Centroid CNC12 v5.20 Mill, Lathe, Router, Plasma Release Notes:

CNC software is now available for use with Acorn, AcornSix, Hickory, Allin1DC, Oak and MPU11. Please <u>Follow the installation instructions</u>. Do not use "restore report" using a report from an earlier version.

Download CNC12 v5.20 here. https://www.centroidcnc.com/centroid\_diy/centroid\_cnc\_software\_downloads.html

This is a free CNC software update! All previous license files file work with this new version of CNC12 software (in their respective categories: Acorn mill licenses work with Acorn mill, Oak lathe licenses work with Oak lathe CNC12, etc.)

#### Major Additions

1.) The Hickory EtherCat based CNC Controller now has a Centroid CNC Controller setup Wizard for Mill, Lathe, Router and Plasma versions of CNC12 which is very similar to the popular Acorn and AcornSix setup Wizard with simple drag and drop, fill-out-the-menu type CNC machine tool setup configuration Launch the new Hickory Wizard from the CNC12 Utility menu. (Note: Use of the Wizard is not required for those that are used to configuring without.)

### Hickory Router setup Wizard Axis Configuration Setup Menu

mary System			Axis C	Configuration			
Output Definitions		Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6
is	Linear or Rotary	Linear 🗸	Linear 🗸	Linear 🗸	Linear 🗸	Linear 🗸	Linear 🗸 🗸
Axis Configuration	Label	N Y	N 🗸	N V	N 🗸	N V	N V
Homing and Pairing Rotary Setup	Encoder Counts / Revolution	1048576	1048576	1048576	1048576	1048576	1048576
	Overall Turns Ratio	1.25	1.25	2.5	5	5	5
indle	Lash Comp.	0	0	0	0	0	0
Spindle #2	Max Rate	2000	2000	1000	200	200	200
Rigid Tapping	Fast Jog Plus Direction	750	750	300	50	50	50
PWM Setup	in/min or deg/min or rev/min Fast Jog Minus Direction	750	750	150	50	50	50
uch Devices	in/min or deg/min or rev/min	/30	750	150	50	50	50
Touch Probe	in/min or deg/min or rev/min	100	100	50	10	10	10
Touch Plate	seconds	0.375	0.375	0.375	0.5	0.5	0.5
	Direction Reversal	N Y	N Y	N Y	NV	NV	N Y
Input Devices	Drive Enable Delay milliseconds	250	250	250	250	250	250
Centroid USB-BOB	Travel Limit (+)	52	100	0	0	0	0
Hardwired MPG	Travel Limit (-)	0	0	-11	0	0	0
Scale Input							
-	x1 Linear Jog Increment	0.001					
ATC Setup	inches x1 Rotary Jog Increment	0.001					
	degrees	0.1					
ferences CNC Control							
VCP Preferences							
VCP Aux Keys							

2.) Plasma CNC12 software with Centroid Torch Height Controller (THC) hardware support is now available for use with the AcornSix and Hickory CNC controllers.



Now you can control a CNC Plasma Machine with the AcornSix or Hickory CNC Controllers in addition to the Acorn controller.



https://shopcentroidcnc.com/acornsix-cnc-controller/

https://shopcentroidcnc.com/hickory-cnc-controller/

3.) USB-BOB support in CNC12 and the Wizard (Acorn, AcornSix and Hickory). Create your own CNC control operators console with the USB-BOB!





More information on USB-BOB is here: <u>https://shopcentroidcnc.com/shop/cnc-accessories/centroid\_usb-bob\_operator\_control\_panel/</u>

4.) New CNC12 Router specific CNC12 software for Acorn, AcornSix and Hickory!

- CNC12 Function Key tree rearranged for improved Router Work Flow (less keystrokes, and new tree puts the menus you use the most often at your finger tips)



- All new Router Part Setup Menu with menu driven support for Part Setups for all common Router specific methods such as but not limited to: Touch Plate, Cross Hair Laser, Touch Probe, and various Manual methods all in one quick to navigate menu. Here are a few samples of the new part setup menus.

WC	CS #1 (G54)	Current Pos	ition (Inc	ches)	Job Name Tool:	e: NO_JOB_ T1 H1	LOADED.c	nc		+		<b>N</b>		Acorn	CNC
Х			+0.0	0000	Feedrate Spindle:	: 100% (	0.0 ipm 0 A			100%		SET WCS	SET WCS Z0	Auto Z to PLATE	PARK
Y			+0.0	0000	Rapid Rat	te: 100%				Ţ		SET Rotary WCS	AXES	GOTO WCS XY0	LIMIT SWITCH DEFEAT
Ζ			+0.0	0000	335 Emer 347 Reset	gency stop re t Cleared	eleased	Class		0	T	M58	LASER SET XY	LASER ON/OFF	RESET HOME
					347 Reset	t Cleared	ess Reset to	Clear		<b>-0</b>	AUTO	DUST Collector	Hold Down VAC	Air Blow	1
					Press C	YCLE START	۲ to start jo	ob		Change	INCR	x1	x10	x100	MPG
Dista	ance to Go										CONT				
Х	+0.0000												Y+	2	Z+
Y	+0.0000											<b>x</b> -		<b>X</b> +	
Z	+0.0000												~		
													Y-	V	Z-
Mach	nine Coord.											SINGLE	TOOL	FEED	$\square$
Х	+0.0000											BLOCK	CHECK	HOLD	
Y	+0.0000													FEED Override	
Z	+0.0000										RESET	•			
											n den komme den sekter om det det			100%	
						1					PRESS TO RESET		25%	50%	75%
	Set Part L Zeros	oad MDI Job	Run Job Options	Tool/ATC	Edit G-code	Utility Menu	Graph Job	Smoothin	g Shut Down Menu		ov		Q		Ŧ
	F1	F2 F3	F4	F5	F6	F7	F8	F9	F10		UR		UTILS	OPTIONS	FREE

A few select Router Part Setup Menu Screen Shots

WC	CS #1 (G54)	Curre	ent Pos	ition (Inc	hes)	Job Name	e: Non ATC	Gasket Gro	oove.cnc		<b>+</b>		2155		Acom	<b>ANG</b>
Х				+1.2	2400	Feedrate Spindle:	: 100% C	0.0 ipm 0 A			100%	MAN	SET WCS XY0	SET WCS Z0	Auto Z to PLATE	PARK
Y				+0.7	7900	Rapid Ra	te: 100%				Ţ	5	SET Rotary WCS	M55	GOTO WCS XY0	LIMIT SWITCH DEFEAT
Ζ				-0.1	1569	335 Emer 347 Reset	gency stop re t Cleared	leased	Clear		0	1	M58	LASER SET XY	LASER ON/OFF	RESET HOME
						347 Reset	t Cleared	ess Reset to	Clear		> <b>-</b> 0	AUTO MAN	DUST Collector	Hold Down VAC	Air Blow	7
						Press C	YCLE START	to start jo	b		Change	INCR	x1	x10	x100	MPG
			To 1. 2.	ouch Plate ) ) Position To ) Press Cycl	XYZ Positio ool, adjust o e Start to re	n Auto Pro options un the Prot	obing Ding Cycle					4th+	Q	Y+	9	Z+
				Bit Diame	eter M	lagnet Rer	ninder (es						×-		X+	
			_									4th-	6	<b>Y</b> -	V	Z-
			2	Clearance 1.00	Amount 100	Flute Rem	Inder (es	-	_			•Ò,	SINGLE BLOCK	TOOL	FEED HOLD	
				Return Z to Y	home (es	Set Z Ze	ero (es							RAPID FEED	FEED Override 100%	
								A STATE A		and the second		RESET	•	<-	100%	+
<u>л</u> г	F2 to Selec	t Cornei						Dista	WCC CCP			PRESS TO RESET		25%	50%	75%
X Esc	Outside Co	orner	Side		Z Only	Bore	Angle	Setup	Table			ок				
	F1	F2	F3		F5	F6	<b>F7</b>	F8	F9					UTILS	OPTIONS	TREE

Avid CNC Touch Plate Part Zero setup menu.



**Touch Plate menus** 

wc X	:S #1 (G54)	Cur	rent Posi	tion (Inc	.hes) 2400	Job Name Tool: Feedrate	e: Non ATC T2 H : 100% (	Gasket Gro	ove.cnc		÷	AUTO SPINDLE MAN	<b>N</b>		Acom	GNØ
Y				+0.7	7900	Spindle: Rapid Rat	e: 100%	0 A			100%		SET WCS XY0 SET Rotary WCS	SET WCS Z0 M55	Auto Z to PLATE GOTO WCS XY0	PARK LIMIT SWITCH DEFEAT
Ζ				-0.1	1569	335 Emer 347 Reset 490 Reset 347 Reset	gency stop re Cleared Initiated, Pro	eleased ess Reset to	Clear			AUTO	M58 DUST	LASER SET XY		RESET
			6			Press C	(CLE START	to start jo	b		Change TOOL	MAN INCR CONT	Collector	VAC x10	x100	MPG
			of Jo	oss Hair Li	on, enter v	art Zero L alues pres	s F10 Set					4th+		Y+	0	Z+
		N	A	xis Part X <mark> </mark>	Position 0.0000 0.0000							4th-	< <u>×-</u>	<u>ү</u> .	×+	Z-
35												•Ò.	SINGLE	TOOL	FEED	
	Y					X Laser Y Laser	to Spindle	C/L Offse	t <u>-4.00</u> t 1.50	00		DEGET	•	RAPID FEED	FEED Override 100%	
												PRESS		25%	100% 50%	+ 75%
X Esc	Manual L F1	aser F2	Probe F3	Plate F4	CSR F5		Laser On F7	Teach Offset F8	WCS CSR Table F9	Set F10		OK		UTILS	UCP OPTIONS	FREE

