Section

14 Tools Editor

When tools are ran in a service (by editing the tool string for a particular service), they are chosen by type and serial number. Each serial number is assigned to a specific tool model. Each model of tool has the information that the Warrior System Software uses to process the data that it receives. This includes such general information as type of software, sensor offsets, sensor filtering, and tool length (which effects the offsets of other sensors in the tool string).

By using the tool editor, the pertinent information for each model can be easily changed, new serial numbers created, and new models created. The Tool Editor can be accessed from the Utilities Program in the Warrior Software Group Menu.



We suggest that a backup of the tools.ini file be made before any editing is done so that information may be recovered if mistakes are made.

Tool names, Model names, and Serial names can contain a maximum of 39 characters and cannot have any spaces.

Data Export	Depth Correction		
Export to LAS Format	Apply Linear Depth Shift to a Dataset		
LIS <mark>/I</mark> NSITE	Apply Linear Depth Shift to a Data Item		
Export to ODBC Compatible Database	Data Management		
Extract Pass(es) to New Database	Create an Alias for a Data Item		
Export via Internet	Multiple Pass Automerge		
Interpretation Tools	Edit Variables in a Dataset		
Mathpack	Create Variables in a Dataset		
XY Plot	Create Waveform Gate Curves		
Tracer Interpretation	Create CCL Curve from Keyboard		
Create Differential Curve	Delete Data from a Database		
Create Total Dissolved Solids Curve	Undelete Data		
Calculate Borehole Volume from Caliper	Change a Name		
Calculate Rxo/Rt & Rwa	Edit a Log Curve		
Pipe Tally	Select Correlation Curves for Database		
Curve Normalization	Data Import		
Log Summary Generator	Read ASCII Data into Warrior		
Setup Tools	Read LIS Data into Warrior		
Calibrate Printer	Import ODBC Data into Warrior		
Configuration Backup/Restore	Create Log Format from Dataset		
Edit Logging Service Details	Import via Internet		
Edit Logging Tool Details			

FIG: 14.1 Select edit logging Tool Details

In the Fig: 14.2 through 14.7 show the way to take the tool measurements for Length and Offsets

Offset For CCL	Length of CCL Section	Diameter of Tool	Serial Number	Model





CCL Tools

Offset For CCL	Length of CCL Section	Offset For GR	Length of GR Section	Diameter of Tool	Serial Number	Model
	5 5			o 0		
	ð - 3			¢		



FIG: 14.3 Gamma Ray /CCL Tool Length and Offset



Gamma Ray Neutron CCL Tools

FIG: 14.4 Gamma Ray /Neutron/CCL Tool Length and Offset



FIG: 14.5 Single Receiver Bond Tool Length and Offset

FIG: 14.6 Dual Receiver Bond Tool Length and Offset



Bottom of Tool

Transmitter

Receiver

Receiver

Bond Section





FIG: 14.7 Dual Receiver Bond/Gamma Ray/CCL Tool Length and Offset

14.1 Editing an Existing Model or Serial Number

To edit the information for a particular tool, click the + beside the Tools icon. This will show all of the different types of tools that are currently available. Click on the + beside the type of tool that you want to edit. This will show all of the serial numbers that are available for that tool type. Next click either a Serial Number shown or click on the Model drop down list and choose a model type. Any information that is changed will be changed for all serial numbers that are of that model type.

The measuring Units used for all dimensions, sensor offsets, and filters can be selected to be entered as either English (In, Lbs.) or Metric (Cm, Kg).

The Change Tool button can be used to convert a tool to a non-serialized item such as a centralizer or weight bar. Extreme caution should be used with this button. This is to be used to convert files from older versions of Warrior, to Warrior version 8.0. If a tool is converted to a tool with no serial number, the software type and all sensor information is removed.

Tool information is entered by selecting the Model, Software, and Diagram tabs at the top of the window. Each tabbed sheet will contain specific information about the tool model.



FIG: 14.8 Tools Editor

Under Model Specific information, a brief description of the model can be given (This description will appear in the tool string diagram and in some calibration reports). The Length of the tool should be measured from tool joint to tool joint. This should be an accurate measurement in that it can effect sensor measurements for other tools in the string. The Diameter of the tool can affect services that do flowrate calculations. The combined string length, string weight, and maximum tool diameter will be presented on any tool string diagrams that are printed. Voltage and Current entries are not used by the Warrior software at this time, but can be used as a reference for the user. A check box is supplied for tools that may have a variable length that can be set at run time such as guns or sinker bars.

The Software modules to be used for logging can also be selected. The selection of the software modules will determine what sensors and filtered outputs will be available for that model of tool. Other model specific parameters may be available depending on the software modules selected. The Warrior 8.0 Software now provides for selection of multiple software modules in the same tool model although the sensors for each module are configured separately.

	Model Sof	tware Diagram				
	A	vailable software		Software in this toolstring		
CBLPROBECAL	CCL	*		SCBL		
E CBLSIE1X1	CFB		Add	>> TEMP		
CBLSIE1X2	CPIN	11				
	CWH					
⊡ CBLtest	DETE	СТ	<< Rer	nove		
	DILW	AH				
CCL_SHI	EIEM	r *				
	Cothurse Co.					
	Sultware Spi	ecilic (SCBL) —				
			Sub tool n	ame CS8SCBL_SCBI	_ Change	
	Sensor	Offset (in)		Filter Typ	e Length	
	WVF3FT	0.00		AMP3FT	0.00 🔺	
CS8SCBL	WVFCAL	0.00		AMPSET	0.00	
E CSSMRAD (Comp	WVFSUM	0.00		AMPSUM	0.00	
CSSM	WVFTIRI	0.00		AMPTIRI	0.00	
	WVFT1R2	0.00	-	AMPT1R2	0.00	
A CTI	inter rent	0.00				
CWH		Model		Serial	Number	
4 III	Invert =	NO		[
	spread =		â			
	sonic_seq	=	1			
English C Metric	BaselineZ	eroShift =				
	SendTTsTo	Sensors =				
		Terral Trailer	-			

FIG: 14.9 Select Tool Model

Sensor Offsets should be measured from the lower makeup joint of the tool. Note that the sensor measurement for a source / detector or transmitter / receiver pair is half way between the two points. To change a sensor offset, double click on the sensor to bring up the edit box. Enter the appropriate measurements and click save.

in

FIG: 14.10 Set Offset

To change a filter setting, double click on the appropriate sensor. There is a drop down list for the different filter types. Square filtering should be used with sensors that would change slowly, such as Tool Voltage, while Gaussian filters should be used with statistical sensors, such as Gamma Ray. The longer the Filter Length, the more pronounced an effect the filtering would have.

Filter Type	Gaussian	-	Filter Length	3.28	ft
	Save			Cancel	

FIG: 14.11 Select the Filter Type and Filter Length

For some software modules, a specific Cal Report (Calibration Presentation) can be selected for the tool model.

The Model area contains information that is again determined by the software type. The Serial Number section is used for limited types of tools at this time.

