

PypeServer for HGG Machines

This document covers topics specific to HGG machine working well with PypeServer. Topics include:

- General network layout for using PypeServer with the machine
- HGG ProCAM settings and PypeServer settings for creating program cut files from PypeServer
- Cut-file monitoring for PypeServer part cut status
- Using the Last Cut in Chuck feature--where the end of the pipe is used as the end of the last nested part.

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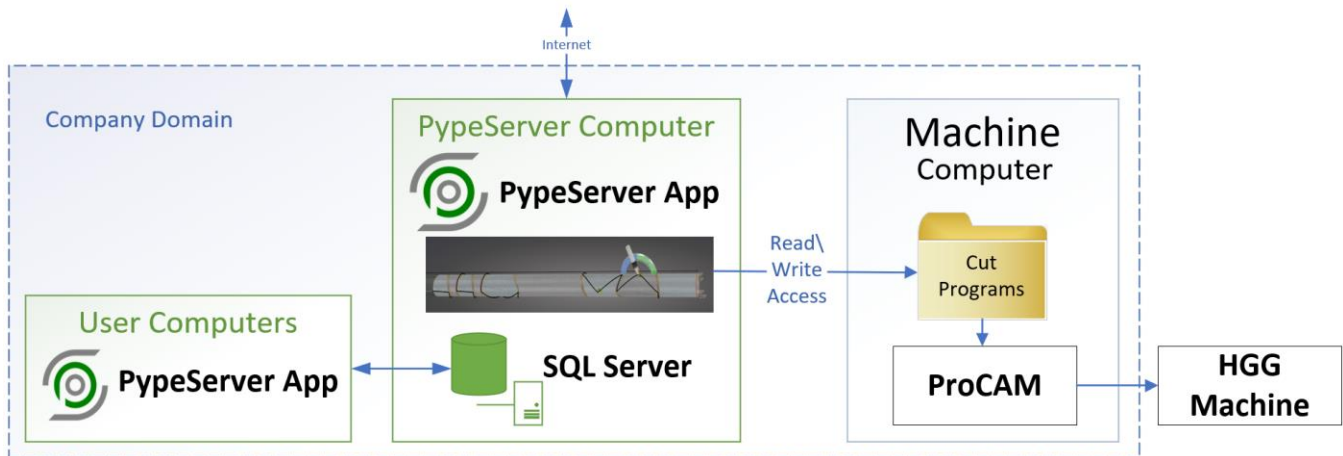
1 Terms

- **Cut Program:** A file created by PypeServer to be run by the HGG ProCAM software. These files are in JSON format, and as such have the .json suffix.
- **NC files or NC program:** A generic acronym for the generic name Numerical Control, which traditionally means “GCode”. In this case the “GCode” format is JSON, and thus any reference to NC file is the same as a Cut Program.
- **JSON:** “JavaScript Object Notation. A common format used for passing information from one software program to another. If you open a Cut Program, the format will be in JSON. Some viewers make reading these easier. NotePad++ has a nice JSON viewer, and browsers will often format them for easy reading.

2 General overview of network layout

PypeServer can be run from any Windows computer on a network. Users from different disciplines use PypeServer for different parts of the fabrication workflow. If PypeServer is being used by different disciplines, then the PypeServer machine (which has the SQL server) needs to be on the company domain such that CAD programmers, Detailers, Shop Foremen and others can run PypeServer.

The basic configuration looks like this:



Internet connectivity allows PypeServer to assist in initial system configuration and ongoing support.

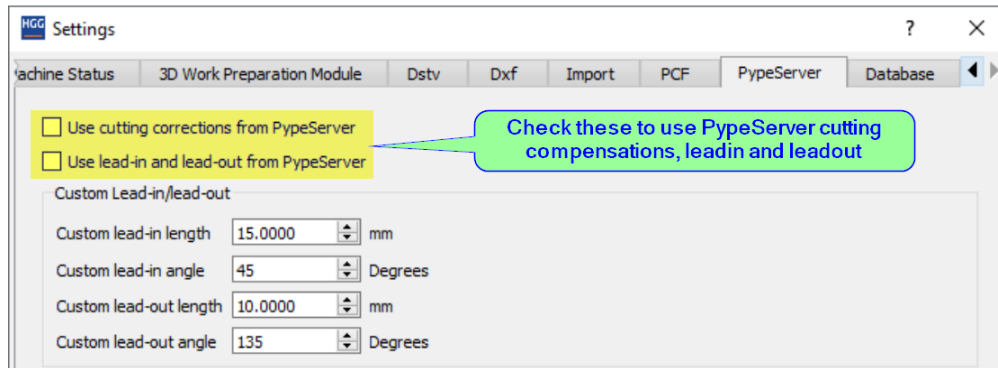
PypeServer can work with your IT department to get PypeServer joined to the domain. For more IT-level information, see the PypeServer training document “Getting Started with PypeServer”, section 2.