Cross Hair Laser to set X and Y zero position

wc X	S #1 (G54)	Curr	ent Pos	ition (Ind +1.2	<sup>ches)</sup> 2400	Job Name Tool: Feedrate Spindle:	e: Non ATC T2 H : 100% (	Gasket Gr 0.0 ipm 0 A	oove.cnc		+	AUTO SPINDLE MAN	SET WCS VY0	SET WCS 70	Auto Z PLATE	CKC park
Y				+0.7	7900	Rapid Ra	te: 100%				Ţ		SET Rotary WCS	M55	GOTO WCS XY0	LIMIT SWITCH DEFEAT
Ζ				-0.1	1569	335 Emer 347 Reset 490 Reset	gency stop re t Cleared t Initiated, Pr	eleased	Clear		0		M58	LASER SET XY		RESET
						347 Reset	t Cleared				<b>_</b> 0	MAN	DUST Collector	Hold Down VAC	Air Blow	
				+ D- + 7	- De sitiers	Press C	YCLE START	Γ to start jo	b		Change TOOL		×1	x10	x100	MPG
			50	et Part Zer	o Position							4th+	0	Y+		Z+
			A	xis Part F	Position Ec	lge Finder	Dia.	Approach	from							
				X	0.0000	0.	2500	Left (-	)				<b>X-</b>	<b>**</b>	<b>X</b> +	
		11		Y	0.0000	0.	2500	Back (-	+)			4th-	C	<b>Y</b> .	Q	z.
				Z	0.0000 T	ool #:	2					٠Ò٠	SINGLE BLOCK	TOOL CHECK	FEED HOLD	
	X						Helj	p: Shift F1	2					RAPID FEED	FEED Override 100%	
												RESET			100%	+
									,,			PRESS TO RESET		25%	50%	75%
<b>X</b>	Manual L	aser	Probe	Plate	CSR		Auto Zero	Set XY	WCS CSR	Set				6	17	
Esc	F1	F2	F3	F4	F5		F7	F8	F9	F10		OK		UTILS	OPTIONS	FREE

Manually touch part edge and set X zero position

WC	S #1 (G54)	Current F	Position (I	nches)	Job Name	e: Non ATC	Gasket Gro	ove.cnc		+		21.55		Acom	<b>CNG</b>
Х			+1	.2400	Feedrate Spindle:	: 100% (	0.0 ipm 0 A			100%	MAN	SET WCS XY0	SET WCS Z0	Auto Z to PLATE	PARK
Y			+0	7900	Rapid Rat	e: 100%		l I		F	<b>1</b>	SET Rotary WCS	M55	GOTO WCS XY0	LIMIT SWITCH DEFEAT
Ζ			-0.	1569	335 Emer 347 Reset 490 Reset	gency stop re Cleared Initiated, Pr	eleased ess Reset to	Clear		0	I	M58	LASER SET XY	LASER ON/OFF	RESET
				)	347 Reset	Cleared					MAN	DUST Collector	Hold Down VAC	Air Blow	1
					Press C	CLE START	۲ to start jo	b		Change	INCR	x1	x10	x100	MPG
		1.4	Set Part Z	ero Position							CONT				
			Axis Par	t Position Ed	ge Finder	Dia. /	Approach f	rom			4th+		¥+		Z+
5	7	No. of Concession, No. of Conces	Х	0.0000	0.	2500	Left (-	)				×-		<b>X</b> +	
			Y	0.0000	0.	2500	Back (+	-)			4th-	C	<b>Y</b> -	J	Z-
			Z .75	То	ool #:	2					٠Ò٠	SINGLE BLOCK	TOOL	FEED HOLD	
						Help	p: Shift F1	2					RAPID FEED	FEED Override 100%	
	and the second second										RESET	•	-	100%	+
											PRESS		25%	E0%	75%
	Manual	Drok	Dista	CCD		Auto	Catily	WCS CSR	Cat		RESET		2370	50%	15%
Esc	Manual Li	F2 F2		CSR E5		Zero		Table	Set		ОК		UTILS	VCP OPTIONS	FREE
Mor		Z port zor	ro positio				10		110						

Manually set Z part zero position

wc X	S #1 (G54)	Cur	rent Posi	tion (Ind +1.2	<sup>ches)</sup> 2400	Job Name: N Tool: Feedrate: Spindle:	lon ATC T2 H 100% (	Gasket Gro D.0 ipm	oove.cnc		+	AUTO SPINDLE MAN	SET WCS	SET WCS 70	Auto Z PL ATE	CIC Park
Y				+0.7	7900	Rapid Rate:	100%	0 //			Ţ		SET Rotary WCS	M55	GOTO WCS XY0	LIMIT SWITCH DEFEAT
Ζ				-0.1	1569	335 Emergen 347 Reset Cle 490 Reset Ini	cy stop re eared tiated, Pr	eleased ess Reset to	Clear		0		M58	LASER SET XY		RESET
						347 Reset Cle	eared				<b>-0</b>	AUTO MAN	DUST Collector	Hold Down VAC	Air Blow	
						Press CYCL	E START	to start jo	b		Change TOOL		x1	x10	x100	MPG
Г			A	et Part Zer xis Part F	o Position Position Ed	lge Finder Dia	a. /	Approach f	rom			4th+	Q	<b>Y+</b>	$\bigcirc$	Z+
		/		x	0.0000	0.25	00	Left (-	)				<b>x-</b>		<b>X</b> +	
				Y	0.0000	0.25	00	Center				4th-	C	<b>Y</b> -	J	z.
	$\rightarrow$			Z	0.7500 T	ool #: 10						•Ò•	SINGLE BLOCK	TOOL	FEED HOLD	
							Help	o: Shift F1	2					RAPID FEED	FEED Override 100%	
	<u></u>											RESET		-	100%	+
												PRESS TO RESET		25%	50%	75%
X Esc	Manual L	aser	Probe	Plate	CSR		Auto Zero	Set XY	WCS CSR Table	Set		ок				FREE
	F1 Deut Edeu	F2			F5		F/	F8	F9	F10				01123	Control 13	

Set Part Edge X0 with Touch Probe

WCS #1 (G54) Current Position (Inches)	Job Name: Non ATC Gasket Groove.cnc	+ AUTO SPINDLE	2155		Acom	GNG
X +1.5731	Feedrate: 100% 0.0 ipm Spindle: 0 A	100% MAN	SET WCS XY0	SET WCS Z0	Auto Z to PLATE	PARK
Y +1.0900	Rapid Rate: 100%	- 🔊	SET Rotary WCS	M55	GOTO WCS XY0	LIMIT SWITCH DEFEAT
Z -0.1569	335 Emergency stop released 347 Reset Cleared 490 Reset Initiated, Press Reset to Clear		M58	LASER SET XY	LASER ON/OFF	RESET
	347 Reset Cleared		DUST Collector	Hold Down VAC	Air Blow	1
	Press CYCLE START to start job	Change TOOL	x1	x10	x100	MPG
Manual CSR Coordinate	System Rotation	4th+	Q	Y+	0	Z+
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SECOND position		x-		<b>X</b> +	
Measured CSR A Last Probed CSR.	n <mark>gle 0.0000</mark> .ngle 0.0000	4th-	C	<b>Y</b> .	V	z.
2		, Ċ,	SINGLE	TOOL CHECK	FEED	
				RAPID FEED	FEED Override 100%	
		RESET		-	100%	+
	Droho Zoro WCC CCD	PRESS TO RESET		25%	50%	75%
X         Probe         Fourth           Teach CSR         Teach CSR         CSR         Plate CSR	Cycles CSR MDI Table Accept	ОК		Q	VCP	
F2 F3 F4 F5	F6 F7 F8 F9 F10			UTILS	OPTIONS	FREE

Manual "jog to position to set Coordinate System Rotation (CSR)"

wc X Y	S #1 (G54)	Currer	nt Posil	tion (Ind +1. +1 (	<sup>ches)</sup> 5731 0900	Job Name Tool: Feedrate Spindle: Rapid Rat	e: Non ATC T2 H : 100% C	Gasket Gr ).0 ipm 0 A	roove.cnc I		+ 100%	AUTO SPINDLE MAN	SET WCS XYO SET Rotary	SET WCS Z0	Auto Z PLATE GOTO WCS	CNC park
Ż				-0.	1569	335 Emer 347 Reset 490 Reset 347 Reset	gency stop re Cleared Initiated, Pre Cleared	leased ess Reset to	) Clear		0		M58	LASER SET XY Hold Down DVAC	XY0	RESET
	1	2	Las	ser Coordi	inate Syste	Press Ci m Rotation	CLE START	to start j	ob		Change TOOL	INCR CONT 4th+	x1	x10 Y+	x100	MPG
1		2	3.) 4.) 2	Jog Cross Press F1	s Hair Lase 0 to set SE ured CSR A	r to SECOI COND posi ngle 0	ND position ition .0000					4th-	×-	<b>У</b>	X+	Z-
2-		1		Last Pi	obeu CSK	Angle						÷Ģ•	SINGLE	TOOL CHECK	FEED HOLD FEED	I
4	2											RESET		FEED 	100% 100% 50%	+ 75%
X Esc	Laser M On Tea F1	anual I ach CSR Tea F2	Laser ach CSR F3	Probe CSR F4	Touch Plate CSR F5	Probe Cycles F6	Zero CSR F7	MDI F8	WCS CSR Table F9	Accept F10		ок		UTILS	VCP OPTIONS	FREE

Cross Hair Laser set Coordinate System Rotation (CSR)

X +1 5/31 Feedrate: 100% 0.0 ipm	SET		
Spindle: 0 A	ZO	Auto Z to PLATE	PARK
Y +1.0900 Rapid Rate: 100%	M55	GOTO WCS XY0	LIMIT SWITCH DEFEAT
Z -0.1569 335 Emergency stop released 347 Reset Cleared 347 Reset Cleared	LASER SET XY		RESET HOME
347 Reset Cleared	Hold Down VAC	Air Blow	7
Press CYCLE START to start job	x10	x100	MPG
Probing Cycles (Upgrade to Pro for all Probing Cycles)	V.		71
		X+	27
Bore Boss Slot Web 4th-	<b>Y</b> -	V	z.
	TOOL CHECK	FEED HOLD	
	RAPID FEED	FEED Override 100%	
Inside Corner Outside Corner Single Axis Find Angle RESET	<-	100%	+
Probe diameter (Tool #10): 0.2500 Record Probing Data (.\probe_cycles_history.txt) On Reset	25%	50%	75%
X     Bore     Probe     Stylus       Esc     E1     Calibration     OK	UTILS	VCP OPTIONS	FREE

Touch Probe Menu, find positions, set part zeros, calibrate probe pre-travel automatically, record probed data to a text file.