14.2 Tool Diagrams

The diagram section of the tool editor allows the used to select or create tool diagrams for the tool model. If no Name is entered, the tool will be represented in tool string diagrams as a rectangle with the length and diameter given in the Model Specific area. The browse button next to the name box can be used to select an existing Warrior tool diagram. The selected tool diagram will now appear in the diagram window. The Zoom button can be toggled to change the display to see the complete width that will be displayed in a tool string diagram, although the length may not be to scale.

e Create Delete Copy Tool C	nfiguration Help
⊕ 1 CAP ⊕ 1 CBL CBL ⊕ 1 CBLFARDEC E ⊕ 1 CBLFROBEC E ⊕ 1 CBLSTEN1 E ⊕ 1 CBLSTEN2 E ⊕ 1 CBLSTEN2 E ⊕ 1 CBLSTEN2 E ⊕ 1 CCL E ⊕ 1 CSS_CBL E ⊕ 1 CSS_CNL E ⊕ 1 CSS_CNL E ⊕ 1 CM E © CMH Col © Egat	Model Software Diagram Name 275CSS6CBL Paste from clipboard Paste Undo changes Undo Enbedded Diameter 3.13 Move Diagram Shift up/dn \div Shift // \cdot Save Save As Zoom

FIG: 14.12 Select Diagram

If you want to create your own tool diagrams using a third party graphics package, the only requirement is that the output file format be either Windows Metafile (*.wmf) or Windows Enhanced Metafile (*.emf). Once you have created the file, copy it to your C:\ProgramData\Warrior\Format directory and rename it to (*.wtd) for Warrior Tool Diagram.

In order for any diagram to line up when it is placed in a tool string, it needs to be modified by using the Tools Editor. Select the diagram you want to edit from the Tools Editor and the image should appear on the right side of the window. A red box will appear also which indicates the location where the image should appear in order for it to line up with another image of the same diameter. It is important that the image be sized using the proper diameter. If you have two devices that you want to use the same image for but they have different diameters, then you need to save two different tool diagrams, one for each diameter.

To size the image, use the buttons to change the width and height as well as shift the image up/down and left/right. You can also use the mouse to drag the image into position. The mouse moves the image by clicking and dragging from the appropriate portion of the screen.

Some tools, such as centralizers, may extend outside the red box.

When you click the save button, the image gets written to disk and then read back and redrawn to verify that the save was done properly.

FIG: 14.13 Select Zoom

In the zoom mode, the red rectangle reflects the appropriate length and diameter specified for the tool. The user can now use the controls in the Move Diagram box to resize and configure the drawing as needed to shift the drawing **left/right** or **up/down** or to **widen/narrow** or **lengthen/shorten** the drawing. Ideally, the body of the tool should fit the red rectangle, with external components (centralizer springs, etc.) allowed to extend outside of the red rectangle.

Within the red rectangle, there are four quadrants. The mouse can be used in each of these quadrants to configure the diagram in the same manner as the Move Diagram controls. By clicking the mouse in the top quadrant and dragging it up or down, the diagram will move up or down. Clicking and dragging up or down in the bottom quadrant will lengthen and shorten. Clicking and dragging to the left or right in the left quadrant will move the diagram left or right. The right quadrant will widen or narrow the diagram.

Once the diagram has be resized and configured as desired, the **Save** and **Save As** buttons can be used to save the diagram as a Warrior Tool Diagram. The Save button will replace the existing diagram that was called up. Be aware that if any other model of tool uses this diagram, the drawing will be changed for that model also. The **Save As** button will prompt you for a new file name.

The Undo button, will undo any changes that have been made since the file was opened or since the last Save or Save As.

The user can create his own tool diagrams by pasting from the Windows Clipboard. Using a drawing application, you create the initial tool drawing. Then copy it onto the windows clipboard (**Edit – Copy**, right mouse click **–Copy**, etc). When the paste button in the tool editor is clicked, you are first prompted to enter or select a file name for the drawing. When the file name is saved, whatever is on the Windows Clipboard is displayed in the diagram window. The drawing should then be reconfigured as described above to fit into the red rectangle. Finally it should be saved again after the reconfiguration.

14.3 Creating a New Serial number for an existing tool model

If you have existing tools and wish to create a new serial number, find and select the serial number of an existing tool in the tool drop down list. Then on the menu bar, click **Create** - **Tool**. The New Tool dialog window will then come up and show the selected tool type, model type, the software module being used, and a list of existing serial numbers for that tool type. Enter a new serial number in the New Serial Number box and click **OK**. The new tool will use the same physical dimensions, sensor offsets, filters, and tool diagram as the model of the selected tool.

Tool .	Model	Software	Diagram
CBLGEARHART CBLPROBE CBLPROBECAL CBLPROBECAL	Model	CSSMRAD	×
	Description	Computer S	onics Multiplexed CSSM Sector Bond
	Length	76.50	in Tool has variable length (enter default value)
Eltest	Weight	100.00	Ib TOver body type tool, does not affect tool string length
in A CCL_SHT in A CCLL	Diameter	3.13	in
	Voltage		v
	Current		mA
CS8_GR_TEL CS8SCBL CSSSMRAD (Comp CSSMRAD (Comp	Prefix		(only for special cases where tool software is used multiple dissimilar tools)
In A CSS_CNL In A CTL In A CWH			
bl			
English C Metric			
Change Tool			

FIG: 14.14 Select Tool

Fool type		
Logging tool	C Tool accessory	
Properties		
Category (optional)		<u>_</u>
Tool	CS8SCBL	
Model	CSSMRAD	•
🗖 Over body type (does no	ot affect tool string le	ngth)
Software Available software		Software in this toolstring
CCL CFB CFB CNTP CPLNLL CWH DETECT DILWAH DIPM ELECT	Add >> << Remove	SCBL TEMP
Serial Numbers New Serial Number		Existing Serial Numbers
0001	CSSI	A
	1	

FIG: 14.15 Type the new serial

14.4 Creating a new tool type or a new model for existing tool

To create a new tool, click on the **Create** selection in the Tools Editor menu bar. To create a new tool type, click the Tool drop down list and click on the first item in the list, <new tool type>.

You will then be prompted to enter a new tool type. - Be aware that any new tool that you have created can only be used if a Service in Services. INI lists that tool type as one of its available tools.

If you are creating a new tool type, the Create New Model Type box will appear. If you are going to create a new model for an existing tool type, once the tool type has been selected from the Tool drop down list, from the Model drop down list, select the first item in the list, <new model type>.

Tool type			
Logging tool	C Tool acc	essory	
Properties			
Category (optional)			
Tool	<new td="" too<=""><td>l type></td><td></td></new>	l type>	
Model			-
C Over body type (do	es not affect too	string length)	
Software			
Available software		S	oftware in this toolstrin
	121		one>
ate new tool type			
ew tool type	-		
OK	Cancel		
		·	
Serial Numbers			
New Serial Nur	nber	Existin	ng Serial Numbers
27			
		1	
	ок	Cancel	1
	- 12 C	<u>11 (2007/2008</u>	

FIG: 14.16 Select new tool type and create a new tool type

Tool type		
Logging tool	C Tool accessor	ry
Properties		
Category (optional)		-
Tool	<new td="" tool="" type<=""><td>e> _</td></new>	e> _
Model	<new model="" td="" ty<=""><td>ype></td></new>	ype>
C Over body type (does	not affect tool string	g length)
Software		
Available software		Software in this toolstring
loci		<none></none>
ate new model type for		
au madal tama		
ew moder type		
ок	Cancel	
Serial Numbers		
New Serial Numb	er	Existing Serial Numbers
1 1 1		
1	£%	
	1	

FIG: 14.17 Create new model type

Tool type			
Logging tool	C Tool acc	essory	
^p roperties			
Category (optional)			×
Tool	GR		•
Model	GR_01		•
🗖 Over body type (does)	not affect tool	string length)	
Software			
Available software	_	Softwa	are in this toolstring
DIPM	Add	GR	
ELOG	- Nuu	~	
EDP			
FREEP	ZZ Ba	move	
GPACK			
GR			
GWMTT	1	1	
Serial Numbers			
New Serial Number	er	Existing S	erial Numbers
[SDSDEMO	
5		275	-
		275_Top	
		GRBA2_7H	
		GRS2 7G	+
		101102_10	

FIG: 14.18 Select GR software for GR tool.