3 Creating Cut Programs

PypeServer outputs HGG readable cut programs to JSON files that define the pipe, parts on the pipe, and cuts on the parts.

3.1 HGG Machine ProCAM settings

On the HGG machine you can run PypeServer cut programs with either HGG's ProCAM, or PypeServer calculating torch compensations and leadins and leadouts. You choose which program will do the calculations in this window in ProCAM:



Pros and Cons of each:

Using ProCAM:

Pro: They've been doing this for decades--with their own machines.

Cons:

- The torch paths (offsets, beam divergence, leadins and outs, and tabs) you see in PypeServer are not what will be cut through ProCAM.
- Some features such as Last Cut in Chuck are not supported because it is not possible to know where to position the torch on the start of the program because the actual lead-in start location/distance is not known.

Using PypeServer

Pros:

- What you see in PypeServer is what you get
- Features including Last Cut In Chuck and Tabs are supported

Cons:

- PypeServer compensation instructions may not always work optimally with the HGG machine. (Testing is not as extensive as HGG's own ProCAM system.)

4 PypeServer settings

The following dialog highlights settings that users may want to change. To get to these settings, open Settings→Machine Settings to see this dialog. You will need to enter the Admin password to see all the fields.

System Settings

Machine Settings	System Properties	Service Connections	List Management	Custom Columns	Label Printing	Default Cut Values	Printers
Machine	Firmware Revision	0.03	Name	Value			
Machine HGG	Machine Name	Machine HGG	Add Date Time To NC File Names	False			
Validate Settings	Cutting Dead Zone	24	Computer Monitoring Hgg Reporting	KD7			
Machine Diagnostics	Machine Zero to End of Pipe	-20	Computer Running Procam	HGGMachine			
	Folder or IP Address	\\HGGMachine\PypeServerCutPrograms	Computer Watching Files	KD7			
	Data Transfer Mode	DumpToFile	Create Lead Inand Leadout On Part Surface	True			
	Data Reporting Mode	SystemWatchesFiles	Delete Pypeserver Json Files After Cutting	True			
	Local Connection Required	<input type="checkbox"/>	Friendly Name For Machine App Tab	unspecified			
	Min Cut Steps	2	Include Nulls In Json Output	True			
	Max Cut Steps	1500	Machine Can Move To Position On Start	False			
	Leadin Min Distance	0.25	NC File Tag	.json			
	Lead In-Out Arc Radius	0.15	Negate Gantry Travel	False			
	Leadin Steps	8	Negate X Axis	False			
	Machine Positioning	111	Negate Z Axis	False			
	Machine Capabilities Filter	11111111111000000	Procam Exe Location	C:\Program Files\Procam\Procam.exe			
	Is Metric	<input type="checkbox"/>	Process Running Machine	unspecified			
	Default Cutter Type	Plasma	Show Machine App In Tab	False			
			Stagger Staight Cut Start Rotation Dist	0			
			Torch Head Type	UVPantograph			

4.1 Writing NC files to a file-share for use in ProCAM

System Settings

Machine Settings	System Properties	Service Connections	List Management	Custom Columns	Label Printing	Default Cut Values	Printers
Machine	Firmware Revision	0.03	Name	Value			
Machine HGG	Machine Name	Machine HGG	Add Date Time To NC File Names	False			
Validate Settings	Cutting Dead Zone	24	Computer Monitoring Hgg Reporting	KD7			
Machine Diagnostics	Machine Zero to End of Pipe	-20	Computer Running Procam	HGGMachine			
	Folder or IP Address	\\HGGMachine\PypeServerCutPrograms	Computer Watching Files	KD7			
	Data Transfer Mode	DumpToFile	Create Lead Inand Leadout On Part Surface	True			
	Data Reporting Mode	SystemWatchesFiles	Delete Pypeserver Json Files After Cutting	True			
	Local Connection Required	<input type="checkbox"/>	Friendly Name For Machine App Tab	unspecified			
	Min Cut Steps	2	Include Nulls In Json Output	True			
	Max Cut Steps	1500	Machine Can Move To Position On Start	False			
	Leadin Min Distance	0.25	NC File Tag	.json			
	Lead In-Out Arc Radius	0.15	Negate Gantry Travel	False			
	Leadin Steps	8	Negate X Axis	False			
	Machine Positioning	111	Negate Z Axis	False			
	Machine Capabilities Filter	11111111111000000	Procam Exe Location	C:\Program Files\Procam\Procam.exe			
	Is Metric	<input type="checkbox"/>	Process Running Machine	unspecified			
	Default Cutter Type	Plasma	Show Machine App In Tab	False			
			Stagger Staight Cut Start Rotation Dist	0			
			Torch Head Type	UVPantograph			