- Router Touch Plate setup menus added to the Router Wizard, Preset AvidCNC Touch Plate selection along with "Define your own Touch Plate Geometry" for simple touch plate setup.

Router CNC Control Configuration Wizard	>
Primary System	Touch Plate Configuration
Input Definitions	Choose Touch Plate Type Define Your Own V (WizardSettings.xml)
Axis Axis Configuration Homing and Pairing Advanced Hardware Rotary Setup	Touch Plate PLC Input # Input 5 Input state when tripped Closed (P542) Define Your Own
Spindle Spindle #1 Rigid Tapping PWM Setup	3
Touch Devices Touch Probe Tool Touch Off Touch Plate	0.75
Control Peripheral Input Devices Centroid USB-BOB Wireless MPG	0.75 0.75
Drive Signal Mapping L <sub>Mapping</sub>	
ATC L ATC Setup	
Preferences CNC Control VCP Preferences	X0Y0 Bore No (P550) Display Warning to Verify that Touch Plate is functioning properly Touch Plate East Probing Pate 10 (P548)
<ul> <li>Wizard</li> <li>VCP Aux Keys</li> <li>Lube Pump</li> </ul>	Touch Plate Slow Probing Rate 5 (P549)
	Probing Max Distance 2.5 (P546)
	Retract Distance 0.05 (P547) Reset All To Default Values
Connected to CNC12	Write Settings to CNC Control Configuration

Define your own Touch Plate geometry, with or without a bore.

Avis	Primary System	Touch Plate Configuration
L hoput Definitions   Choose Touch Plate Type Match Couch Plate Type Input 5 <pinput 5<="" p=""> Input 5</pinput>	– Axis Drive Type	Iduch Plate Configuration
Couput Definitions       Touch Plate PLC Input # Input 5         Axis       Touch Plate PLC Input # Input 5         Avaidanced Hardware       Rotary Setup         Spindle #1       Rojid Tapping         PWM Setup       22         Touch Plate PLC Input # Input 5       22         Ford Tapping       22         Touch Probe       0.3125         Touch Plate Show Probing Tapping       Input 5         Prive Signal Mapping       Input 5         Mireless MFG       0.3125         Prive Signal Mapping       Input 5         Chrono Peripheral       Display Warning to Verify that Touch Plate 5 (P549)         VCP Aux Keys       Display Warning to Verify that Touch Plate 5 (P549)         VCP Aux Keys       Touch Plate Slow Probing Rate       0 (P548)         VCP Aux Keys       Touch Plate Slow Probing Rate       0 (P549)         Probing Max Distance       2.5 (P546)       Retract Distance         Probing Max Distance       0.5 (P547)       Reset All To Default Values	<ul> <li>Input Definitions</li> </ul>	Choose Touch Plate Type AvidCNC Touch Plate V (WizardSettings.xml)
Wis       Touch Plate PLC Input #       Input 5         Avis Configuration       Input state when tripped       Coosed       (P542)         AvianceH Hardware       Reparts Setup       22       AviaCNL Touch Plate       22         Spindle #1       Highd Tapping       22       22       22       Coosed       22         Touch Probe       2.2       2.2       2.2       Coosed       2.2       Coosed       2.2       Coosed       2.2       Coosed       <	Output Definitions	
Adds Configuration         Homing and Pairing         Adds Configuration         Homing and Pairing         Prindle         Sector Hardware         Recary Setup         Ouch Devices         Touch Probe         Touch Probe         Touch Off         Control Peripheral         Input Devices         Control Version         Control Peripheral         Input Devices         Control Networks         Control Version         Control Peripheral         Input Devices         Control Networks         Control Networks         Version         Version         Version         Version         VVP Awa Keys         Lube Pump         Probing Max Distance         Obing Max Distance         Obing Max Distance         Obing Max Distance <td< td=""><td></td><td>Touch Plate PLC Input # Input 5</td></td<>		Touch Plate PLC Input # Input 5
Avis Configuration Homing and Pairing AvidANC Touch Plate Part Stup Pindle Pigndle 41 Pigid Tapping PWM Setup Control Peripheral I Touch Off Touch Devices Control OPeripheral I Touch Se 008 Wireless MPG Control Verse Control Verse Control Netse Control Netse Wireless MPG Display Warning to Verify that Touch Plate is functioning properly VCP Preferences Wixed VCP Preferences Wixed VCP Aux Keys Lube Pump Control Verse Control	AXIS	Input state when tripped Closed (P542)
Hommg and Paring         Advanced Handware Ratary Setup         Spindle         Spindle #1 Figlid Tapping PWM Setup         Touch Devices         Touch Probe Touch Over Signal Mapping         Drive Signal Mapping         Wireles MPG         Drive Signal Mapping         Mapping         Mireles MPG         Drive Signal Mapping         Mapping         Mapping         VCP Aux Keys         Lube Pump         Probing Max Distance         Probing Max Distance         0.000 (P547)         Retract Distance         0.000 (P547)	Axis Configuration	AvidCNC Touch Plate
L Advanced Hardware Rotary Setup Spindle Spindle #1 - Right Tapping PWM Setup Touch Probe Touch Probe Touch Probe Touch Probe Controid USB-BOB Wireless MPG Display Warning to Verify that Controid USB-BOB Wireless MPG Display Warning to Verify that Touch Plate is functioning properly VCP Parferences UVCP Park Keys Lube Pump Display Warning to Verify that Touch Plate is functioning properly VCP Parferences UVCP Aux Keys Lube Pump Display Warning to Verify that Touch Plate Siow Probing Rate Probing Max Distance 005 (P547) Reset All To Default Values	Homing and Pairing	
Notary Setup         Spindle         Tool Took Off         Tooch Nexes         Control Peripheral         Input Devices         Control USB-BOB         Wireless MPG         Drive Signal Mapping         Mapping         Touch Plate Fast Probing Rate         Control         VCP Preferences         Wrand         VCP Preferences         Wrand         VCP Preferences         Wrand         VCP Preferences         Ukar Keys         Lube Pump         Probing Max Distance         Opting Max Distance         Opting Kax Distance	Advanced Hardware	2.2
spindle Figindle #1 Rigid Tapping PMM Setup Control Peripheral Touch Probe Tool Touch Off Touch Paripheral Control Peripheral Control Veripheral Control Veripheral Control Nas-BOB Wireless MPG Display Warning to Verify that Touch Plate is functioning properly VCP Aux Keys Lube Pump Probing Max Distance Control Verify that Touch Plate Slow Probing Rate VCP Aux Keys Lube Pump Probing Max Distance Control Verify that Touch Plate Slow Probing Rate Control Verify that Control Verify that Control Verify that Control Verify that Slow Probing Rate Control Verify that Control Verify that Slow Probing Rate Control Verify that Control Verify tha	- Rotary Setup	
Spindle #1   Spindle #1   Spindle #1   Rigid Tapping   PWM Setup     Touch Probe   Touch Porige   Control Peripheral   Input Devices   Control Peripheral   Input Devices   Control Meripheral   Mapping     Drive Signal Mapping   Mapping     Display Warning to Verify that   Touch Plate Since Display Warning to Verify that   VCP Preferences   VVCP Preferences   Wizard   VVCP Preferences   Wizard   VCP preferences   Wizard   VCP preferences   Probing Max Distance   Display Maring to Istance   0.05 (P547)   Rest All To Default Values	Spindle	
Land Land Land Land Land Land Land Land		
Lingui Devices   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1 <t< td=""><td>- Rigid Tapping</td><td></td></t<>	- Rigid Tapping	
Prive Setup     Touch Previces   Touch Probe   Touch Potob   Touch Potob   Touch Devices   Centroid USB-808   Wireless MPG   Drive Signal Mapping   ATC   ATC   ATC Setup   Preferences   CNC Control   VCP Axx Keys   Lube Pump   Probing Max Distance 2.5 (P546) Retract Distance 0.055 (P547) Reset All To Default Values	- RM/M Setup	
1       2.2         1       1         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125         1       0.3125	- PWW Setup	
touch Probe Tool Touch Off Touch Plate Centroid USB-BOB Wireless MPG Drive Signal Mapping Mapping ATC ATC Setup Preferences VCP Aux Keys Lube Pump Child Control VCP Aux Keys Lube Pump Control Plate Slow Probing Rate VCP Aux Keys Lube Pump Control Plate Slow Probing Rate Control Plate Slow Plate Plate Slow Plate Plate Slow Plate Plat	Touch Devices	2.2
Tool Touch Off Tool Touch Off Control Peripheral Input Devices Centroid USB-BOB Wireless MPG Display Marning to Verify that Touch Plate is functioning properly VCP Preferences ViCP Preferences ViCP Preferences ViCP Aux Keys Lube Pump Probing Max Distance 0.05 (P549) Probing Max Distance 0.05 (P547) Reset All To Default Values	- Touch Probe	
Touch Plate     Control Peripheral   Input Devices   Centroid US8-RoB   Wireless MPG     Drive Signal Mapping   ATC   ATC   ATC   CNC Control   VCP Preferences   VCP Preferences   Virad   VCP Preferences   Uvizad   VCP Devices   Uube Pump   Probing Max Distance    O.3125	- Tool Touch Off	
Control Peripheral Centroid USB-BOB Wireless MPG Drive Signal Mapping ATC ATC Setup Preferences VCP Preferences Wixad VCP Preferences Wixad VCP Preferences Wixad VCP Preferences Wixad VCP Preferences Display Warning to Verify that Touch Plate Fast Probing Rate 10 (P548) Touch Plate Fast Probing Rate 10 (P549) Probing Max Distance 2.5 (P546) Retract Distance 0.05 (P547) Reset All To Default Values	- Touch Plate	
Control Peripheral Input Devices Centroid USB-BOB Wireless MPG Dive Signal Mapping ATC ATC Setup Preferences CNC Control VCP Pute rences Wizard VCP Pute Keys Lube Pump Probing Max Distance Control Control Plate Slow Probing Rate Control Control Plate Slow Probing Rate Control Plate Slow		
Input Devices Centroid USB-BOB Wireless MPG Dive Signal Mapping ATC ATC Setup Preferences CNC Control CNC Control VCP Preferences VCP Aux Keys Lube Pump CNC Aux Keys Lube Pump CNC Display Warning to Verify that Touch Plate Is functioning properly Touch Plate Slow Probing Rate CNC Display Warning to Verify that Touch Plate Slow Probing Rate CNC Preferences CNC Display Warning to Verify that Touch Plate Slow Probing Rate CNC Display Warning to Verify that Touch Plate Slow Probing Rate CNC Display Warning to Verify that Touch Plate Slow Probing Rate CNC Display Warning to Verify that Touch Plate Slow Probing Rate CNC Display Warning to Verify that Touch Plate Slow Probing Rate CNC Display Warning to Verify that Touch Plate Slow Probing Rate CNC Display Warning to Verify that Touch Plate Slow Probing Rate CNC Display Warning to Verify that Touch Plate Slow Probing Rate CNC Display Warning to Verify that Touch Plate Slow Probing Rate CNC Display Warning to Verify that Touch Plate Slow Probing Rate CNC Display Warning to Verify that Touch Plate Slow Probing Rate CNC Display Warning to Verify that Touch Plate Slow Probing Rate CNC Display Warning to Verify that CNC Display Warning to Verify that CNC Display Warning to Verify that Touch Plate Slow Probing Rate CNC Display Warning to Verify that CNC Display Warning to Verify that CNC Display Warning to Verify that Touch Plate Slow Probing Rate CNC Display Warning to Verify that CNC Display Warning to Ver	Control Peripheral	0.3125
Centroid USB-BOB Wireless MPG Drive Signal Mapping Mapping ATC ATC Setup Preferences VCP Preferences Wizard VCP PAux Keys Lube Pump Probing Max Distance 2.5 (P546) Retract Distance 0.05 (P547) Reset All To Default Values	<ul> <li>Input Devices</li> </ul>	
Wireless MPG Prive Signal Mapping ATC ATC Setup Preferences CNC Control VCP Preferences Wizard VCP Preferences Use Pump Probing Max Distance Display Warning to Verify that Touch Plate Slow Probing Rate Display Warning to Verify that Source Display Warning to Verify that Touch Plate Fast Probing Rate Display Warning to Verify that Touch Plate Slow Probing Rate Display Warning to Verify that Source Display Warning to Verify that Touch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate Display Warning to Verify that Couch Plate Slow Probing Rate	<ul> <li>Centroid USB-BOB</li> </ul>	
Drive Signal Mapping Mapping ATC ATC Setup Preferences CNC Control VCP Preferences Wizard VCP Aux Keys Lube Pump Probing Max Distance 2.5 (P549) Probing Max Distance 2.5 (P546) Retract Distance 0.05 (P547) Reset All To Default Values	Wireless MPG	
Drive Signal Mapping Mapping ATC ATC Setup Preferences CNC Control VCP Preferences Wizard VCP Aux Keys Lube Pump Lube Pump Lube Pump Lube Att to Default Values Lube Pump Lube Pump		
Mapping   ATC   ATC Setup     Display Warning to Verify that   Touch Plate is functioning properly   VCP Preferences   Wizard   VCP Aux Keys   Lube Pump   Probing Max Distance   0.05   (P549)   Probing Max Distance   0.05   (P547)   Retract Distance	Drive Signal Mapping	
ATC ATC Setup Preferences CNC Control VCP Preferences Wizard VCP Aux Keys Lube Pump Probing Max Distance CNC Distance CNC Control CNC Preferences CNC Preferences C	L Mapping	1
ATC ATC Setup Preferences CNC Control VCP Preferences Wizard VCP Aux Keys Lube Pump Probing Max Distance COS (P549) COS (P549) COS (P549) COS (P547) Reset All To Default Values		
ATC Setup Display Warning to Verify that Touch Plate is functioning properly CNC Control VCP Preferences Wizard VCP Aux Keys Lube Pump Probing Max Distance Retract Distance 0.05 (P547) Reset All To Default Values	ATC	
Preferences       Touch Plate is functioning properly       Yes       (P410)         CNC Control       Touch Plate Fast Probing Rate       10       (P548)         VCP Preferences       Touch Plate Slow Probing Rate       5       (P549)         VCP Aux Keys       Probing Max Distance       2.5       (P546)         Retract Distance       0.05       (P547)         Reset All To Default Values       Values	► ATC Setup	Display Warning to Verify that
Preferences       Touch Plate Fast Probing Rate       10 (P548)         VCP Preferences       Touch Plate Slow Probing Rate       5 (P549)         VCP Aux Keys       Probing Max Distance       2.5 (P546)         Retract Distance       0.05 (P547)         Reset All To Default Values		Touch Plate is functioning properly Yes (P410)
CNC Control VCP Preferences Wizard VCP Aux Keys Lube Pump Probing Max Distance Control (P548) Probing Max Distance Control (P549) Probing Max Distance Control (P547) Reset All To Default Values	Preferences	
VCP Preferences       Touch Plate Slow Probing Rate       5 (P549)         VCP Aux Keys       Probing Max Distance       2.5 (P546)         Retract Distance       0.05 (P547)         Reset All To Default Values       Reset All To Default Values	CNC Control	Touch Plate Fast Probing Kate 10 (P548)
VCP Aux Keys Lube Pump Probing Max Distance 2.5 (P546) Retract Distance 0.05 (P547) Reset All To Default Values	Wizard	Truck Dista Clau Braking Data
Probing Max Distance 2.5 (P546) Retract Distance 0.05 (P547) Reset All To Default Values		Touch Plate Slow Probing Rate
Retract Distance 0.05 (P547) Reset All To Default Values	Lube Pump	Prohing May Dictance 25 (D546)
Retract Distance 0.05 (P547) Reset All To Default Values		
Reset All To Default Values		Retract Distance 0.05 (P547)
Reset All To Default Values		
		Reset All To Default Values