You will then be prompted to enter a new model type. For any new model type, the software module(s) to be used must be selected from the software drop down list and then click the **ADD>>** button.



Tool names, Model names, and Serial names can contain a maximum of 39 characters and cannot have any spaces.

Continue selecting and adding software modules as need to include all of the sensors in the tool. A list of sensor for the different software modules is included at the end of this section (Software Module Description).

The last step is to enter a New Serial Number. An Existing Serial Number drop down list is provided so that duplicate serial numbers are not entered.

Certain software modules will allow you to also create a new sensor. Note that all boxes of the Sensor Details section must have data entered for the created sensor to work properly. The Sensor is the name that you wish to have as an output; it cannot be a duplicate of any sensor that would be in the same string of tools. The Units can be chosen and printed on the log insert and calibration reports. The Description can be printed on calibration reports that include this sensor.

Once the basic sensor has be created and saved, reciprocal and/or differential outputs can also be created for the same sensor.

Sensor Deta	ils			
Offset	in	Filter Type	✓ Filter Length	ft
Calibration	-	Calb Time sec	Telemetry ID	
Units		*		
Description	í -			
Vorifications	Number of Sample P	ointo		
Master Verifi	cation Pr	e and Post Surveys	AdHoc Survey	Show References
Reciprocal C	Output			
Enable	Name	Units		w.
Description			,	(1000-00))
Differential C	lutput			
Enable	Name	Units		~
Description			,	
Interval	(inter	val in length (ft) or time (sec))		
Options	k draud			Γ
Options Real Time C	diput			

FIG: 14.19 Create a new Sensor

14.5 Creating a Tool

As an example, we will go through the steps necessary to create a new tool sting for a Gearhart COSMOS GR/N tool. One version of the Gearhart COSMOS Gr/N tool is a single tool that is approximately 7 ¹/₄ feet long and 1 11/16" in diameter, has a total weight of 25 pounds, and has three sensors, gamma ray, collar locator, and neutron. There are two different ways that we can create this tool. We can break it up into three separate tool types, with each type having its own software module. Or, we can make one tool type that has three software modules. We will do an example of each way.

State -	Di Sancia					
Serary Other (t)	Sector and	Desciption	Lings (t	G.D. bri	Weglt: (k)	a Access ton
		GR COSMOS CARDEN (2.28	10	10.04	
		CEL COMPO (SMISSIO) Manual Compo (S. Manie	132	10	1.00	
		MERCENNER (2008) Neural Classific Lawrence	4.00	10	5.0	
		_				Genera ini Add

FIG: 14.20 Tool string editor

First we will do the three separate tool types with each type having its own software module.

The first tool we will create is the neutron. Open the tool editor and click **Create** – <u>T</u>ool. Scroll down the Tool drop down list to NEU (if not in the list, click <New Tool Type> and enter NEU). Now enter a Model name by clicking on the model drop down list and clicking <New Model Type> and entering COSMOS (if not already in the list). Use the Software drop down list to pick NEU software, and it to. Enter a unique serial number (CMOS001) in the New Serial Number box. You should now have a tool created but with no information for it as shown.

ew Tool			
- Tool type			
Logging tool	C Tool accessory		
Properties Category (optional) Tool Model Over body type (doe	NEU COSMOS stort affect tool string length)		
Software Available software GRADIO GWMTT INCL MAC MAC NOISE ONT Serial Numbers New Serial Num [CMOS001	Add >> NEU Add >> Existing Serial Numbers 27550 NEU1_EV NEU2_7M SDSDEMO CMOS	File Create Delete Copy Tool Image: Strain S	Configuration Hdp Model Software Diagram Model COSMOS • Description • • Length 0.00 n Tool has valiable length (enter default value) Weight 0.00 b © Over body type tool, does not affect tool stimp length Diameter 0.00 n • Votage V • Current mA • • • Pedix • • •
	OKCancel	Change Tool Egit Save Tool	

FIG: 14.21 Select Tools Editor

∃ Å FREEP ∃ Å GAMMA_GUN	<u>Model</u>	Software Diagram
GDO GGun	Model	COSMOS
	Description	Gearhart COSMOS Neutron Section
± 0 GR_CCL	Length	48 in Tool has variable length (enter default value)
∃ (GR2 ∃ (GRADIO	≡ Weight	15 lb
incl	Diameter	1.69 in
₩ A MAC	Voltage	V
	Current	mA
A NEU Cosmos Cosmos	Prefix -	(only for special cases where tool software is used multiple dissimilar tools

FIG: 14.22 Select Model

Now we will have to enter all of the information for our COSMOS model of neutron tool. The length from the bottom of the source to the ccl joint is 48", the weight we will guess at 15 pounds, the diameter is 1 11/16" or 1.68".

The neutron detector is 14" from the bottom of the tool, but if we measure from halfway between the neutron source and the neutron detector to the bottom of the tool we measure 8", so our NEU offset is 8". We will set the filter type to use a Gaussian 3 foot filter to start with.

	Model Software Diagram	
B → A GDO B → A GGU B → A GGU B → A GGWellMAC B → A GOWellMAT B → A GR_CCL B → A GR_CCL B → A GR_2 =	Available software CCL CFB CFB CNTP CPLNLL CWH DETECT CCC	Add >>
⊕ Å GRADIO ⊕ Å GRT ⊕ Å INCL ⊕ Å KUSTER_PL ⊕ Å MAC	DILWAH DIPM EIECT Software Specific (NEU)	
⊞∽fi ML n⊨… A MTT	Sensor Offset (in)	Filter Type Length
	NEU 8.00	NEU Gaussian 3.00
	Model	Serial Number
iii	CalbType = Two point CalbTime = 60 Units = NAPI Porosity = No CalipCor =	

FIG: 14.23 Set Sensor, Filter, and Model values

We will use a two-point calibration, and use 60-second averaging for the calibration time. We will plot our output as Neutron API counts (NAPI), and not have a porosity curve. Our completed neutron tool should look as shown.

We will use the length and diameter rectangle for a tool diagram Therefore we will not have to do anything on the Diagram page.

We now need to create our next tool – the CCL. Click on **Create** – **Tool**. Chose **CCL** from the Tool list. Check the Model list for COSMOS. If COSMOS is not in the list, chose new model type and enter COSMOS. Software should be set to CCL and a New Serial Number will need to be entered (CMOS001).