- The **Folder or IP Address** is where the NC files will be written to.

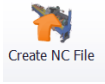
This is where PypeServer writes the .json files.

- PypeServer needs read/write access to this location so that it can manage files and cut status based on the files. More on that in section [Cut-File and PypeServer Part Status Synchronization](#).
- The folder should be visible to all instances of (computers running) PypeServer. This can be done by creating a domain level mapping, such as [\\<The machine's name>\CutPrograms](#), or by creating a mapped address such as Z:\\CutPrograms where the mapped address is the same for all computers running PypeServer.
- This folder should be easily accessible to the HGG ProCAM program so that users at the machine can easily load these files to the machine. Ideally this location maps to a folder on the HGG computer so that the .json files are always available at the machine, even if there are network

problems or other computers are off. If ProCAM has a default folder for remote cut-files, it would be best to share this and allow PypeServer to write directly to that folder.

- The [Data Transfer Mode](#) instructs the system to write NC files to this folder
- The [NC file Tag](#) is .json and should not be changed

4.2 Loading and Cutting a PypeServer Cut Program



The “Create NC File” button is on the Parts, Nesting or Pipes tab.

By clicking on this button users can create *.json files that can be loaded by ProCAM for cutting. These can be loaded manually from within the ProCAM application, or can be loaded automatically from PypeServer.

Automated loading workflow:

- User loads a part or pipe nesting from PypeServer to the machine. This can be done ONLY at the machine where procam.exe is located.
- PypeServer automatically starts an instance procam.exe, which will automatically load the part or nesting into the HGG UPC (app that actually runs the machine).
- The user can run the part or pipe nesting immediately after loading.

Manual loading workflow (the more common workflow):

- User loads a part or pipe nesting from PypeServer to the machine. This can be done at any computer that has access to the file-share where the NC files are written.
- The NC files are not automatically loaded into the HGG UPC, so more than one file can be staged for cutting.
- Machine users then use ProCAM to open the files for cutting.

4.2.1 Automated Loading of PypeServer Cut Programs into ProCAM

“Automated Loading” means that when a user, at the HGG machine, creates an NC cut file (*.json file written to the shared folder discussed above), then it will automatically appear in the HGG machine as the cut program loaded, ready to be cut.

This automation can run only on computers with ProCAM installed.

Open Settings→Machine Settings to see this dialog. You will need to enter the Admin password if that is required.

System Settings

Machine Settings	System Properties	Service Connections	List Management	Custom Columns	Label Printing	Default Cut Values	Printers
Machine	Firmware Revision	0.03	Name	Value			
Machine HGG	Machine Name	Machine HGG	Add Date Time To NC File Names	False			
Validate Settings	Cutting Dead Zone	24	Computer Monitoring Hgg Reporting	KD7			
Machine Diagnostics	Machine Zero to End of Pipe	-20	Computer Running Procaml	HGGMachine			
	Folder or IP Address	\\HGGMachine\\PypeServerCutPrograms	Computer Watching Files	KD7			
	Data Transfer Mode	DumpToFile	Create Lead Inand Leadout On Part Surface	True			
	Data Reporting Mode	SystemWatchesFiles	Delete Pypeserver Json Files After Cutting	True			
	Local Connection Required	<input type="checkbox"/>	Friendly Name For Machine App Tab	unspecified			
	Min Cut Steps	2	Include Nulls In Json Output	True			
	Max Cut Steps	1500	Machine Can Move To Position On Start	False			
	Leadin Min Distance	0.25	NC File Tag	.json			
	Lead In-Out Arc Radius	0.15	Negate Gantry Travel	False			
	Leadin Steps	8	Negate X Axis	False			
	Machine Positioning	111	Negate Z Axis	False			
	Machine Capabilities Filter	11111111111000000	Procaml Exe Location	C:\\Program Files\\Procam\\Procam.exe			
	Is Metric	<input type="checkbox"/>	Process Running Machine	unspecified			
	Default Cutter Type	Plasma	Show Machine App In Tab	False			
			Stagger Straight Cut Start Rotation Dist	0			
			Torch Head Type	UVPantograph			

- The **Computer Running Procaml** field specifies the HGG machine computer name. If this is blank, automatic loading will not be performed.
- The **Procaml Exe Location** is the path to procaml.exe as seen by the **Computer Running Procaml**.