Avid CNC Touch Plate is pre-filled in with the correct data, just select it and press "Write Settings to CNC control configuration"

Souter CNC Control Configuration Wizard			- □ >
Primary System	Touch Plat	te Configuration	
Axis Drive Type Input Definitions Output Definitions	Choose Touch Plate Type	Surface Plate	(WizardSettings.xml)
Axis Axis Configuration Homing and Pairing Advanced Hardware Rotary Setup	Input state when tripped	Closed urface Plate	(P542)
Spindle Spindle #1 Rigid Tapping PWM Setup	0.75 Display Warning to Verify that Touch Plate is functioning properly	Yes	(P410)
Touch Devices Touch Probe	Touch Plate Fast Probing Rate	10	(P548)
Control Peripheral	Probing Max Distance	2.5	(P546)
Centroid USB-BOB Wireless MPG	Retract Distance	0.05	(P547)
Drive Signal Mapping			
ATC L ATC Setup			
Preferences CNC Control VCP Preferences Wizard VCP Aux Keys Lube Pump			
Connected to CNC12		Write Settings	to CNC Control Configuration

and for those using a simple piece of metal as a touch off to set part Z zeros rather than a XYZ touch plate.

5.) The Hickory CNC controller now supports Clearpath EC EtherCat servo motors. Link to the Centroid Hickory Clearpath setup Tech Bulletin: <u>https://www.centroidcnc.com/dealersupport/tech\_bulletins/uploads/332.pdf</u>



Link to Teknic web page. https://teknic.com/products/clearpath-brushless-dc-servo-motors/ethercat-servo/ 6.) Useful new G-code backplot features such as Travel Limit, Work Envelope, Dynamic Spindle Position indicator, WCS position. Example below shows the G code job exceeding the machine travel limits with the current Part zero location. Available in Mill, Router and Plasma. (Lathe will get these new features in the next version release)



### Video demonstration is here <a href="https://youtu.be/dhe\_YG7Fsc4">https://youtu.be/dhe\_YG7Fsc4</a>



7.) Hardware Pairing with Autosquaring is now a "canned" feature and has been added to the Acorn and AcornSix Wizard. Now you can hardware pair an axis (two axis motors hardwired together on one axis, typically a gantry) and the Wizard will write the homing program for you that will home and auto square a hardware paired axis! (no custom code needed but, you can still customize it if you want.)