C Tool ac	cessory	
		-
CCL		_
COSMO	S	-
_<< Re	move	
umber	Existing Serial	Numbers
	020941	n na sentra i E
	C Tool ac	Tool accessory CCL COSMOS CosMOS Software Add >> CCL CCL CCSMOR Software Add >> CCL CCL CCL Software Add >> CCL Software Add >> CCL Software Soft

FIG: 14.24 Set New Tool

Logging Tools	Model	Software Diagram
	Model	COSMOS
E CBLGEARHART	Description	Gearhart COSMOS CCL Section
	Length	11 in Tool has variable length (enter default value)
	Weight	5 lb Cver body type tool, does not affect tool string length
CBLTEKCO	Diameter	1.69 in
	Voltage	V
E 275CCLog (2 3/4"	Current	mA
COSMOS CMOSODI CMOSODI CMOSODI CMOSODI A DTISU, (Robe A SDSCCL (CCL For CCL) SHT CCLL → CCL → CC	Prefix	(only for special cases where tool software is used multiple dissimilar tools)
ol ● English ← Metric		

FIG: 14.25 Set Model values

The length from the lower case to the upper case is 11 inches, we will guess at a weight of 5 pounds, and the diameter is 1.68 inches. The center of the CCL coils is 5 1/2" from the bottom case. We do not want to use any filtering with a CCL, so we set the filter to NONE and the length to 0.00 Feet. We will not set any of the model specific parameters.

	Model	Software	<u>D</u> iagram			
		Available sof	tware		Software in this t	polstring
	ICO	CL			CL	-
🗄 🧴 CBLGEARHART	CF	B	i i	Add >>		
	CF	PLNLL	-	10077		
	C	WH				
CBLSIE1X1		LWAH	1	<< Hemove		
	DI	PM	*	1		
CBLtest	C = (h					
H 000 (Casing Collar	Soliware :	specific (c	,CL)			
					_	
1 275tekco (Tekco)	Sensor	OIIS	et (1n)	Filter	Type	Length
🚊 🚹 COSMOS	CCL			CCL	None	.0.2.0.0
E CHOCODI						
E CMOS001						
CMOS001 TODE TS2MAG (Probe SDSCCL (CCL For						
CMOS001 PTS2MAG (Probe SDSCCL (CCL For TIT169L (Titan Lo						
CMOS001 B-1 PTS2MAG (Probe B-1 SDSCCL (CCL For B-1 TIT169L (Titan Lo CCL_SHT CCL_SHT						
CMOS001 CMS001 CMS001 CTS2MAG (Probe SDSCL (CCL For CCL TITIS9L (Titan Lo CCL_SHT CCLL CCLL CCL CCL		Mode	ı		erial Num	њеr
CCL_SHT	RTOULPU	mode	l	TelID =	erial Num	wer
CLLSHT	RTOUTPU Thresho Clampin	Mode t = g =	1	TelID =	erial Nun	wer
CLL CLL	RTOUTPU Thresho Clampin BaseLin	Mođe t = ld = g = eZero =	ı	TelID =	erial Num	wer

FIG: 14.26 Set Sensor, Filter, and Model values

Finally, we need to create our Gamma Ray tool. Once again click on <u>Create</u> in the menu bar. Then choose <u>T</u>ool. Scroll down the **Tool** drop down list to **GR** (if not in the list, click on **<New Tool Type>**and enter GR). Now click on the **Model** drop down list and click on **<New Model Type>**, and enter COSMOS. Click on the **Software** drop down list and choose GR software. Enter a serial number (CMOS001) in the **New Serial Number** box.

Tool type			
Logging tool	C Tool accessor	ry	
Properties			
Category (optional)			Ŧ
Tool	GR		•
Model	COSMOS		•
🗖 Over body type (doe	s not affect tool string	g length)	
Software			- 15 - 1 (1873
Available software		Software in th	is toolstring
DIPM	A Add >>	GR	
EJECT			
FDP	1		
FREEP	<< Remove		
GPACK			
GRADIO			
IGWMTT	T	1	
Serial Numbers			
New Serial Num	ber	Existing Serial Nu	mbers
CMOS001	SI	DSDEMO	
S. C.	27	75	
	2/	/5_10p	
	G	RTB 139	
	G	RS2_7G	-

FIG: 14.27 Set New Tool

⊞- Å GAMMA_GUN ▲ ⊞- Å GDO	Model	Software	Diagram
⊞… 1) GGun ⊞… 1) GOWellMAC	Model	COSMOS	_
GR GR	Description	Gearhart C	OSMOS Gamma Ray Section
	Length	27.375	in Tool has variable length (enter default value)
CMOS001	Weight	10	b ☐ Over body type tool, does not affect tool string length
GR_01	Diameter	1.69	in
GRBA2.7H (2 3/4	Voltage	-	v
	Current		T mA
Critereco (reco (reco) Probe (Probe 2.75 Probe 275dig (Prob SDSGR (GR for T)	Prefix		only for special cases where tool software is used multiple dissimilar tools
田- │ T275GRLOG (2 3. 田- │ Tek-Co 2 3/4 (Tek			
English C Metric			

FIG: 14.28 Set Model values

We now need to enter our model specific information. A tool description can be entered if desired. The length from where the upper case makes up to the top of the tool is 27 3/8". We will guess at a weight of 10 pounds. The diameter is 1 11/16".

The center of the gamma detector on this particular model is 16.68 inches up from the CCL. We want to use a Gaussian filter of 5-foot length, since this is a GM type detector. We will set this up with a two-point calibration with a gain and offset and use 60-second averaging. The output will be plotted a Gamma Ray

API counts (GAPI). We will not do field verification. Our completed Gamma tool should look as shown below.

	Model <u>S</u> oftware <u>D</u> iagram	
i⊞ Å GGun ⊞ Å GOWellMAC	Available software	Software in this toolstring
	CCL	GR
GR	CNTP	Add >>
⊞ 0 275D_INC (2-3/4"	CPLNLL CWH	
E COSMOS	DETECT <	< Remove
GR_01	DIPM +	
🕀 🋕 GR_HA (Hobbs G		
GRBA2.7H (2 3/4 GRS1 6V (1 11/1)	Software Specific (GR)	
	Conson Offset (in)	Wilton Tone Longth
🕀 🚺 GR-Tek-Co (Tekc	GR 16.68	GR Gaussian 5.00
Probe (Probe 2.75		
+ Probe 2 /bdig (Prob		
E SDSGR (GR for T		
E A SDSGR (GR for T T275GRLOG (2 3.		
B A SDSGR (GR for T D A T275GRLOG (2 3, D A T275GRLOG (2 3, D A T26-Co 2 3/4 (Tek		
H H Probe2/3dig (Prot SDSGR (GR for T) T275GRLOG (2 3) T275GRLOG (2 3) Tek-Co 2 3/4 (Tek H Tek-Co 2 3/4 HT		
E 0 Probe2/3dg (Prob ⊕ 0 SDSGR (GR for Ti ⊕ 1 T275GRLOG (2 3. ⊕ 0 Tek-Co 2 3/4 (Tek ⊕ 0 Tek-Co 2 3/4 HT ⊕ 0 TRANCL (1 11/16 ⊕ 0 TRANCL (1 11/16	Model	Serial Number
B 0 Probe2/3dg (Prob B 0 SDSGR (GR For T) C 1275GRLOG (2 3) B 0 TexCo 2 3/4 (Tek C 1275GRLOG (2 4) B 0 TexCo 2 3/4 HT B 0 TIANPL (1 11/16 HT TANPL (1 11/16	Model CalbType = Two point	Serial Number TelID =
B→0 Probe2/5dg (Prot B→0 SDSR (BR for Ti B→0 T275GRLOG (2 3, B→0 Tek-Co 2 3/4 (Tek B→0 Tek-Co 2 3/4 (Tek)B→0	Model CalbType = Two point CalbTime = 60 Units = GAPI	Serial Number TelID = C86 = C87 =
B → 0 Frobe 2/5 dg (Prot B → 0 SDSR (BR for Ti B → 0 T275GRLOG (2 3) B → 0 Tek Co 2 3/4 (Tel B → 0 Tek Co 2 3/4 (Tel B → 0 TEk Co 2 3/4 HTi B → 0 TTANPL (11/1/1 Tron de)	Model CalbType = Two point CalbTime = 60 Unite = GAPI Verify = Wo	Serial Number TelID = C66 = C87 = C88 =
B → 0 Probe_2/3dg (Prot B → 0 SDSR GR for Tr B → 0 T275GRLOG (2 3, B → 0 Tek-Co 2 3/4 (Tek B → 0 Tek-Co 2 3/4 (Tek	Model CalbType = Two point CalbTime = 60 Units = GAPI Verity = No TelTD = cd = _	Serial Number TelID = C66 = C7 = C68 = C99 =

FIG: 14.29 Set Sensor, Filter, and Model values .

