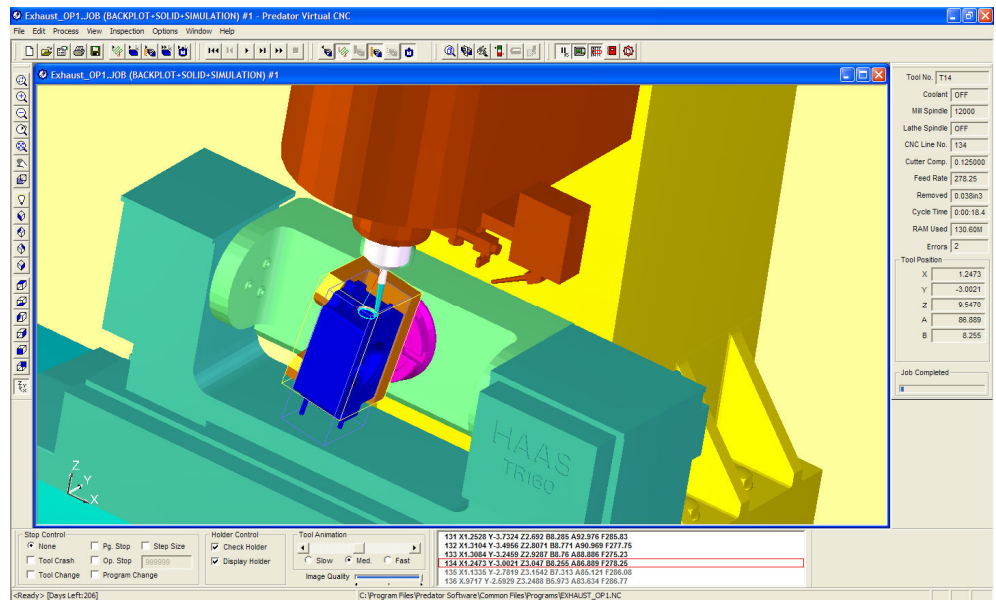
NOTE: Hardware based transparency will provide improved performance.

## New! Smooth Rendering

V9.0 of Predator Virtual CNC supports a new smooth rendering for enhanced realism. This improvement is most noticeable with cylindrical machine components, fixture components and prismatic parts. This enhancement does not require any changes to existing machines, fixtures and components.



NOTE: The above image is from version 9.0 of Predator Virtual CNC.



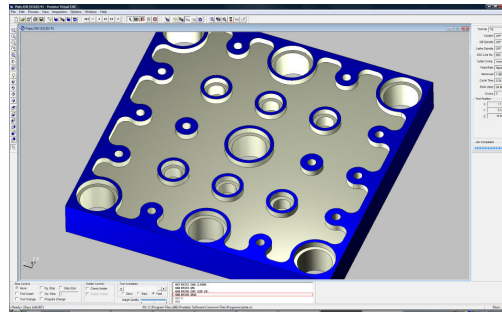
NOTE: The above image is from version 8.0 of Predator Virtual CNC.

## New! 3D Hidden Line Edge Detection

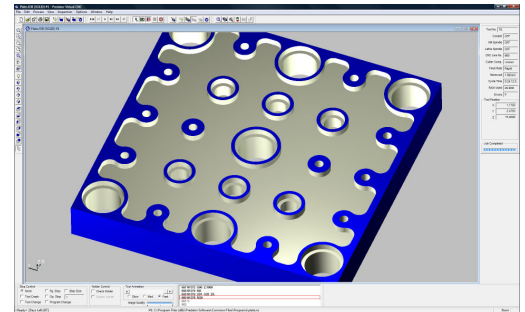
V9.0 of Predator Virtual CNC supports new 3D automatic hidden line edge detection. This option can be enabled for machine components or for solid stock and fixture elements. By default the Solid Edges option is disabled if you primarily machine 2.5 axis parts then

enable it for enhanced display. Enabling this option on sculptured 3, 4 and 5 axis machine surfaces can produce some interesting results when reviewing surface finish.

NOTE: Enabling this option does incur a slight performance penalty.