Router CNC Control Configuration Wizard			- 0 ×		
Primary System	Homing Type	Axes Pairing			
Axis Drive Type Input Definitions Output Definitions	Automatic Homing: machine seeks switches to home     Simple Homing: operator Jogs machine to home position	Axis to Software Pair with 4th Axis	No Software Pairing V VIIIimate, or Ultimate Plus License		
Axis	Clearpath Hard Stop Homing: Warning: See <u>IB319</u> for setup info.	Reverse direction of 4th axis motor relative to the paired axis?	No		
<ul> <li>Axis Configuration</li> <li>Homing and Pairing</li> </ul>	O Do not use Machine Home	Axis with Hardware Paired Drives Hardware Hookup Schematic	Axis 2 🗸		
Advanced Hardware Rotary Setup	⊙ More Info				
	Automatic Homing Direction	Paired Axes Homing			
Spindle Spindle #1 Rigid Tapping	Choose the direction in which the machine individual axes will move to seek a home switch. $\bigodot{\rm More}$ info	Paired axes squaring/alignment	No Auto Squaring Auto Squaring		
PWM Setup	Axis 1 Axis 2 Axis 3 Axis 4	Master Axis squaring/alignment distance	0.025		
Touch Devices	-(M91) V In Place V In Place V	Master Axis Home Switch PLC Input =	HomeAll, Input 1*		
Touch Probe     Tool Touch Off     Touch Plate	Automatic Homing Sequence Set the order of the Automatic Homing Cycle. Choose which axes to home 1st, 2nd, 3rd, 4th, etc.	Slave Axis Home Switch PLC Input =	SlavedHomeInput, Input 2*		
Control Parinkoval	Automatic Homing moves one axis at a time.	Auto Square Relay for Hardware Pairing PLC Output =	AutoSquareRelayForHardPair, Output5*		
Control Peripheral Input Devices Centroid USB-BOB Wireless MPG	Axis 1         Axis 2         Axis 3         Axis 4           3         2         1         2	Note: When Auto Squaring is selected, the Auto Squar 1: Z axis, 2: non paired Axis, 3: Paired Axes. Axes Pairing and Homing Manual (PDP)	* Defined in the I/O table in the Primary Configuration Menu e Homing Sequence defaults to:		
Drive Signal Mapping L Mapping	Homing Feedrate Set the feedrate that the machine will run at to home each axis	Machine Parking			
ATC L ATC Setup	Axis 1         Axis 2         Axis 3         Axis 4           Feedrate         10         10         36	Machine Parking Override the default position and speed machine park function by editing the Park macro.			
Preferences - CNC Control - VCP Preferences		Override default park behavior? Yes	Edit "park.mac"		
Connected to CNC12			Write Settings to CNC Control Configuration		

Link to typical Hardware Paired CNC Router Gantry machine schematic with Autosquaring. (S15200) https://www.centroidcnc.com/centroid\_diy/schematics/pbrowse.php?term=hardware

8.) Lathe: G64 smoothing added to Lathe CNC12 (was previously only available in Mill, Router and Plasma).



Uwe Mattern made a video showing his unique way of using G64 on a Lathe Part. <u>https://youtu.be/HNRWMMaluq4?si=IFqPM2RwDXPVJ3tu</u>



9.) Lathe: Spindle Speed Variation and Feedrate Speed Variation is now a standard feature of Mill, Lathe, Router versions of CNC12. SSV and FRV are most useful for Lathe applications. Setup SSV and FRV parameters in the Wizard or via CNC12 Parameters.

Simple M code to turn either feature on and off.

Spindle	• ·		_		
Spindle Setup					
Spindle Encoder (Encoder port #1)	Yes				
Spindle Encoder counts		2000			
Spindle max speed in high range		3000			
Spindle min speed in high range					
Medium range Spindle Speed ratio		1			
Low range Spindle Speed ratio		.1			
Limit Spindle Analog Output to 0-5 volts	No				
RTG Sindle Speed RPM display	G-code program or RPM	sensor Spindle Speed 🛛 🗸			
SpindleOk delay timer	500	milliseconds			
Spindle cooling fan delay timer	120	seconds			
Lathe Setup			_		
Feed per Minute (G98) -or- Feed per Revolution (G99) default mode <b>Note:</b> G99 requires a spindle encoder (1:1)	G99				
Lathe orientation <b>Note:</b> A restart of CNC12 is required for changes to take effect.	Horizontal 🗸				
Tool orientation	Front 🗸				
Spindle Speed Variation (SSV) Configuration (M94/70 O	N, M95/70 OFF)				
Spindle Speed Variation Cycle Time	0	seconds			
Amount of Speed Variation	0	rpm (+/-)			
Feed Rate Variation (FRV) Configuration (M94/71 ON, M	95/71 OFF)				
Feed Rate Variation Cycle Time	0	milliseconds			
	Write Settin	ngs to CNC Control Configurat	ion		
	Spindle Encoder (chedder port of) Spindle Encoder counts Spindle max speed in high range Medium range Spindle Speed ratio Low range Spindle Speed ratio Limit Spindle Analog Output to 0-5 volts RTG Sindle Speed RPM display SpindleOk delay timer Spindle cooling fan delay timer Lathe Setup Feed per Minute (G98) -or- Feed per Revolution (G99) default mode Note: G99 requires a spindle encoder (1:1) Lathe orientation Note: A restart of CNC12 is required for changes to take effect. Tool orientation Spindle Speed Variation (SSV) Configuration (M94/70 O Spindle Speed Variation Cycle Time Amount of Speed Variation Feed Rate Variation Cycle Time	Spindle Encoder (Encoder port #1) Spindle Encoder counts Spindle Encoder counts Spindle max speed in high range Spindle max speed in high range Medium range Spindle Speed ratio Low range Spindle Speed ratio Limit Spindle Analog Output to 0-5 volts No RTG Sindle Speed RPM display G-code program or RPM SpindleOk delay timer 120 Lathe Setup Feed per Minute (G98) -or- Feed per Revolution (G99) default mode Note: A restart of CNC12 is required for changes to take effect. Tool orientation Spindle Speed Variation (SSV) Configuration (M94/70 ON, M95/70 OFF) Spindle Speed Variation Cycle Time 0 Feed Rate Variation Cycle Time 0 Witte Settin	Spindle Encoder counts 2000 Spindle max speed in high range 3000 Spindle min speed in high range 150 Medium range Spindle Speed ratio 1 Low range Spindle Speed ratio 1 Limit Spindle Analog Output to 0-5 volts <b>No</b> RTG Sindle Speed RPM display G-code program or RPM sensor Spindle Speed <b>v</b> Spindle Ok delay timer 500 milliseconds Spindle cooling fan delay timer 120 seconds Spindle cooling fan delay timer 500 milliseconds Spindle or Freed per Revolution (G99) Gefault mode New: G97 equires a spindle encoder (1:1) New: A restart of CNC 22 a required for changes to take effect. Tool orientation 55V Configuration (M94/70 ON, M95/70 OFF) Spindle Speed Variation Cycle Time 0 seconds Amount of Speed Variation Cycle Time 0 seconds Amount of Speed Variation (M94/71 ON, M95/71 OFF) Feed Rate Variation Cycle Time 0 milliseconds		



Video showing SSV OFF vs. SSV ON <u>https://youtu.be/o6YsrY0MDoA</u>

10.) CNC12 On screen text/words/labels/language file editing improvements.

Users can always change any words in CNC12 by simply editing the Centroid provided language.msg text file. What's new is now you can leave the Centroid provided language.msg text file ( the default file included with the CNC12 installation) alone and create a 'modifier' file called "user\_language.msg" this modifier file overrides the default file with just the changes you want.

The main advantage of this method is that it allows the user/oem to modify CNC12 words by creating a user language file that contains just the changes they want and easily copy those changes to a new installation of CNC12 without have to edit/re edit the Centroid default file, this allows Centroid to continue to make improvements and additions to the CNC12 language file with each new version while the user/oem can continue to use/reuse their same file with their custom changes with any new versions of CNC12. This new user language file makes modifying the words on CNC12 more convenient by saving time when installing multiple CNC12 installations and 'upgrading' to a new version of CNC12.

Any text present in CNC12 can be changed with the new file. For example, using the new Router version of CNC12, if we wanted to change the Function Key F2 words "Load Job" to "Open File"



a.) Open Notepad ++ and create a new file. " user\_language.msg " and save it in the root CNC12 directory ( cncm or cnct etc)

b.) Open the stock c:\cncm\language.msg file

Use the search feature of Notepad ++ find the words you want to change.

In this case I searched on @LOAD\_BUTTON



c.) The format for the user\_language.msg file is the same as that of default Centroid language.msg file with the additional field of 'replacement:'.

Copy the entire Load Button section of the default Centroid language.msg file and paste it into the new user\_language.msg file, below is the Load Button section that I copied into the new user\_language.msg file

<b>)</b>	:\cncm\	user_language.	.msg - Notepad++
File	Edit	Search View	/ Encoding Language Settings Tools Macro Run Plugins Window ?
0	28	🖻 🔒 📭 (	<u>a   🛦 🕼 🌔 o c</u> e   # 🛬   🔍 🤫   🗳 🖼   🎫 1 🔢 🐼 🕼 🕗   🗉 🔍
	language	e.msg 👌 🔚	user_language.msg 🔀
	1	[cncx	.cpp dxfmenu.cpp ]
	2	eng:	@LOAD BUTTON = "Load\n" +
	3		"Job"
	4	spa:	"Cargar"
	5	frc:	"Charger"
	6	roc:	"\\程式\\載入"
	7	prc:	"载入"
	8	deu:	"Laden"
	9	swe:	"Ladda"
	10	fin:	"Lataa"
	11	por:	"Carregar"
	12	pol:	"\\Wybierz\\Program"
	13	ell:	"Φόρτωση"

[cncx.cpp dxfmenu.cpp ] eng: @LOAD\_BUTTON = "Load\n" + "Job" spa: "Cargar" frc: "Charger" roc: "\\程式\\載入" prc: "载入" deu: "Laden" swe: "Ladda" fin: "Lataa" por: "Carregar" pol: "\\Wybierz\\Program" ell: "Φόρτωση"

d.) In the user\_language.msg file echo what you want to replace in this section by adding the "replacement:" line directly under the header. Highlighted in orange

```
[cncx.cpp dxfmenu.cpp ]

replacement: "Load\n" +

"Job"

eng: @LOAD_BUTTON = "Load\n" +

"Job"

spa: "Cargar"

frc: "Charger"

......
```

The replacement line we just added in orange above tells CNC12 that you want to replace the words Load Job "Load\n" + "Job"

Now edit the words in the Load Button section of the user\_language.msg file that you want to change.

In this example, the English words for the F2 Load Job Function key are changed from "Load Job" to "Open File" on the eng: line highlighted in yellow below



Note: "\n" = new line (carriage return) so the word "File" appears on a new line (under the word "Open")

Save the file and restart CNC12 and see the result.