This completes all three sections for the tool being set up as separate tool types. To use this tool in a service, the service must include each of the separate sections in the list of available tool types (GR, CCL, and NEU). When the service is selected from acquisition and the tool string editor comes up, the proper configuration must be set up (GR on top, CCL in the middle, and Neutron on bottom), and the serial number for each section should be selected.

Now we will go through the same process of creating the tool, but will use a single tool type with all three software modules.

Click on <u>C</u>reate, then <u>T</u>ool. Click on the tool drop down list and choose new tool type. Enter GR_N_CCL for the tool type. For the new model type, enter COSMOS. Choose and add the GR, CCL, and NEU software modules. Enter CMOS001 for a serial number.

Fool type				
Cogging tool	C Tool a	ccessory		
Properties				
Category (optional)	Γ			Y
Tool	GR_C	CL_NEU		•
Model	COSM	IOS		•
Dver body type (doe	s not affect to	ool string leng	ih]	
Software Available software			Software in this t	oolstring
CCL CFB CNTP CPLNLL CWH DETECT DILWAH DIPM ELECT	A (1)	dd >>	CCL GR NEU	
Serial Numbers	ber	F	visting Serial Numb	ers
CMOS001		CMOS	001	013
		1		

FIG: 14.30 Set New Tool

Create Delete Conv Tool C	onfiguration Help	n.	
$\begin{array}{c} \hline \\ \hline $	Model Sc Model Sc Description [Length [Weight [Diameter [Voltage [oftware Diagram COSMOS Gearhart COSMOS Gamma Ray CCL Neutron 77.38 in Tool has variable length (enter default v 35 lb Over body type tool, does not affect too 1.69 in V	alue) I string length
GAMMA_GUN ⊕ à GDO ⊕ à GDO ⊕ à GOWelMAC ⊕ à GOWelMTT ⊕ à GR_CCL ⊕ à GR_CCL NEU ⊕ à GR_CCL NEU ⊕ à COSMOS ↓ ⊕ COSMOS ↓ ⊕ COSMOS ↓ ⊕ COSMOS ↓ ⊕ COSMOS ↓ ⊕ COSMOS	Volage Current Prefix	60 mA (only for special cases where tool software is un	sed multiple dissimilar tools)

FIG: 14.31 Set Model values

The overall tool length is 77 3/8", weighs 35 lbs, and is 1 11/16" OD. This information is entered into the Model page. We measure the CCL from the bottom of the tool to the middle of the coils as 44.5 inches. The Gamma Ray detector is 66 5/8" from the bottom of the tool. And the Neutron measure point is 8 inches as in the previous example. For each software type, we will have to set up the appropriate sensors using these offsets. We will do the CCL module first. The offset is 44.5 inches. The rest is set the same as the previous

example. We do not want to use any filtering with a CCL, so we set the filter to NONE and the length to 0.00 Feet. We will not set any of the model specific parameters.

	Model	<u>S</u> oftware	<u>D</u> iagram	
CS8_GR_TEL		Available soft	ware	Software in this toolstring
⊢≬ CSS_CNL	CC	E B	*	Add >> GR
⊢ÔICWH ≣ ⊢ÒIDIL	CF			
	DE	TECT LWAH		<< Remove
⊢∆ FBT ⊢A FDR		PM	•	
- A FDT	Software S	Specific (C	CL) ——	
⊢≬ FREEP ⊢∱ GAMMA GUN		_		Sub tool name GR_CCL_NEU_CCL Change
GDO	Sensor	Offse	t (in)	Filter Type Length
GGun	COLL	44.3	010	ICL None 0.00
GOWeIMAC				
GR_CCL				
GR_CCL_NEU	1.5			
E Gearha		Model		Serial Number
	RTOutput	t)=		TelID =
	Thresho	ld =		
English C Metric	BaseLin	eZero =		
Langua, , Metric	Digital	Sain =		

FIG: 14.32 Set Sensor, Filter, and Model values

To edit the Gamma Ray sensor, click on the GR software in the list. The sensor offset is 66.68 inches. The rest of the information is the same as the previous example. Gaussian 5-foot filter, two point calibration, 60-second calibration averaging, output as Gamma Ray API counts (GAPI), and no field verification.

	<u>M</u> odel	Software Diagram	1		
GS8_GR_TEL CS8_GR_TEL CS8SCBL		Available software		Software in this too	lstring
B - Å CSS_CNL B - Å CTL B - Å CWH ≡ B - Å DIL B - Å DIL B - Å DTD B - Å ETT		CL PROVIDENT OF CONTRACT OF CO	Add >>	CCL GR NEU	
È À FBT → A FDR → A FDT → A FDT → A FREEP	Software S	PM IECT Specific (GR)	Sub tool name	R CCL NEU GR	Change
GAMMA_GUN	Sensor	Offset (in)	Filter	Type	Length
GGun GGun GOWellMAC GOWellMAC GR GR GR GR GR GR GR GR GR GR	GR	66.68	GR	Gaussia	in 5.00
G GR_CCL_NEU		Model		Serial Numb	er.
TII >	CalbTyp CalbTim Units = Verify TelID = Unfilte GR Scal	e = Two point e = 60 GAPI = NO red = er Variable =	TelID C86 = C87 = C88 = C89 =		

FIG: 14.33 Set Sensor, Filter, and Model values

A CNT	Model Software	<u>D</u> iagram		
E CS8_GR_TEL	Available	software	Software	in this toolstring
CSS_CNL	CCL		CCL	
± CTL	CFB		Add >> GR	
	CPLNLL			
	DETECT	13	< Remove	
ETT	DILWAH	-	CC Homove	
±⊢≬ FBT	DIPM	*		
in for		A.F. D		
	-Software Specific	(NEU)		
		Sub	tool name GR_CCL_NEU	_NEU Change
	Sensor Off	set (in)	Filter Ty	pe Length
	NEU 8.	0 0	NEU G	aussian 3.00
H A GOWelMAC				
GOWellMTT				
🗄 🗴 GR				
1 T T T T T T T T T T T T T T T T T T T				
∃- 💧 GR_CCL				
na GR_CCL and GR_CCL_NEU				
⊡ _ A GR_CCL ∃ _ A GR_CCL_NEU ⊡ _ A COSMOS (Gearha	Mod	101	Coria	Mumber
B GR_CCL GR_CCL_NEU B GR_CCL_NEU COSMOS (Gearha	Mod	lel	Seria	L Number
B-↑ GR_CCL B-↑ GR_CCL_NEU B-↑ COSMOS (Gearha TI GR2 H GR_CCL	Mod CalbType = Two CalbTime = 60	lel o point	Seria	L Number
an û GR_CCL → û GR_CCL_NEU ⊕ û COSMOS (Gearha 	Mod CalbType = Tw CalbTime = 60 Units = NAPI	del o point	Seria	L Number
an â GR_CCL_NEU → â GR_CCL_NEU Bh â COSMOS (Gearha III → â Englieh C Metric	Mod CalbType = Tw CalbTime = 60 Units = NAPI Forosity = No CalipCor =	del o point	Seria	L Number
English C Metric	Mod CalbType = Tw CalbTime = 60 Units = NAPI Porosity = No CalipCor =	lel o point	Seria	L Number

FIG: 14.34 Set Sensor, Filter, and Model values

Select NEU software to edit the neutron senor settings. Our NEU offset is 8", Gaussian 3 foot filter, two point calibration, 60-second averaging, and output as Neutron API counts (NAPI), and not have a porosity curve.