To NOT run automatic loading, just leave the **Computer Running Procaml** blank.

4.2.2 Manual Loading of PypeServer Cut Programs into ProCAM

Please contact HGG support for how to manually load cut programs into ProCAM into the machine from within the ProCAM application. Users typically just click an Open program on the ProCAM menu and open the <filename>.json file created by PypeServer.

System Settings

Machine Settings	System Properties	Service Connections	List Management	Custom Columns	Label Printing	Default Cut Values	Printers
Machine	Firmware Revision	0.03	Name	Value			
Machine HGG	Machine Name	Machine HGG	Add Date Time To NC File Names	False			
Validate Settings	Cutting Dead Zone	24	Computer Monitoring Hgg Reporting	KD7			
Machine Diagnostics	Machine Zero to End of Pipe	-20	Computer Running Procaml				
	Folder or IP Address	\\HGGMachine\\PypeServerCutPrograms	Computer Watching Files	KD7			
	Data Transfer Mode	DumpToFile	Create Lead Inand Leadout On Part Surface	True			
	Data Reporting Mode	SystemWatchesFiles	Delete Pypeserver Json Files After Cutting	True			
	Local Connection Required	<input type="checkbox"/>	Friendly Name For Machine App Tab	unspecified			
	Min Cut Steps	2	Include Nulls In Json Output	True			
	Max Cut Steps	1500	Machine Can Move To Position On Start	False			
	Leadin Min Distance	0.25	NC File Tag	.json			
	Lead In-Out Arc Radius	0.15	Negate Gantry Travel	False			
	Leadin Steps	8	Negate X Axis	False			
	Machine Positioning	111	Negate Z Axis	False			
	Machine Capabilities Filter	11111111111000000	Procaml Exe Location	C:\\Program Files\\Procam\\Procam.exe			
	Is Metric	<input type="checkbox"/>	Process Running Machine	unspecified			
	Default Cutter Type	Plasma	Show Machine App In Tab	False			
			Stagger Straight Cut Start Rotation Dist	0			
			Torch Head Type	UVPantograph			

Leave blank for manual loading using ProCAM

4.3 General positioning

System Settings

Machine Settings	System Properties	Service Connections	List Management	Custom Columns	Label Printing	Default Cut Values	Printers
Machine	Firmware Revision	0.03				Name	Value
Machine HGG	Machine Name	Machine HGG				Add Date Time To NC File Names	False
Validate Settings	Cutting Dead Zone	24				Computer Monitoring Hgg Reporting	KD7
Machine Diagnostics	Machine Zero to End of Pipe	-20				Computer Running Procam	HGGMachine
	Folder or IP Address	\\HGGMachine\PypeServerCutPrograms				Computer Watching Files	KD7
	Data Transfer Mode	DumpToFile				Create Lead Inand Leadout On Part Surface	True
	Data Reporting Mode	SystemWatchesFiles				Delete Pypeserver Json Files After Cutting	True
	Local Connection Required	<input type="checkbox"/>				Friendly Name For Machine App Tab	unspecified
	Min Cut Steps	2				Include Nulls In Json Output	True
	Max Cut Steps	1500				Machine Can Move To Position On Start	False
	Leadin Min Distance	0.25				NC File Tag	.json
	Lead In-Out Arc Radius	0.15				Negate Gantry Travel	False
	Leadin Steps	8				Negate X Axis	False
	Machine Positioning	111				Negate Z Axis	False
	Machine Capabilities Filter	11111111111000000				Procam Exe Location	C:\Program Files\Procam\Procam.exe
	Is Metric	<input type="checkbox"/>				Process Running Machine	unspecified
	Default Cutter Type	Plasma				Show Machine App In Tab	False
						Stagger Staight Cut Start Rotation Dist	0
						Torch Head Type	UVPantograph

4.3.1 Cutting Dead Zone = <distance>

This is the area that the torch should not go because it may hit the chuck. (Note that if you add an extension to your pipe, you can specify this for the pipe and PypeServer with then nest in this area.