The advantage here is:

- Now we have a language file that tells CNC12 what to change without having to edit the Centroid default language file. This allows us to use the user\_language.msg file across all future versions of CNC12.

- Makes updating to a new version of CNC12 with your customizations easy. Simply copy your existing "user\_language.msg" file into the root CNC12 directory after a new CNC12 installation to have your changes take effect.

- Makes setting up multiple machine tools with a custom language file easy. Simply copy your "user\_language.msg" file into the root CNC12 directory after CNC12 installation.

- You can share your "user\_language.msg" with others using version v5.20+ of CNC12

### 11.) Operators Virtual Control Panel (VCP) additions

The VCP now supports using an image as the background in addition to solid colors. Below is an example of the VCP using a .jpg as the background. The .JPG being used is a brushed stainless steel texture image.



This sample .jpg file is included in the c:\cncm\resources\vcp\images folder



To instruct the VCP to use an image as a background:

Edit the VCP skin and add the new background node <background>

under <vcp\_skin> with the path to the image.

Highlighted in yellow below.

<vcp\_skin> <background> c:\cncm\resources\vcp\images\stainless-steel.jpg </background> <border> <column\_span>2</column\_span> <column\_start>1</column\_start> <fill>#00007F</fill> <row\_span>4</row\_span> <row\_start>1</row\_start> <outline\_color>#000000</outline\_color> <outline\_thickness>2</outline\_thickness> </border>

Notes:

- VCP image nodes can now accept .jpg and .png (and possibly other, untested) image formats.
- The image should be larger in size (pixels) than the VCP for best results.
- The image upper right corner will be placed in the upper right corner of the VCP background.
- Any parts of the image that are larger than the VCP are simply cropped.
- An example skin has been included in the skins\custom\folder

> Windows (C:) > cncm > resources > vcp > skins	s > custom			
$\hat{\mathbb{U}}$ $\wedge$ Sort $$ $\equiv$ View $$				
Name	Date modified	Туре	Size	
sample_acorn_router_vcp_diagonal_rapid_skin_background_image.vcp	10/10/2024 3:23 PM	VCP File	8 KB	

- The VCP group switching feature can now be triggered through parameters via

```
<trigger>
<parameter number="750">
<value>17</value>
</parameter>
</trigger>
---- OR ---
<trigger>
<parameter number="750">
<bit>0</bit>
```

in addition to the previous switching methods of: clicking on the vcp button and using a PLC output number state.

- VCP Preferences Menu: When notifying the VCP that you have customized the VCP using the Custom VCP YES/NO selection. There is now a choice to "link" the Rapid and Feedrate Override control for both on one control. This sets the parameters so that your custom VCP can use the new way of linking feedrate and rapid rate override control if desired.

Custom VCP Configuration	
Customized VCP skin in use	Yes
Custom VCP Enable Rapid Override	Yes
Custom VCP Enable Rapid Feed Link	No

- The VCP Options menu will now open based on location of the VCP's lower right corner so its easier to see and less likely to be under CNC12 itself.



12.) Organized and grouped PLC messages into types so its easier to identify and manage. Users can edit which PLC message falls into which category by editing \cncm\Plcmsg.txt if desired.

Fault messages use the 9000's, (Note: legacy 452 and 406 are included here as well). 9000 default colors are: Red and white.

Error messages use the 8000's, default colors: Yellow and Black

Warning messages use the 7000's, default colors: Blue and White

Other types of Messages use the 5000's default colors: Blue and Yellow

Ok Cleared type Messages use the 4000's 4000 default colors: Green and White.

(Refer to CNC12 Operator Manuals for more information on all types of messages.)

We also added them to the Color Picker so users have full control over the color of the types of messages CNC12 produces.



### 13.) Probing

- Added Probe Stylus Pre-travel calibration macro to the Probing menu and to the VCP Utils menu. This is a quick way to automatically calibrate and compensate for any probe stylus pre-travel amount.



### and directly in the probing menu as well.



- The Probing menu can now record probing data to a text file.

File name and location are: \cncm\probe\_cycles\_history.txt.

This feature can be turned on and off by clicking on the On/Off button in the Probing Menu.



Open the file with any text editor to see the gathered data, edit and manipulate as desired for importation into CAD/CAM systems, Spreadsheets etc.

### **Other Changes, Additions and Improvements**

- Moved the Manual Run toggle in Lathe Run Menu to right hand column to fix graphical issue
- Added checks to part and feed menus to ensure at least once axis is set before entering menu
- Utility menu now uses an HTML file to display information which is customizable by users and oem alike.

- Run Menus rewritten which allows the toggle buttons to be clickable with or without the use of function keys.

- Added Reference Mark Homing wizard option to Hickory
- Added "Return Z to Home" option in the router touch plate menu

- Combined the Homing and Travel Menu and the Axes Pairing Menu in the wizard. Software travel limits moved to the Axis Configuration menu. These changes also removed the need for parameter 414.

- Added M25 to the goto\_part\_xy\_zero.cnc macro which will raise Z before it moves to the XY0 position
- Keyboard Jogging:
- a.) Now you can jog machines diagonally using the PC keyboard using numbers 1,7,9 and 3.



PC Keyboard

CTRL 7 = X - X + at the same time

- CTRL 9 = X +, Y + at the same time
- CTRL 3 = X +, Y at the same time
- CTRL 1 = X , Y at the same time

b.) Centroid default/Wizard generated PLC program change for improved keyboard jogging safety: When using PC Keyboard machine tool jogging, the PC Keyboard CTRL key activates the jog keys on the keyboard for safe Machine Axis Jogging via the keyboard. The CTRL key acts as a deadman safety switch. Preventing unintended movement of the machine tool while using the computer keyboard.



As always we recommend using the Centroid Operators control panel (either the Virtual one or the Hard panel), Your own hard wired Jog buttons (<u>see the USB-BOB web page for more information</u> on how to do that), a Hard wired MPG or the Wireless MPG (<u>see this page for more info on the Centroid Wireless MPG</u>)

The Centroid PLC program is user editable, human readable, open source and the tools to customize/create/edit/debug/compile your own are free.

PC Keyboard Hot Keys Legend.



- Removed the license requirement for advanced macro functions.

- Deprecated API calls GetUserSystemVariable and GetUserStringSystemVariable. Added overloaded call GetSystemVariable to handle all system variables from #1 to #31999

- Added P181 to specify an additional ratio of a full motor revolution that an axis is allowed to move while searching for an index pulse before faulting out.

- Added bit 1 (add 2) P425 "Unhome machine after estop" to be able to unhome the machine after the reset button on the vcp is pressed.

- Added an "InverseTimeMode" to display 3D surface feedrate when G93.1 is in use. Rotary axes will display deg/min for rotary-only moves while G93.1 is not in use.

- Added Plasma Restart Mode debug mode when P389 == 1

- Increased which axes can be reversed by Plasma Restart Mode. Rotary jobs now work with Plasma restart traverse buttons

- Added horizontal auto scrooling for menus that don't fit horizontally on the screen. This is most useful when dragging/dropping inputs/outputs and multiple expansion boards are hooked up

- Limit switches will implicitly be set as home switches if no home or home limit switches are found in the wizard

- Removed Parameter 821 as it was unused for it's stated purpose

- Added dedicated Rack engage speed for Hole Rackmount ATC type

- Split Fork Engage/Disengage speed for Fork Rackmount and Sliding Carousel ATC types

- Removed unnecessary truncation of input/output names when dragging/dropping IO

- Added Simple PLC Diagnostics to Hickory

- Fixed issue where the SV\_?\_AXIS\_DRIVE\_ONLINE system variable, where ? is a single character axis label ABCXYZUVW, was not working correctly for ACDC drive types.

- PLC Installer: the button "Install - and keep the existing machine configuration" will not be enabled/visible if an mpu.plc program is not found in the corresponding cnct or cncm directory. It is assumed that if there is no mpu.plc program found, then this is a new install so the choice to keep the existing machine configuration would be a mistake. In addition, when choosing the "Install - and keep the existing machine configuration" option, we now copy over any plcmsg.txt since it is tightly coupled to mpu.plc.

- OEM use for custom CNC12 screen. P113 Bit 2

- Add 2 will hide F5 and F7 in CNC12 Router
- Add 4 will hide F1, F2, and F3 (the measurement buttons)
- Add 8 will hide Press Shift F12 help messages

- M222 is a new M code that uses key input. M222 is similar to M224 but takes any key input as an input. The file cncm\system\setup\_key\_defines.cnc lists the keys and the values that end up in the requested variable.

For example:

M222 #101 "Verify Tool Touch Off device is functioning properly.\nPress any key to continue."

use covered

- Add a new Mcode: M221. M221 is the same as M225 but doesn't stop the job.

*M221 #100 "Homing X axis"* (displays "homing X axis" as the g code still runs, does this until the job ends, the timer runs out or another message is triggered.)

- Added a P0 value to M115/116, M125/126 will move the probe until any touch device input is triggered.

*M115/X P0 F10* Move X axis in the negative direction until any touch device input is triggered. Works for any touch device, any touch input is triggered.

- Added Inline hyperlinks for Message Macros including but not limited to: M222,221,224,225

you can now use the html a href tag directly within the message m code.

M221 #100 "<a href='centroidcnc.com'>This will take you to the best website ever</a>"

only one hyper link per line. /n for a new line.

- Utility Menu now displays user editable HTML file. Typically used by OEM's to present their specific messaging. You can change any words, add images and hyperlinks.



Edit the file c:\cncm\utility\_menu\_info.htm , restart CNC12 to see the changes.

> Windows (C:) > cncm > resources > html							
$\hat{\blacksquare}$ $\land$ Sort $$ $\equiv$ View $$ $\cdots$							
Name	Date modified	Туре	Size				
Centroid_logo.png	9/19/2024 7:55 AM	PNG File	9 KB				
🧿 utility_menu_info.htm	10/10/2024 4:28 PM	Chrome HTML Document	2 KB				

- Added Support for the Applied Motion EtherCat open loop stepper drive STF06-EC to Hickory CNC12 This drive is only recommended use is for accessory motion (think ATC Carousel or Rack in/out type applications) this drive is NOT for cutting motion.