14.6 Deleting Tool Entries

Options are available under the **Delete** selection of the menu bar. Sensors, Serial Numbers, Models, or Tool types can be deleted. Be careful in deleting information. Read the whole confirmation box closely. You would not want to lose a whole tool type when you meant to delete only a serial number.

If a tool model has a user-defined sensor, click on the **Sensor** listed in the software specific area, and then clicking on **Delete** -> **Sensor** will remove that sensor from the tool model.

le Create	Delete Copy Tool (Configuration	Help
	Category Tool type Model Serial Number Sensor	del	Software Available CCL CFB CNTP
	DR DT E REEP AMMA_GUN DO Gun		CPLNLL CWH DETECT DILWAH DIPM



If a specific tool serial number has been selected from the tool list, then clicking on **Delete -> Serial Number** will remove that specific tool serial number from the tools.ini file.

If a tool type has been selected from the tool list, then clicking on **Delete** -> **Model** will provide a drop down list of models of that type of tool. Selecting a specific model and clicking **OK** will allow you to delete that model only if no serial numbers are currently set to that model type.

If a tool type has been selected from the tool list, then clicking on **Delete** -> **Tool Type** will delete all information for that type of tool. This includes all serial numbers and model information for any tools that are of that tool type.

Model	соѕмоѕ
OK	Cancel

FIG: 14.36 Delete model for GR

14.7 Saving Calibrations

Calibrations can be saved to disk or restored. This is meant to be an aid in the transfer of calibrations between different units or to transfer tool type and model information from one unit to another.



FIG: 14.37 Select Tool and serial number

On the menu bar click on **Tool Configuration**, then click **Export.** Only one tool type can be selected, but as many serial numbers as desired can be placed into the file. The model information for each selected serial number can also be included. The file is given a WBU extension but is a mini tools.ini file if the model information has been included. When the **Save** button is clicked, the save dialog box is brought up. The default is file name is the tool type and it is saved into the Warrior\Config directory. You can change the drive, folder, and name of the file.

Organize 💌 New folder	-		0
Organize Vew folde Google Drive Warrior Data Warrior Config Libraries Documents Music Pictures Videos	Name tekco PROBE UniTool Warrior 8 Services.serv.wbu ShootingColors.serv.wbu Probe 60 Arm Caliper w-Thickness.serv.wbu Hotwell ODT.serv.wbu CH_80.serv.wbu Sondex_80.serv.wbu RCBL_NextGen.serv.wbu Noisis team tool hou ubu	BEE V Date 10/10/2012 7:50 AM 11/21/2013 10:39 AM 11/21/2013 10:39 AM 11/21/2013 3:50 PM 10/21/2013 3:52 PM 9/20/2013 3:55 PM 9/20/2013 3:55 PM 9/20/2013 3:56 PM 8/27/2013 2:16 PM	
Homegroup Computer S_Win_64 (C:) OS_Win7_32 (D:)	Quantum Temp Log and Noise.serv.wbu Quantum Temp Log and Noise.serv.wbu Quantum Temp Log.serv.wbu SSB.serv.wbu	8/14/2013 9:34 AM 8/14/2013 9:34 AM 8/14/2013 8:06 AM 8/14/2013 8:06 AM 8/2/2013 3:57 PM	•
File name: xipe Save as type: Back u	p to (*.tool.wbu;* <mark>.serv.wbu)</mark>		

FIG: 14.38 Save Xipe calibration

and the set of the set of the

If you select an existing WBU file, you will be given the option of appending to the file or overwriting the file.

Select Tool XIPEMAC				
Serial Numbers 10112	E.			
- Restore as this type of tool C Logging tool C Tool accessory				
Restore model only ✓ Restore model info also	Copying tool information			
Created Fri Dec 27 14:25:50 2013	Т	ool XIPEMAC-10112 ex	ists already, overwrite	?

FIG: 14.39 Save XIPE

To restore calibrations, click on **Tool Configuration** on the menu bar, then click **Import**. When the dialog box appears, select the saved file from the appropriate drive and directory. Then select as many serial numbers as desired to be restored.

		23	
Software	Description	Sensors	Outputs
CBL	Cement Bond Log – 1 and 2 receivers	3FT, 5FT	AMP3, AMP5, TT3, TT5
CCB	Obsolete – USE SCBL		
CCL	Casing Collar Locator		CCL
CDLG	Compensated Density Log	LSD, SSD, DCAL, PER	LSD, SSD, DCAL, PER, RHOB, RHOC
CFB	Caged Full Bore (Spinner Tool)	User Defined	FRATE, FDIR
CNTG	Obsolete – USE CNTP		
CNTP	Compensated Neutron Tool	CNLSC, CNSSC, (NCAL)	CNLSC, CNSSC, CNRAT, CNLS, CNSS, CNDL, CNAD, CNPOR, CNPORU, (NCAL)
CWH	Capacitive Water Holdup	CWH	CWH
DETECT	Tracer Detector	DET	(Outputs are derived from EJECT)
DILG	Dual Induction Log - Gearhart	CILD, CILM, RLL3, SP, (CLL3)	CILD, CILM, CLL3, RILD, RILM,
DILP	Dual Induction Log - Phoenix	CILD, CILM, RLL3, SP	CILD, CILM, CLL3, RILD, RILM,
DILWAH	Dual Induction Log - Hotwell	ILD, ILM, LL8, SP	CILD, CILM, CLL8, RILD, RILM,
DIPM	Dipmeter	PAD1-PAD6, PADF, CAL1- CAL6, EA, EB, EC, EX, EY, EZ	PAD1-PAD6, PADF, CAL1-CAL6, INCL, RB, AZI, BDIR, GFLD, BFLD
DLL	Obsolete – USE DLLP		
DLLP	Dual Lateral Log	VD, VS, ID, IS, DLLCAL	VD, VS, ID, IS, RLLD, RLLS, CLLD, CLLS