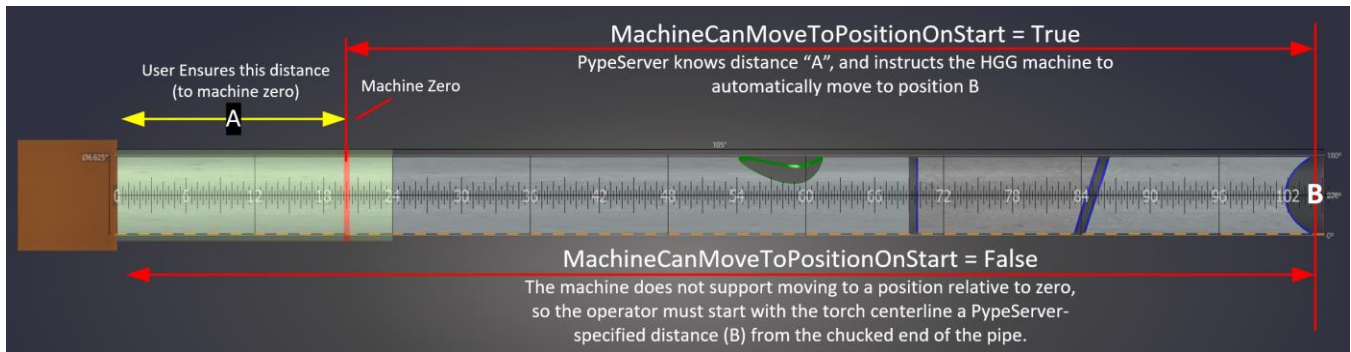
4.3.2 Last Cut in Chuck Settings

The Last Cut in Chuck feature allows you to use the chucked end of the pipe as the last cut on the last part in the nesting. This saves you time cutting, and allows PypeServer to nest through the nesting Dead-Zone. See also the “Last Cut In Chuck” training document.

Requirements:

- You must use PypeServer’s cut compensations and leadin/leadout. See [HGG Machine ProCAM settings](#).
- You should not have any cuts in the dead-zone.

Please refer to this diagram for the settings in this section.



4.3.2.1 `MachineCanMoveToPositionOnStart = <True/False>`

This parameter is also specific for the Last Cut in Chuck feature. It indicates if the machine supports moving to a position relative to its Machine Zero position.

`MachineCanMoveToPositionOnStart = True`

If this is supported, set this to true, as it will eliminate the need to measure the distance from the end of the pipe to the start.

Requirements when True:

- The pipe must be chucked at exactly the distance from machine zero each time you use this feature, so be sure to have a marking or index stop for this placement.

`MachineCanMoveToPositionOnStart = False`

If this feature is not supported by the HGG machine, then set this to false. When set to false, you will be required to move the torch centerline (when straight up) a specified distance from the chucked end of the pipe before starting the program.

4.3.2.2 `Machine Zero to End of Pipe = <distance>`

This applies only to Last Cut in Chuck feature and is only used if `MachineCanMoveToPositionOnStart = True`.

This is the distance from the machine zero position to where the pipe ends in the chuck (distance A in the diagram above). This number should be positive or negative to match machine direction from zero. Referring to the diagram above, the chuck is “behind” machine zero, (machine moves positive to the right) and so the number is negative. Users typically do not change this value once they’ve determined the chuck stop location, measured, and set this value. Be sure to mark or index where your pipes will stop in the chuck.

4.4 Cut-File and PypeServer Part Status Synchronization

PypeServer can monitor files sent out to the machine to maintain the status of scheduled parts. Scheduled Part status can be:

- Not Nested
- Nested
- On Machine
- Cut
- Scrapped

For more information on the standard PypeServer-supported method of monitoring NC files to maintain part status, please see the training video on “NC File Management”. To turn this monitoring on, set these fields:

System Settings

Machine Settings	System Properties	Service Connections	List Management	Custom Columns	Label Printing	Default Cut Values	Printers
Machine	Firmware Revision	0.03				Name	Value
Machine HGG	Machine Name	Machine HGG				Add Date Time To NC File Names	False
Validate Settings	Cutting Dead Zone	24				Computer Monitoring Hgg Reporting	KD7
Machine Diagnostics	Machine Zero to End of Pipe	-20				Computer Running Procarn	HGGMachine
	Folder or IP Address	\\HGGMachine\PypeServerCutPrograms				Computer Watching Files	KD7
	Data Transfer Mode	DumpToFile				Create Lead Inand Leadout On Part Surface	True
	Data Reporting Mode	SystemWatchesFiles				Delete Pypeserver Json Files After Cutting	True
	Local Connection Required	<input type="checkbox"/>				Friendly Name For Machine App Tab	unspecified
	Min Cut Steps	2				Include Nulls In Json Output	True
	Max Cut Steps	1500				Machine Can Move To Position On Start	False
	Leadin Min Distance	0.25				NC File Tag	.json
	Lead In-Out Arc Radius	0.15				Negate Gantry Travel	False
	Leadin Steps	8				Negate X Axis	False
	Machine Positioning	111				Negate Z Axis	False
	Machine Capabilities Filter	11111111111000000				Procarn Exe Location	C:\Program Files\Procarn\Procarn.exe
	Is Metric	<input type="checkbox"/>				Process Running Machine	unspecified
	Default Cutter Type	Plasma				Show Machine App In Tab	False
						Stagger Straight Cut Start Rotation Dist	0
						Torch Head Type	UVPantograph

Data Reporting Mode = “SystemWatchesFiles” causes the application at the computer named in Computer Watching Files to monitor for changes.

The **Computer Watching Files** can be any computer that can see the Folder or IP Address

Note that this monitoring can (and typically should) be run concurrent with the HGG custom monitoring discussed below.

4.4.1 HGG part status monitoring

For a background understanding of file monitoring, please see the training video on “NC File Management”

When configured, ProCAM will automatically write file status updates to a folder under the **Folder or IP Address**. PypeServer can be configured to monitor for these changes, such that when a part or nesting is cut, ProCAM will report it and PypeServer will update parts to cut as they are cut. This runs independent of any loading automation, and can be run from any computer that has access to the **Folder or IP Address** location. To enable this, set these two fields:

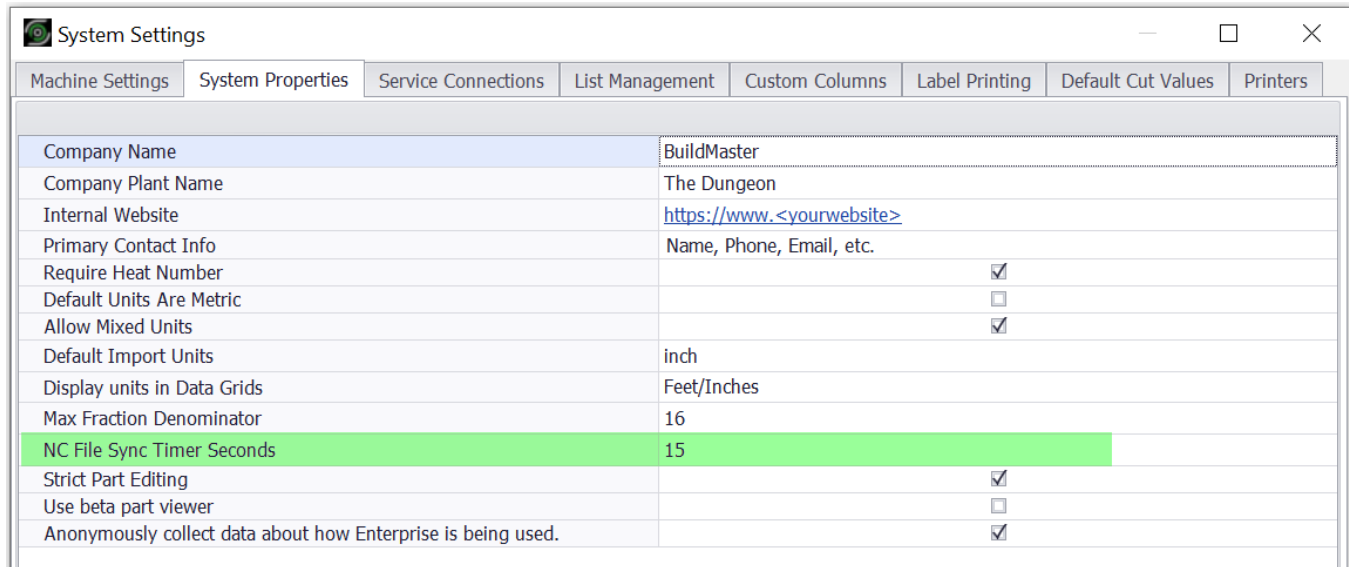
System Settings

Machine Settings	System Properties	Service Connections	List Management	Custom Columns	Label Printing	Default Cut Values	Printers
Machine	Firmware Revision	0.03				Name	Value
Machine HGG	Machine Name	Machine HGG				Add Date Time To NC File Names	False
Validate Settings	Cutting Dead Zone	24				Computer Monitoring Hgg Reporting	KD7
Machine Diagnostics	Machine Zero to End of Pipe	-20				Computer Running Procarn	HGGMachine
	Folder or IP Address	\\HGGMachine\PypeServerCutPrograms				Computer Watching Files	KD7
	Data Transfer Mode	DumpToFile				Create Lead Inand Leadout On Part Surface	True
	Data Reporting Mode	SystemWatchesFiles				Friendly Name For Machine App Tab	unspecified
	Local Connection Required	<input type="checkbox"/>				Include Nulls In Json Output	True
	Min Cut Steps	2				Machine Can Move To Position On Start	False
	Max Cut Steps	1500				NC File Tag	.json
	Leadin Min Distance	0.25				Negate Gantry Travel	False
	Lead In-Out Arc Radius	0.15				Negate X Axis	False
	Leadin Steps	8				Negate Z Axis	False
	Machine Positioning	111				Procarn Exe Location	C:\Program Files\Procarn\Procarn.exe
	Machine Capabilities Filter	11111111111000000				Process Running Machine	unspecified
	Is Metric	<input type="checkbox"/>				Show Machine App In Tab	False
	Default Cutter Type	Plasma				Stagger Straight Cut Start Rotation Dist	0
						Torch Head Type	UVPantograph

The **Computer Monitoring Hgg Reporting** is the computer that will check for updates by ProCAM. Typically this is the main PypeServer computer, so long as that computer can see the **Folder or IP Address Location**.

4.4.2 NC File Timer Interval

With either the standard monitoring or HGG custom monitoring, the time period to check (in seconds) is set with the NC File Sync Timer Seconds. Typically this is set to 60 seconds.



The screenshot shows the 'System Settings' window with the 'Machine Settings' tab selected. The settings are organized into a table-like structure. The 'NC File Sync Timer Seconds' row is highlighted in green. Other settings include Company Name, Plant Name, Internal Website, Primary Contact Info, Require Heat Number, Default Units Are Metric, Allow Mixed Units, Default Import Units, Display units in Data Grids, Max Fraction Denominator, Strict Part Editing, Use beta part viewer, and Anonymously collect data about how Enterprise is being used.

Setting	Value	Checkbox
Company Name	BuildMaster	
Company Plant Name	The Dungeon	
Internal Website	<a href="https://www.<yourwebsite>">https://www.<yourwebsite>	
Primary Contact Info	Name, Phone, Email, etc.	
Require Heat Number		<input checked="" type="checkbox"/>
Default Units Are Metric		<input type="checkbox"/>
Allow Mixed Units		<input checked="" type="checkbox"/>
Default Import Units	inch	
Display units in Data Grids	Feet/Inches	
Max Fraction Denominator	16	
NC File Sync Timer Seconds	15	
Strict Part Editing		<input checked="" type="checkbox"/>
Use beta part viewer		<input type="checkbox"/>
Anonymously collect data about how Enterprise is being used.		<input checked="" type="checkbox"/>

4.4.3 LeadIn/Out Settings

These settings (highlighted in Green) are seldom changed. These are only limits. The actual leadin settings are made in the Torch settings, but they must fall within these limits.

For more information, please see the document “Torch End of Cut Leadout and Tuning” in the PypeServer training system.