- New EtherCat Leadshine EL7 hex file improvements for better startup, axis pairing and homing performance.

- Improved the Wizards Print (CRTL+P) feature so the Wizard screens print nearly a full page width of 8.5x11 piece of paper



- The Function Key F3 Auto Measure in the Tool Library is now a user editable Macro.

The CNC12 Router Version of this macro ask the operator if they would like to Automatically go to the Tool Touch Off fixed position or Manually Jog the Tool over the TT. Auto is used for measuring tools that can come straight down on the TT's location. Manually jog the tool over the TT position and then measure from that point is used for tools like Fly Cutters that can not come straight down on the TT for Auto Height Measurement. Manual in this case is actually semi automatic, the user simply jogs the Fly Cutter to a good XY position to measure the tool height from and then presses cycle start and the Auto Tool Height measurement TT cycle takes over.

Anyone can now make F3 do what every they want, just edit the macro located in the c\cncm\system\tool\_offset\_auto\_measure.cnc

2	> Windows (C:) > cncm > system	>			
	©				
	Name	Date modified	Туре	Size	
	🗃 tool_offset_auto_measure.cnc	10/14/2024 3:17 PM	CNC File	10 KB	
		10/11/2024 8:25 AM	CNC File	8 KB	
	🗃 router_rotary_recall.cnc	10/11/2024 8:25 AM	CNC File	4 KB	
	🗃 router_rotary_unwind.cnc	10/11/2024 8:25 AM	CNC File	2 KB	
	<pre>iset_router_rotary_wcs.cnc</pre>	10/11/2024 8:25 AM	CNC File	6 KB	
	📑 teach_laser_offset.cnc	10/11/2024 8:25 AM	CNC File	2 KB	
	touch_plate_auto_set_csr.cnc	10/11/2024 8:25 AM	CNC File	9 KB	
	📑 touch_plate_auto_z_zero.cnc	10/11/2024 8:25 AM	CNC File	2 KB	
	touch_plate_cycles_inside_corner.cnc	10/11/2024 8:25 AM	CNC File	25 KB	
	touch_plate_cycles_inside_side.cnc	10/11/2024 8:25 AM	CNC File	17 KB	
	touch_plate_cycles_outside_corner.cnc	10/11/2024 8:25 AM	CNC File	25 KB	
	touch_plate_cycles_outside_side.cnc	10/11/2024 8:25 AM	CNC File	17 KB	
	touch_plate_cycles_select.cnc	10/11/2024 8:25 AM	CNC File	10 KB	

Related to that, we have been working through as many Function keys inside of CNC12 to break them out to user editable macros so they can be customized. These new macros can be found here. C:\cncm\ system

This	PC	>	Windows (C:) > cncm > system >			
<b>(</b> ]	¢	Ŵ	$\uparrow$ Sort $$ $\equiv$ View $$			
			Name	Date modified	Туре	Size
			tool_offset_auto_measure.cnc	10/14/2024 3:17 PM	CNC File	10 KB
			router_rotary_calibration.cnc	10/11/2024 8:25 AM	CNC File	8 KB
			router_rotary_recall.cnc	10/11/2024 8:25 AM	CNC File	4 KB
			router_rotary_unwind.cnc	10/11/2024 8:25 AM	CNC File	2 KB
			set_router_rotary_wcs.cnc	10/11/2024 8:25 AM	CNC File	6 KB
			teach_laser_offset.cnc	10/11/2024 8:25 AM	CNC File	2 KB
			touch_plate_auto_set_csr.cnc	10/11/2024 8:25 AM	CNC File	9 KB
			touch_plate_auto_z_zero.cnc	10/11/2024 8:25 AM	CNC File	2 KB
			touch_plate_cycles_inside_corner.cnc	10/11/2024 8:25 AM	CNC File	25 KB
			touch_plate_cycles_inside_side.cnc	10/11/2024 8:25 AM	CNC File	17 KB
			touch_plate_cycles_outside_corner.cnc	10/11/2024 8:25 AM	CNC File	25 KB
			touch_plate_cycles_outside_side.cnc	10/11/2024 8:25 AM	CNC File	17 KB
	ıI.	<u>an</u>	touch_plate_cycles_select.cnc	10/11/2024 8:25 AM	CNC File	10 KB
	ч	Ŀ	touch_plate_get_variables.cnc	10/11/2024 8:25 AM	CNC File	4 KB
			touch_plate_move.cnc	10/11/2024 8:25 AM	CNC File	8 KB
			Axis_Calibration.cnc	10/11/2024 8:25 AM	CNC File	10 KB
			goto_machine_xy_zero.cnc	10/11/2024 8:25 AM	CNC File	2 KB
			goto_machine_xyz_zero.cnc	10/11/2024 8:25 AM	CNC File	2 KB
			goto_part_xy_zero.cnc	10/11/2024 8:25 AM	CNC File	2 KB
		<u>an</u>	home_machine_cycle.cnc	10/11/2024 8:25 AM	CNC File	2 KB
			homing_relay_square.cnc	10/11/2024 8:25 AM	CNC File	18 KB
			MPGmacro1.mac	10/11/2024 8:25 AM	MAC File	2 KB
			MPGmacro2.mac	10/11/2024 8:25 AM	MAC File	2 KB
			MPGmacro3.mac	10/11/2024 8:25 AM	MAC File	2 KB
			MPGmacro4.mac	10/11/2024 8:25 AM	MAC File	2 KB
		<u>a</u>	perform_park.cnc	10/11/2024 8:25 AM	CNC File	2 KB
			perform_spindle_warmup.cnc	10/11/2024 8:25 AM	CNC File	3 KB
		<u></u>	perform_tool_change.cnc	10/11/2024 8:25 AM	CNC File	3 KB
			probe_check_configuration.cnc	10/11/2024 8:25 AM	CNC File	6 KB
	1	<u></u>	probe_stylus_calibration.cnc	10/11/2024 8:25 AM	CNC File	5 KB
		<u></u>	select_laser_macros.cnc	10/11/2024 8:25 AM	CNC File	3 KB
			set_laser_csr.cnc	10/11/2024 8:25 AM	CNC File	2 KB
		<u>an</u>	set_part_all_zero.cnc	10/11/2024 8:25 AM	CNC File	4 KB
			set_part_axis_zero.cnc	10/11/2024 8:25 AM	CNC File	7 KB
			set_part_x_zero.cnc	10/11/2024 8:25 AM	CNC File	2 KB
			set_part_xy_zero.cnc	10/11/2024 8:25 AM	CNC File	2 KB
		<u>and</u>	set_part_y_zero.cnc	10/11/2024 8:25 AM	CNC File	2 KB
			set_part_z_zero.cnc	10/11/2024 8:25 AM	CNC File	2 KB
			set_tool_number.cnc	10/11/2024 8:25 AM	CNC File	2 KB
			setup_defines.cnc	10/11/2024 8:25 AM	CNC File	19 KB
			tool_library_tool_change.cnc	10/11/2024 8:25 AM	CNC File	2 KB
		1	tool offset man measure.cnc	10/11/2024 8:25 AM	CNC File	2 KB

## - If no ATC F7 = Operator Manual Tool Change

Put the tool you want in the spindle and let CNC12 know which tool you loaded in the spindle manually.



# If ATC present F7 Auto Tool Change will put and get tools automatically

WCS #1 (G54)         Current Position (Inches)           X         +0.0000           Y         +0.0000           Z         +0.0000	Job Name: NO_JOB_LOADED.cnc Tool: T1 H102 20001 Feedrate: 100% 0.0 jpm Part Cnt: 0 Spindle: 0 A Part # î: 0 Rapid Rate: 100% 0:02:17 347 Reset Cleared 490 Reset Initiated, Press Reset to Clear 347 Reset Cleared 112 West Initiate of A result line	+ AUTO SPRACE 100% (5) SET 100% (5) SET 100% (5) SET NCTAN SET NCTAN SET NCTAN NCTAN NCTAN	SET WCS ZO M55 LÁŠER SET XV	Acorrent GNO Auto Z pto Z p
Z Ref = Z Home Tool # HC HC HC HC HC Get Tool #:	Press CYCLE CANCEL to cancel Tool Change Press Cycle Start. ol currently in the spindle ed tool number.)	Change TOOL CHAT 4th+	Y VAC	Blow Arrow Control Con
Tool Height Offset         H006         0.0000         Difference           Tool Height Offset         H009         0.0000         Difference           Ref         H010         0.0000         Difference           Pos         H010         0.0000         Difference           Z Ref:         FIXED HOME         H012         0.0000         Difference	06 0.2500 00 0.0000 08 0.0000 09 0.0000 10 0.0000 11 0.0000 12 0.0000 	4th- EXAMPLE SINGLE RESET PRESS	Y- TOOL CHECK RAPID FEED	FEED Override 100% +
Manual MeasureAuto MeasureBatch +.001EscF2F3F4	001 Change Tool TT Save Tool Library Setup F6 F7 F8 F9 F10	RESET	25%	50%         75%           VCP OPTIONS         FREE

- Revised copy on the F6 ATC initialization button for clarity.



- With ATC and Fixed TT Batch Measure will automatically measure one or more tools at a time fully automatically.