Software Module Descriptions

FIG: 14.40 Software Module Descriptions

	QPS	PRESTEMP	PNXFLOW	PIA		NOISE	NEU	MSISPM	MSFL	ML	MAGN	MAC	LTH	Ē	GR	GPACK	FREEP	FDP	ELOG	Software	EJECT
	Quartz Pressure / Temperature	Pressure - Temperature	2	5		NOISE	Single Detector Neutron	?	MICRO Spherically Focused	MICRO-LOG	MAGNOTOMETER?	Multi- Arm Caliper	Probe Litho- Density	INDUCTION ELECTRIC Log	Gamma Ray Tools	GRAVEL PACK Tool	Free Point	FLUID DENSITY - Sondex	DETEQ ELOG tool	Description	Tracer Ejector
2 19 19 19 19 19 19 19 19 19 19 19 19 19	OP. OTMP	USER - DEFINED	5	2. 2	(200Hz, 400Hz, 1000Hz, 2000Hz, 4000Hz, 6000Hz)	RANGE1, RANGE2	NEU	2	MSFL, MSFLCAL	MN, MI, MCAL, MSFL	2	MIN, MAX	DCAL W2, W3, W4, SSD, Q,	DIC, SN, SP	GR	2	FREEP	FDEN	IEE, VSN, VLN, SP	Sensors	- none -
	PRES. TEMP	USER - DEFINED	~>	2	4000HZ, 8000HZ	200Hz, 400Hz, 1000Hz, 2000Hz,	NEU, (NPOR)	2	MSFL, MSFLCAL	MN, MI, MCAL, MSFL	2	MIN, MAX, MINRW, MAXRW, AVG, AVGRW, PCTRW, WDIFF	LSD, RHOB, RHOC, DPOR, PE	DIC, DIR, SN, SP	GR	?	FREEP	FDRATE, FDEN, FDENC	IEE, VSN, VLN, SP, RSN, RLN, CSN, CLN, SPR	Outputs	EJECT, AREA, DET1, DET2, etc.

FIG: 14.41 Software Module Descriptions

XYC	USR	TEMP	TCC	SWNP	STD	SLTN	SLT	SGR	SFT	SCBL
XYCaliper	USER DEFINED TOOL	Temperature	2	Sidewall Neutron	STANDARD – (Truck Settings)	Obsolete – USE SLT	Sonic Logging Tool	Spectral Gamma Ray	Sequential Formation Tester	Sector Cement Bond Log Compensated Cement Bond Log (BOND TOOLS WITH SEP ARATE CAL SIGNAL WAVEFORM) CAL SIGNAL WAVEFORM)
XCAL, YCAL	USER DEFINED SENSORS	TEMP	-2	SWN, SCAL	- none -		TT1, TT2, TT3, TT4, WVF1, WVF2, WVF3, WVF4	SGR	SPRES, HPRES, VTIX, SWPOS	WVFCAL, WVF3FT, WVF5FT, WVF11R1, WVF5FT, WVFT1R1, WVFT2R2, WVFT2R1, WVFT2R2, WVF51, WVFS2, WVF53, WVFS4, WVFS5, WVFS6, WVFS4, WVFS8, WVFS6, WVFS7, WVFS8, WVFS9NC, WVFSUM
XCAL, YCAL	USER DEFINED	TEMP, DTMP					DT, AMP1, AMP2, AMP3, AMP4	K, U, T, GR, GRUF		AMPCAL, AMP3FT, AMP5FT, AMPT1R1, AMP3FT, AMP5FT, AMPT1R1, AMPT1R2, AMPT2R1, AMP51, AMP52, AMP53, AMP72R3, AMPS5, AMP56, AMP53, AMP54, AMPS1M, TTCAL, TT3FT, TT5FT, TTT1R1, TTT1R2, TT3FT, TT5FT, TTT2R2, TTT3R1, TTT3R2, TTS1, TTS2, TTS3, TTS3, TTS4, TTS5, TTS6, TTS7, TTS8, TTSUM

FIG: 14.42 Software Module Descriptions

14.8 Accessory Tools

These tools such as centralizers, sinker bars knuckle joints etc, have no measurement. The only thing they affect in the tool string is the depth offsets of the other sensors and the tool diagram. If they are Overbody tools they will not affect depth offsets either. In the Tools Editor they are separate from the Logging tools.

Logging Tools Accessory Tools	Model	Software	2iagram
BullPlug Cablehead	Model	-	T
	Description		
⊡ ELE_SWIVEL ⊡ Overbody	Length	0.00 in	Tool has variable length (enter default value)
⊞-B SST-CEN ⊞-B Tek	Weight	0.00 lb	Over body type tool, does not affect tool string length
⊡ Titan ⊡ ∭ X-OVER	Diameter	0.00 in	
	Voltage	V	
	Current	m	A.
	Prefix		(only for special cases where tool software is used multiple dissimilar tools)
• English (Metric			

FIG: 14.43 Accessory Tools

To create a new Accessory Tool is similar to creating a new logging tool, select create > Tool from the menu. This will bring up the New Tool window, in this case you will want to ensure that the "Tool accessory" radio button is selected. Notice that Category is now optional. You can now select an existing tool or a new tool type, If you select new tool type you will be prompted for a name, then a name for new model type. Once selected you can check the "Over body type" this is used for centralizers such as Gemcos and will not affect depth offsets. Now if you desire you can use a serial number but it is not required.

ool type	
C Logging tool C Tool a	ccessory
roperties	
Category (optional)	•
Tool New	
Model	
Over body type (does not affect to	ol string length)
oftware Available software	Software in this toolstring
CCL A	dd>> <none></none>
CNTP	
CPLNLL CWH	lemove 1
DETECT	ienuve _
DIPM +	
	1
erial Numbers	Edulus Catal Nuclear
New Senal Number	Existing Senar Numbers
	1

FIG: 14.44 New Accessory Tools

You can now enter a description, tool length, Diameter and Weight. You have another opportunity to select Over body type. Here you will also notice a check box to select "Tool has Variable length" if you chose this option the length you enter here will be the default but when the service loads you will be prompted with the option to change the length.

Tool Model Software Diagram Accessory Tools Model Tool Image: Construction of the software BullPug Model Tool Image: Construction of the software BullPug Image: Construction of the software Diagram BullPug Image: Construction of the software Image: Construction of the software BullPug Image: Construction of the software Image: Construction of the software BullPug Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software Image: Construction of the software		ol Configuration Help	Tools Editor le Create Delete Copy To
BullPlug Model Tool CENT Description Tool for testing CENT Description Tool for testing ELESWVEL Length 3 in Mew Length 3 in ✓ Tool has variable length (enter default value) Structure Structure 2.75 in ✓ Tool has variable length (enter default value) Structure Tan Value 0 © Over body type tool, does not affect tool string length Structure Tan Voltage V V Structure Current mA Prefix (only for special cases where tool software is used multiple dissimite Tool English C Metric Qhange Tool	rare Diagram	Model Softw	E _ A Logging Tools
CSRCENT CSRCE	ol 💌	Model Too	BullPlug Cablehead CENT
ELE_SWIVEL Elength In Contract of the state of the s	of for testing	Description Too	CS8CENT
Image: Structure Image: Structure <td< td=""><td>in 🔽 Tool has variable length (enter default value)</td><td>Length 3</td><td>E ELE_SWIVEL</td></td<>	in 🔽 Tool has variable length (enter default value)	Length 3	E ELE_SWIVEL
ol Carrent C	lb 🔽 Over body type tool, does not affect tool string length	Weight 10	Tool
el Tek Tran Voltage V Current MA Prefix (only for special cases where tool software is used multiple diasimile ol	5 in	Diameter 2.7	SST-CEN
B Current Cur		Voltage	± Iek
Current mA Prefix (only for special cases where tool software is used multiple dissimilit of English Metric Orange Tool		Volidgo	E X-OVER
ol	mA	Current	
ol ⊂ English ← Metric 	(only for special cases where tool software is used multiple dissimilar tools)	Prefix	
ol ☞ English ← Metric 			
ol © English C Metric Qhange Tool			
ol © English C Metric Qhange Tool			
ol © English C Metric Qhange Tool			
ol ⓒ English ← Metric 			
English C Metric <u>O</u> nange Tool		1	ol
Qhange Tool			English C Metric
			Change Tool
Exit Save Tool			Exit Save Tool

FIG: 14.45 tool Information

If you click on the Software tab you will notice that it is grayed out and is not used for Accessory Tools. The next thing to change is the tool diagram it is modified in the same way as a Logging Tool.