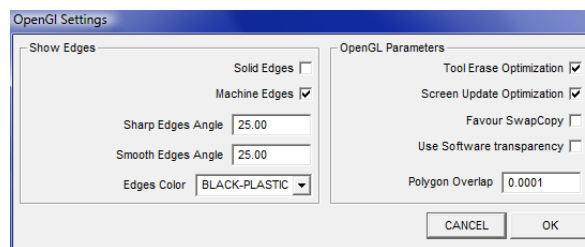
With Stock Edges



Without Stock Edges

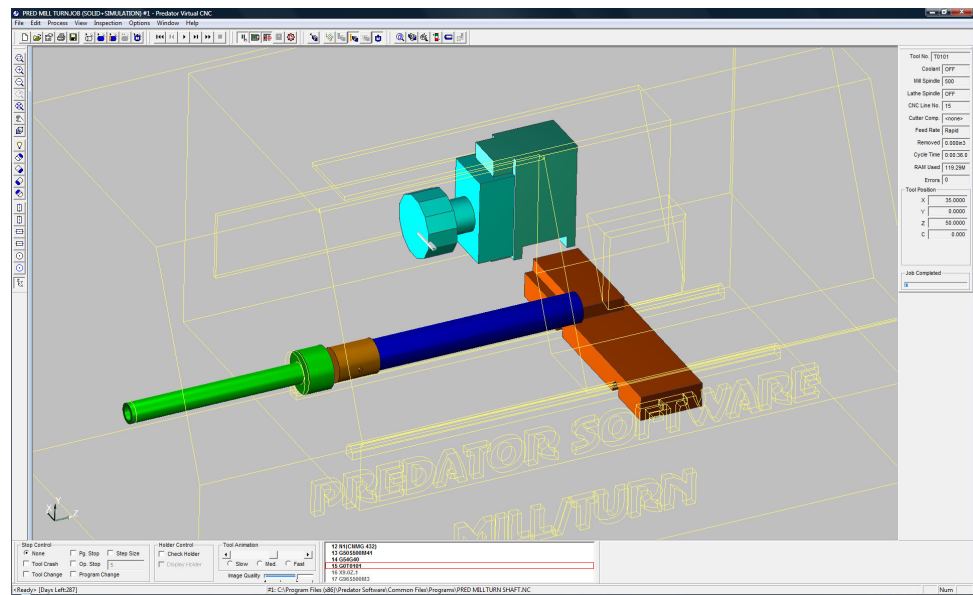
### New! OpenGL Settings Dialog

Predator Virtual CNC v9.0 adds a new configurable OpenGL settings dialog that improves performance and simplifies graphics card adjustments/compatibility.



### New! Wireframe Machine Components

A new visibility option for wireframe machine components has been added to V9.0 of Predator Virtual CNC. This setting can be applied to external machine components to better see interior machine components.



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### **New! Tool Display Commands**

V9.0 of Predator Virtual CNC includes new reverse post processor commands to control the display of the tool. Refer to the following example:

```
"M77"           :      ToolNormal
"M78"           :      ToolDim
"M79"           :      ToolHighlighted
```

### **New! Unload Tool Command**

V9.0 of Predator Virtual CNC includes a new reverse post processor command to unload a tool. Refer to the following example:

```
"M76"           :      UnLoadTool
```

### **New! Fanuc G30.2, G30.3 and G30.4 Support**

V9.0 of Predator Virtual CNC includes a new support for Fanuc style G30.2, G30.3 and G30.4 support.

### **New! Fanuc G30 Support**

Support for Fanuc style G30 second reference point return has been added with v9 of Predator Virtual CNC.

### **New! Haas 5 Axis Drilling Support**

V9 of Predator Virtual CNC adds a new toolaxisdir keyword for 5 axis drilling.

```
"G161",multi@7      :      DrillCycle (toolaxisdir) ; Haas Style
```

### **New! Reverse Post Registers**

V9.0 of Predator Virtual CNC includes the following new registers:

```
r_intermediate_pos_x
r_intermediate_pos_y
r_intermediate_pos_z
r_intermediate_pos_4th
r_intermediate_pos_5th
r_drill_pos_4thAxis
r_drill_pos_5thAxis
r_drill_peck
r_drill_peck_inc
r_drill_retract
```

### **New! INC Command Line**

Predator Virtual CNC v9 adds a new INC command line argument to run SurfCAM INC files. Refer to the following example:

```
pvcnc.exe /INC:surfcam.inc
```