				000								wcs		XYO	DEFEAT
Ζ			+0.0	000	335 Emer 347 Rese	rgency stop re t Cleared	leased	Clear		0	١.	M58	LASER SET XY	LASER ON/OFF	RESET HOME
					347 Rese	t Cleared					AUTO MAN	DUST Collector	Hold Down VAC	Air Blow	
										Change TOOL		x1	x10	x100	MPG
			Tool Ge	ometry O	fset Libra	ry									
Z Ref = Z Home	Tool #	н	Enter th	e list of tools	s to measure		<u> </u>				4th+		Y+		Z+
		H> [		xample. 1-4	, 0, 15							<b>x</b> -		<b>X</b> +	
	<b>7</b>	H003	0.0	00 D0	03 04	0.2500									
		H005	0.0	000 D0	05	0.0500					4th-		<b>Y</b> -		<b>Z</b> -
		H006	0 00	000 D0	06	0.2500									
	<b></b>	H007	<b>0</b> .00	000 D0	07	0.0000		→ •	_		-Ot	SINGLE BLOCK	CHECK	HOLD	•   •
Tool H	leight Offset	H008	2.00	000 D0	08	0.0000		Diamete	r			_		FEED	
Def		H009	0.00	JUU DU	09 10	0.0000							FEED	Override	
Pos	•		0.00	00 00	10 11	0.0000				-		-		<b>100</b> //	
		H011		00 00 00 000	12	0.0000					RESET		K-I	100%	+>
Z Ref: FIXI	ED HOME	11012				0.0000					PRESS				
			,,								TO		25%	50%	75%
	Manual	Auto	Batch	+.001	001	Change	Tool	Π	Save						
Esc	Measure	Measure	E4	FF	501	Tool	Library	Setup	510		OK		UTILS	VCP OPTIONS	FREE
	F2	F3	F4	- 15	F6	F/	F8	F9	F10						

### Examples:

- Enter "1" and press cycle start and machine will put current Tool away , pick up Tool #1 and go touch it off the fixed TT.

- Enter "1,3,5,6" and press cycle start and machine will put current tool away, pick up Tool #1 and go touch it off the fixed TT, then machine will put Tool #1 away, pick up Tool #3 and go touch it off the fixed TT, then machine will put Tool #3 away, pick up Tool #5 and go touch it off the fixed TT, then machine will put Tool #6 and go touch it off the fixed TT

- Enter "1-4" and press cycle start and machine will put current tool away , pick up Tool #1 and go touch it off the fixed TT, then machine will put Tool #1 away, pick up Tool #2 and go touch it off the fixed TT, then

machine will put Tool #2 away, pick up Tool #3 and go touch it off the fixed TT, then machine will put Tool #3 away, pick up Tool #4 and go touch it off the fixed TT

- Changed this default setting to "Yes" so CNC12 will keep the current job loaded even in the event of a power loss. (Change this slider to NO if you don't want this feature).

Remember Last G Code program after restart	Yes	

Added Default Jobs (g code programs) that will be loaded upon the very first start up of CNC12, instead of defaulting to "no\_job\_loaded.cnc" Any subsequent start/restart of CNC12 will of course remember what ever job you had loaded upon the next start/restart of CNC12.

These jobs below only load the very first time CNC12 starts so new users have a good g-code program to graph/edit/run etc the very first time they start and use CNC12.

Lathe default first time only job: PAWN.cnc (no encoder required version) Plasma default first time only job: Bear23x23.tap Mill default first time only job: sample\_atlanta.cnc Router default first time only job: sample\_sign\_smooth\_on.cnc

If you want "no\_job\_loaded.cnc" to be loaded automatically upon a CNC12 start/restart change the slider to No.

- Fixed a rare but annoying windows wxwidgets message related to loading a g code file remotely.



When Setting Parameter 4 = 26 (default is 25) this will sometimes cause a windows wxwidgets error message when the date/time stamp or path of the remote file was missing or corrupted.

When using P4=26, CNC12 caches a copy of a g-code program locally from a remote drive, this feature was useful back in the day of small hard drive space, not so much anymore. (Recommended setting for Parameter 4 these days is 25 and the default is P4=25.

New CNC12 Message added to let the operator know that the remote file is missing or corrupted etc.



More information on Parameter 4 can be found in the CNC12 Operator manuals.

- Added a note on the Wizard start up screen about undocumented Wizard feature "Print to paper or PDF"



### - Moved the Wizard Axis travel limits into the Axis Configuration menu

y System	Axis Configuration						
It Definitions	L						
put Definitions		Axis 1	AXIS 2	Axis 3	AXIS 4		
	Linear or Rotary	Linear 🗸	Linear 🗸	Linear 🗸	Rotary V		
	Label	x 🗸	Y 🗸	z 🗸	N 🗸		
s Configuration ming and Pairing	Steps / Revolution	2000	2000	2000	1600		
anced Hardware	Overall Turns Ratio	1.25	1.20				
ary Setup	mm/turn or deg/rev or revs/turn	1.23	1.2.				
	Lash Comp. millimeters	C	(	0	0		
	Max Rate	1200	1200	600	360		
ile #1	Fast Jog Plus Direction	1000	1000	EOO	260		
lapping Setup	mm/min or deg/min or rev/min	1000	1000	500			
iscup	Fast Jog Minus Direction mm/min or deg/min or rev/min	1000	1000	250	360		
Devices	Slow Jog mm/min or deg/min or rev/min	100	100	80	36		
h Probe	Accel / Decel	.375	.375	.375	0.5		
Touch Off	seconds						
:h Plate	Direction Reversal	N 🗸	N V	N V	N 🗸		
Peripheral	Drive Enable Delay	250	250	250	250	_	
t Devices	Travel Limit (+)	52	102	0	0		
troid USB-BOB	Travel Limit ( )			11			
eless MPG	naver Limit (-)	U		-11	0		
ignal Mapping						<b>7</b>	
ping	x1 Linear Jog Increment	.01	(P040)	Maximum number of	steps that can be	200,000 steps/second	
F9	x1 Rotary Jog Increment	0.1	(0041)	pulsed per second	(P900)	1000 millicocondo	
	degrees	0.1	(F041)	Axis Motor Drive fault	delay time (F331)	1000 miniseconds	
Setup							
nces							
Control							
Preferences							

- Made the offset library increment parameter #70 unit-less so now when switching from inches to mm CNC12 will NOT convert this value from mm to inches or vs. verse.

Default value for P70 is .001	(when in inches this is .001"	when in mm this is .001 mm.)
-------------------------------	-------------------------------	------------------------------

009	0.0000	029	100.0000	049	0.000	<del>069</del>	1.7500	<mark>0</mark> 89
010	0.0000	030	126.6667	050	0.000	070	0.0010	090
011	0.0000	031	0.0000	051	0.000	071	0.0000	091
012	10.0000	032	25.0000	052	0.0000	072	0.0000	092
013	1.2700	033	1.0000	053	0.0000	073	1.2700	093
014	304.8000	034	8000.0000	054	0.0000	074	4.0000	094
015	127.0000	035	0.0000	055	0000.0	075	0.0000	095
016	254.0000	036	0.0000	056	5.0000	076	0.0000	096
017	0.0000	037	3.0000	057	0.0000	077	0.0000	097
018	0.0000	038	0.0000	058	0.0000	078	0.0000	098
019	0.0000	039	100.0000	059	0.0000	079	0.0000	099
Offset	Library Inc/De	crem	ent Amount					

	1001	Geometry	SHSEL LIDIAL	у				
7 Ref = 7 Home	Height	Offset	Diam	eter				
Tool #	H001	<mark>0.0000</mark> D	001 0	).2500				
	H002	0.0000 D	002 0	).5000				
	H003	0.0000 D	003 0	).7500		100		
	H004	0.0000 D	004 0	).2500				
	H005	0.0000 D	005 C	).0500				
	H006	0.0000 D	006 0	).2500				
<b>A</b>	H007	0.0000 D	007 0	0.0000				
Tool Height Offset	H008	0.0000 D	008 0	0.0000		Diameter		
Measured from Z Home	H009	0.0000 D	009 0	0.0000		Diameter		
Ref	H010	0.0000 D	010 0	0.0000				
Pos	H011	0.0000 D	011 0	0.0000				
	H012	0.0000 D	012 0	0000.	<b>•</b>			
Z Ref: FIXED HOME								
				1				
Manual Manual	Auto	+ 001	- 001	Change	Tool	TT	Savo	
Esc Measure 1	Measure	1.001	.001	Tool	Library	Setup	Jave	
F2	F3	F5	F6	F7	F8	F9	F10	

Change the value in P70 to change the amount the F5 and F6 adjustment keys increment the values by.

		T LC I		1.11			т
		Tool Geomet	ry Offset	Library			
Z Ref = Z Home	H	leight Offset		Diameter			
Tool #	H001	0.000	D001	6.350			
	H002	0.000	D002	12.700			
	H003	0.000	D003	19.050		1.1.1	
	H004	0.000	D004	6.350			
	H005	0.000	D005	1.270			
	H006	0.000	D006	6.350			
<b>A</b>	H007	0.000	D007	0.000			
Tool Height Offset	H008	0.000	D008	0.000			r
Measured from Z Home	H009	0.000	D009	0.000		Diameter	
Ref 🕈	H010	0.000	D010	0.000			
Pos	H011	0.000	D011	0.000			
	H012	0.000	D012	0.000	•		
Z Ref: FIXED HOME							
Manual	Auto		<b>1</b>	Change	Tool	ТТ	Carro
Measure	Measure	+.(	- 10	Tool	Library	Setup	Save
F2	F3	F	5	F6 F7	F8	F9	F10

Example below is millimeters with P70 set to .01 value.

- Added 'CTRL-G' to the PLC Detective, which opens a Goto Line Dialog

- PLC Detective can now search both up and down using F6 – Search

- Fixed missing Touch Plate PLC messaging

1.) Oak, Allin1DC and MPU11 users should be aware: running the CNC12 v5.20 on top of the existing cncm\t directory will overwrite your WCS file with a new, blank file.

That will remove your software travel limits; zero out any custom return points (such as a fixed tool setter location, or the G30 Z coordinate for an umbrella or swing-arm tool changer); and zero out all your work offsets.

But have no fear it is simple to recover the .wcs file.

You can recover normal operation by restoring the last-known-good report from before the update, or by extracting the cncm.wcs file from such a report and copying it into the c:\cncm directory.

So as always be sure to create a fresh report.zip file BEFORE running the CNC12 installer.