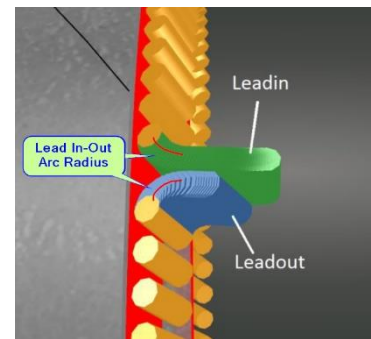
System Settings		Machine Settings		Service Connections	List Management	Custom Columns	Label Printing	Default Cut Values	Printers
Machine	Machine HGG	Firmware Revision	0.03	Machine Name	Machine HGG	Name		Value	
Validate Settings		Cutting Dead Zone	24	Machine Zero to End of Pipe	-20	Add Date Time To NC File Names	False		
Machine Diagnostics		Folder or IP Address	\\HGGMachine\PypeServerCutPrograms	Data Transfer Mode	DumpToFile	Computer Monitoring Hgg Reporting	KD7		
		Data Reporting Mode	SystemWatchesFiles	Local Connection Required	<input type="checkbox"/>	Computer Running Procam	HGGMachine		
		Min Cut Steps	2			Computer Watching Files	KD7		
		Max Cut Steps	1500			Create Lead Inand Leadout On Part Surface	True		
		Leadin Min Distance	0.25			Delete Pypeserver Json Files After Cutting	True		
		Lead In-Out Arc Radius	0.15			Friendly Name For Machine App Tab	unspecified		
		Leadin Steps	8			Include Nulls In Json Output	True		
		Machine Positioning	111			Machine Can Move To Position On Start	False		
		Machine Capabilities Filter	11111111111000000			NC File Tag	.json		
		Is Metric	<input type="checkbox"/>			Negate Gantry Travel	False		
		Default Cutter Type	Plasma			Negate X Axis	False		
						Negate Z Axis	False		
						Procam Exe Location	C:\Program Files\Procam\Procam.exe		
						Process Running Machine	unspecified		
						Show Machine App In Tab	False		
						Stagger Straight Cut Start Rotation Dist	0		
						Torch Head Type	UVPantograph		

4.4.3.1 Leadin Min Distance = <distance>

This is the minimum distance allowed for a leadin in PypeServer. A good performing machine can have a short leadin.

4.4.3.2 Lead In-Out Arc Radius = <distance>

This is the radius of the turn made by the leadin. Note that this is not the overall length of the leadin. Having this as a small radius decreases the range of gouging, but the tradeoff is that if it's too tight, the machine may fault or have difficulty making turn smoothly.




4.4.3.3 Leadin Steps = <integer number>

This is the number of steps PypeServer creates for the leadin. This adjustment is not typically made by the user.

4.4.4 Is Metric = <checkbox>

If you set this to Metric, all your machine and torch settings will be interpreted as metric. You can still have standard (Imperial) measurements parts. Note that you do not need to set this to Metric just because your machine runs in metric. This is only a convenience to allow users to work in familiar units.

4.4.5 StaggerStraightCutStartRotationDist = <distance>

 System Settings

Machine Settings	System Properties	Service Connections	List Management	Custom Columns	Label Printing	Default Cut Values	Printers
Machine	Firmware Revision	0.03	Name	Value			
Machine HGG	Machine Name	Machine HGG	Add Date Time To NC File Names	False			
Validate Settings	Cutting Dead Zone	24	Computer Monitoring Hgg Reporting	KD7			
Machine Diagnostics	Machine Zero to End of Pipe	-20	Computer Running Procam	HGGMachine			
	Folder or IP Address	\\HGGMachine\PypeServerCutPrograms	Computer Watching Files	KD7			
	Data Transfer Mode	DumpToFile	Create Lead Inand Leadout On Part Surface	True			
	Data Reporting Mode	SystemWatchesFiles	Delete Pypeserver Json Files After Cutting	True			
	Local Connection Required	<input type="checkbox"/>	Friendly Name For Machine App Tab	unspecified			
	Min Cut Steps	2	Include Nulls In Json Output	True			
	Max Cut Steps	1500	Machine Can Move To Position On Start	False			
	Leadin Min Distance	0.25	NC File Tag	.json			
	Lead In-Out Arc Radius	0.15	Negate Gantry Travel	False			
	Leadin Steps	8	Negate X Axis	False			
	Machine Positioning	111	Negate Z Axis	False			
	Machine Capabilities Filter	11111111111000000	Procam Exe Location	C:\Program Files\Procam\Procam.exe			
	Is Metric	<input type="checkbox"/>	Process Running Machine	unspecified			
	Default Cutter Type	Plasma	Show Machine App In Tab	False			
			Stagger Staight Cut Start Rotation Dist	0			
			Torch Head Type	UVPantograph			

When straight cuts are nested together without any rotation between starts and finish, the leadins and leadouts can overlap and cause the torch to burn incorrectly or fault because it hits the leadin/out gap of the previous cut. This instructs PypeServer nesting to rotate the next leadin by a distance (around the pipe) so as to avoid this intersection. Shown below is a 4.5" pipe with StaggerStraightCutStartRotationDist = 1 inch.