### **New! NOT Support**

V9 of Predator Virtual CNC adds a new NOT keyword for Boolean operations.

```
"NOT",#30           :      Not(double in)
```

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### **New! Incremental Rotary Axis Motion**

V9 of Predator Virtual CNC adds a new support for incremental rotary axis motion.

```
"H",real      :      IncMove4thAxis      ; Fanuc style
"IB",real     :      IncMove5thAxis
```

### **New! Reverse Post Parameters**

V9.0 of Predator Virtual CNC includes the following new parameters:

```
[PARAMETERS]
RefPoint2 = 15,20,25,35,45
RefPoint3 = ignore, ignore, 15
RefPoint4 = 0, 0, 15
Cycle_Modal_Style= Exclude_Def_Call
LatheCycle_RetractAmount=0.01
ArcSense_Modality=On
```

NOTE: RefPoint values not specified are assigned to be ignore.

NOTE: Cycle\_Modal\_Style's other option is Include\_Def\_Call.

### **New! Custom Reverse Post Commands per Job**

V9 of Predator Virtual CNC adds a new custom reverse post section per job. This allows job specific reverse post adjustments. This is especially powerful with variable assignments.

### **Improved! Fanuc G28 Support**

Support for Fanuc style G28 return to reference point has been improved with v9 of Predator Virtual CNC. This change orphans some v8 parameters that need to be deleted with any existing reverse post processors.

```
"G28" :      ReturnToRefP
```

NOTE: Patterns should not be used with ReturnToRefP.

### **Improved! Fanuc G29 Support**

Support for Fanuc style G29 return from reference point has been improved with v9 of Predator Virtual CNC. This change orphans some v8 parameters that need to be deleted with any existing reverse post processors.

```
"G29" :      ReturnFromRefP
```

NOTE: Patterns should not be used with ReturnFromRefP.

### **Improved! Fanuc G53 Support**

Support for Fanuc style G53 machine coordinate system has been improved with v9 of Predator Virtual CNC.

```
"G53" :      MoveInMchCoord
```

NOTE: Patterns should not be used with MoveInMchCoord.

### **Improved! Error Messages**

V9.0 of Virtual CNC improved reverse post processing error messages.

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### **Improved! Splash Screen**

V9.0 of Virtual CNC includes an improved splash screen.

### **Improved! Progress Bar**

V9.0 of Virtual CNC includes an improved progress bar.

### **Improved! Solid Model**

V9.0 of Virtual CNC improves the solid model when using low image quality settings, values greater than 1000, cylinders, fixtures and intermittent vertical wall gaps.

### **Improved! Turbo Model**

The turbo model has been improved with improved display of collisions, multiple tool shapes, image quality and INC support.

### **Improved! Loading STL Stocks**

V9.0 of Virtual CNC improves the performance of loading STL stock shapes. Support for very large STL files has also been improved.

### **Improved! Siemens Drill Cycles**

V9.0 of Virtual CNC improves support for Siemens drilling cycles.

### **Improved! FANUC Lathe G71 and G72 Cycles**

V9.0 of Virtual CNC improves support for FANUC lathe G71 and G72 pocketing and finishing cycles.

### **Improved! FANUC G76 Support**

Support for FANUC style multiple line G76 threading with taper has been improved with v9 of Predator Virtual CNC.

### **Improved! SurfCAM INC Support**

V9.0 of Virtual CNC improves support for newer SurfCAM INC files.

### **Improved! Deep Zoom**

V9.0 of Virtual CNC improves deep zoom with better colors and fixes a bug that rotated the stock while selecting the size of the deep zoom.

### **Improved! Predator Virtual CNC ActiveX Control**

An improved 3D verification and machine simulation activeX control for OEM and custom development projects has been developed to support third party CAD/CAM and CNC applications. These applications can leverage Virtual CNC 3D verification and simulation technology within their own application.

Finally, an improved feed rate, chatter, spindle load and cutting analysis features have also been added to the activeX control for OEM and custom development projects to support third party CAD/CAM and CNC applications. These applications can leverage Virtual CNC technology within their own application.