File Create Delete Copy Tool Image: Copy Tools Image: Copy Tools	Configuration Help Model Software Diagram Name 2.75cent Paste from clipboard Paste Undo Undo changes Undo Enbedded Diameter 2.75 Move Diagram Shift U/r Shift I/r Save Save As Zoom
Tool Finglish C Metric Qhange Tool Egit Save Tool	

FIG: 14.46 tool diagram

If you have selected a tool with a variable length when you load a service with your new tool you will be prompted with the following window.

	la or		ОК
Length	0.25	ft	Cancel

FIG: 14.47 Edit length of New tool

If you had selected an over body, you would be able to potion it anywhere in the tool string without affecting the stack length.



FIG: 14.48 Over Body

14.8 Multiple Similar Instruments

In certain instances it may be necessary to have several similar tools, such as multiple pressure tools in a production logging stack or gamma Ray detectors in an ejector service. The easiest way to acomplish tis is with the use of the Prefix function.

	≠st	*	<u>M</u> odel	Software	Diag	jram	
	SHT		Model	SDS1	_	•	
		ш	Description	Demo Too	l - Dimen	sions Invalid	
E CHD			Length	48.00	in	Tool has variable length (enter defaul	t value)
	GR_TEL CBL		Weight	25.00	ь	Over body type tool, does not affect t	ool string length
	CNL		Diameter	1.69	in		
CWH	ſ.		Voltage		v		
			Current		mA		
Constant of the second se	P MA_GUN DS1 (Demo Tool) SDSDEM01 Metric Qhange Toc	-	Prefix		Í,	(only for special cases where tool software is	used multiple dissimilar tools)

FIG: 14.49 Tool Prefix

In this example shown we will and a dual detector GR. The first step is to add a Prefix we used "Dual_" to an existing GR instrument.

Tools Editor		
e Create Delete Copy Tool C	onfiguration	Help
GAMMA_GUN A	<u>M</u> odel	Software Diagram
⊡	Model	Tek-Co 2 3/4 HT 🔹
🖻 🧴 GR	Description	Tekco 2 3/4" 500 Deg. F Logging Gamma Ray
	Length	51.13 in Tool has variable length (enter default value)
⊞- 0 COSMOS (Geama -	Weight	53.00 lb 🔽 Over body type tool, does not affect tool string length
	Diameter	2.75 in
⊞ 🛔 GRS1.6V (1 11/1€ ⊞ 🛔 GRS2.7G (2 3/4"	Voltage	120 V
GR-Tek-Co (Tekci	Current	50 mA
B→ 0 Probe (Probe 27.5) B→ 0 Probe 27.50 B→ 0 SDSGR (GR for Ti B→ 0 SDSGR (GR for Ti B→ 0 T275GRLOG (2 3. B→ 0 Tek-Co 2 3/4 (Tek B→ 0 Tek-Co 2 3/4 (Tek	Prefix	Dual (only for special cases where tool software is used multiple dissimilar tools)
English C Metric		
Change Tool		
Exit Save Tool		

FIG: 14.50 Tool Prefix Example

Once that is done click on the software tab and add another "GR" from the available software, this will and a GR\$2 to the software in the tool string and rename the "GR" to "GR\$1"

GAMMA_GUN	Model Software	<u>D</u> iagram			
	Availabl DIPM EJECT ELOG FDP FREEP GPACK GRADIO GRADIO	e software	Add >>	Software in this toolstring IRS1 IRS2	
Bond (12.3)4 GRS1.5V (111)/1(GRS1.5V (111)/1(GRS1.6V (111)/1(GRS1.6V (111)/1(GR-16k-Co (Teko GR-16k-Co (Teko GR-16k-Co (Teko GR-16k-Co (76k-Co (76k-Co) (7	Sensor of	c (GR \$2) Sub fset (in)	otoolname GR_G Filter GR\$2	R\$2 Type Len Gaussian 2.	Change .gth oo
© 001 © 002 TTTANPI (1 11 / 1 © English C Metric <u>Change Tool</u>	NC CalbType = CalbTime = Units = Verify = TelID = Unfiltered = GR Scaler Va:	del riable =	S TelID = C86 = C87 = C88 = C89 =	erial Number	

FIG: 14.51 Multiple similar sensors

Once you have your sensors added you must enter the appropriate depth offsets for the detectors, and if necessary change your tool diagram. Once that is completed save the tool and open the "Edit Logging Service Details". Here you will need to edit the sensors so that they match your instrument.

Services	Gamma Prefix					
Active	Presentation Gr-ccl.prs	Other Zero point <bottom of="" string=""></bottom>				
Probe Digital GR-CCL-NEU	Title Dual detector					
Advanced E-Line Freepoint Spartek Production Logging SLT-CAL-GR QPI - Radial Bond - SGR - QDEN - QN Temperature Log (Pos Temp Pulse) Noise Log	Use private copy of presentation Make this service available for Devices	on for all logs from this service r perforating Controls				
TEKCO Sector Bond (Canadian Style) TEKCO 2 3/4" RIB HT with I/E Temp (Shooting Collars with Shooting Panel Shooting GR CCL with Shooting Panel Titan RCBL Next Gen GOWell Caliper with MTT ASCTEL Depth Hotwell MFC_ODT Probe Casing Thickness and MFC 60 Gamma Prefix	Device1=BASE,20 Device2=AUX,20 Device3=DSP,4,script=PUL-RR,V Device4=SDSTIP,1,SYNC,CCLG/	CCLInput=Active CCLFilterFq=10 AIN				
•	Sensors	Tools				
Disabled	TVOLT=BASE,TVOLT,4 LTEN=AUX,LTEN,4 ELTIM=AUX ADPTH=AUX CCL=BASE LSPD=AUX MINMK=AUX,ELTIM,4 GR\$1=DSP,LgNeg GR\$2=DSP,LgPos	Tool1=STD;serial=0000 Tool2=GR;serial=001				

FIG: 14.52 Service Editor for GR\$1 and GR\$2

Save your service and load acquisition to test your new service.

Sensor	Offset (ft)	Schematic
Sensor	Unset (n)	
GR\$1	1.04	
GR\$2	0.00	

FIG: 14.53 Tool Diagram with GR\$1 and GR\$2

Name	Source	Channel	Value	Units
LSPD	LOGSVC	3	-0.1000	ft/min
LTEN	BASE	7	0.0000	V
TCURR	BASE	1	0.0000	V
TVOLT	BASE	2	0.0000	V
ELTIM	LOGSVC	2	925544.6314	sec
ADPTH	LOGSVC	1	-20.8167	ft
MINMK	LOGSVC	2	925544.6314	sec
GR\$1	DSP	3	0.0000	cps
GR\$2	DSP	1	0.0000	cps

FIG: 14.54 Sensors GR\$1 and GR\$2