NOTE: Using the Virtual CNC ActiveX control requires an appropriate license and distribution agreement with Predator Software Inc. The Virtual CNC ActiveX Control is used within v9.0 of the Predator CNC Editor. The Virtual CNC ActiveX Control can even be used within Microsoft Internet Explorer.

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### **Improved! Mill/Turn Support**

Support for Mill/Turn machines has been improved with v9 of Predator Virtual CNC. Better tool definitions, machine simulation and overall operation.

### **Improved! Fanuc GOTO Support**

Support for Fanuc style GOTO has been improved with v9 of Predator Virtual CNC.

### **Improved! Heidenhain Support**

Support for Heidenhain conversational has been improved and redesigned with v9 of Predator Virtual CNC. Support for Heidenhain cycles 1, 7, 19, 200, 201, 202, 203, 205, 208, 210, 211, 212, 213, 214, 215, 240, 251, 252 and 254 have all been improved. Support for the following Q variables has been improved Q200, Q201, Q202, Q203, Q204, Q205, Q206, Q207, Q208, Q210, Q211, Q212, Q213, Q215, Q216, Q217, Q218, Q219, Q220, Q221, Q222, Q223, Q224, Q244, Q245, Q248, Q256, Q335, Q338, Q342, Q351, Q368, Q334, Q367, Q369 and Q370. Finally support for IPA incremental polar angle is now supported.

### **Improved! Custom Tools**

Custom tools have been improved to support a configurable programming point.

### **Improved! Lathe Turbo**

Lathe turbo model has been improved for better performance and collision detection.

### **Improved! Animation**

The Animation model has been improved for higher resolutions screens with a maximum limit of 1GB in v9.0 versus 256MB in v8.0 of Predator Virtual CNC. In addition the flip part for animation views has been improved.

### **Improved! Tool Change Position**

4 and 5 axis machine definitions can now define a rotary angle for the tool change position for each axis. This improves 4 and 5 axis tool change realism and collision detection.

### **Improved! Transparency**

Transparency has been redesigned for faster performance and so 75%, 50% and 25% can be used to display nested machine components within v9.0 of Virtual CNC.

### **Improved! Maho Support**

V9.0 of Virtual CNC improves support for Maho repetitive cycles.

### **Improved! Arc Support**

V9.0 of Virtual CNC improves arc support in a number of cases including 5 Axis.

### **Improved! Recursive Expressions**

Recursive expressions have been improved with V9.0 of Virtual CNC.

### **Improved! Machine Properties**

The machine preview has been improved with V9.0 of Virtual CNC.

### **Improved! Light Properties Dialog**

Lighting options have been improved with V9.0 of Virtual CNC.

### **Improved! Inspection**

The inspection has been improved with v9.0 of Virtual CNC especially with lathe parts.

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**Improved! Reverse Post Groups**

The number of groups has been increased from 75 to 256 with v9.0 of Virtual CNC.

**Improved! NC Panel**

The scrolling NC panel has been improved with v9.0 of Virtual CNC.

**Improved! Travel Limit Checking**

Travel limit checking has been improved with V9.0 of Virtual CNC.

**Improved! Verbose Output**

Verbose output has been improved with V9.0 of Virtual CNC.

**Improved! Multiple Monitor Support**

Multiple monitor output has been improved with V9.0 of Virtual CNC.

**Improved! Save As Zip**

V9.0 of Virtual CNC improved Save As Zip to include external subs.

**Improved! International Support**

Internationalization of Predator Virtual CNC has been improved with updated dialogs, tool tips and panels for different languages. Within v9.0 language resource files have also been updated.

**Improved! Reverse Post Examples**

Predator Virtual CNC v9.0 adds improved reverse posts with additional G & M code support.

**Improved! Tool Libraries**

Predator Virtual CNC v9.0 adds 600 new tools to the tool library for a total of 2000 tools within our tool library.

**Improved! Online Help**

Predator Virtual CNC v9.0 adds new online help topics and improves existing help topics.

**Bug Fix! Scan**

Predator Virtual CNC v9.0 fixes a bug with the scan command line argument.

**Bug Fixes! Multiple**

Predator Virtual CNC v9.0 fixes a number of subtle and intermittent bugs to improve overall performance and ease of use. Overall testing efforts have been improved and additional time has been invested to improve product quality.

For the latest on Predator Virtual CNC, check our web site at  
<http://www.predator-software.com>