Section

14

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.

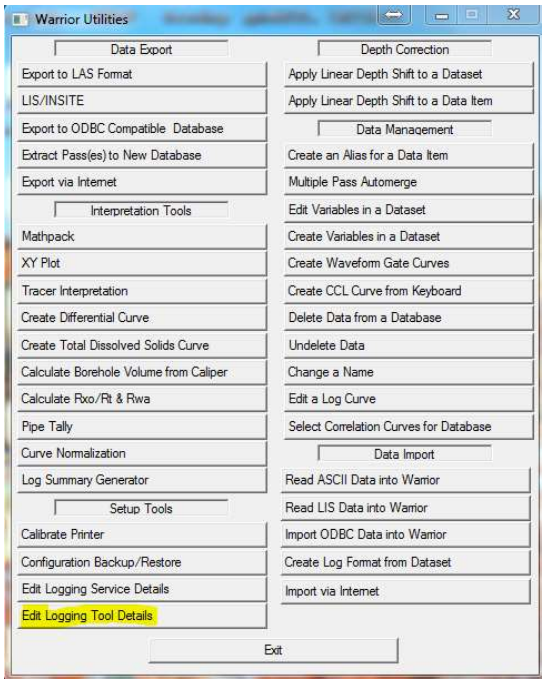
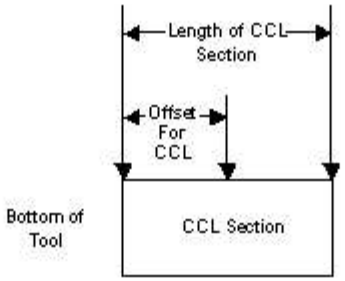


FIG: 14.1 Select edit logging Tool Details

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

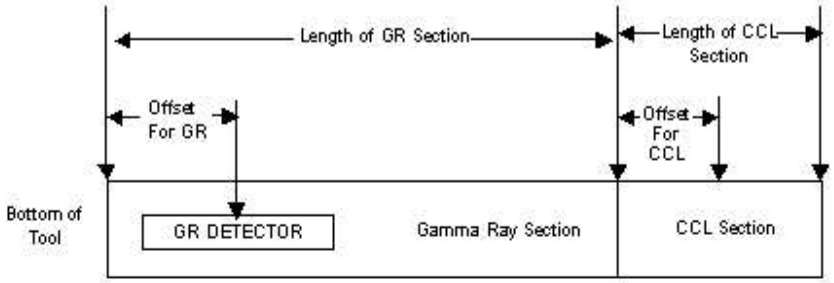
CCL Tools



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

FIG: 14.2 CCL Tool Length and Offset

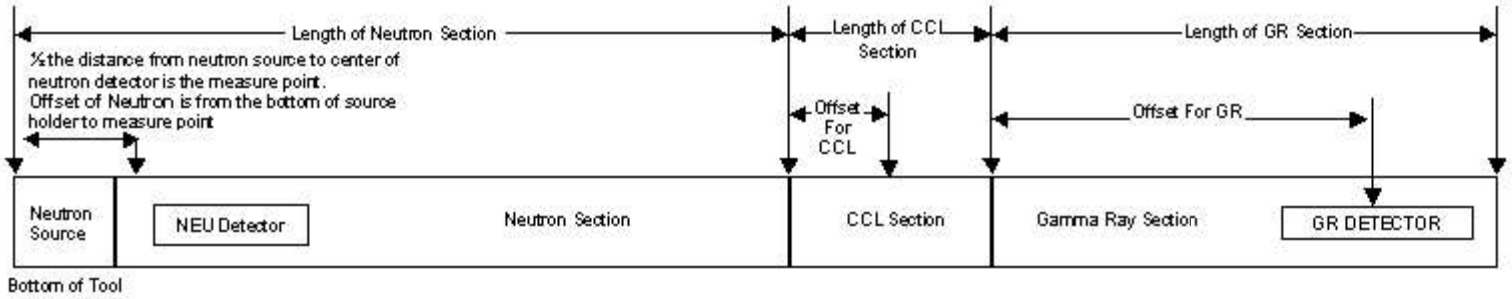
Gamma Ray CCL Tools



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

FIG: 14.3 Gamma Ray /CCL Tool Length and Offset

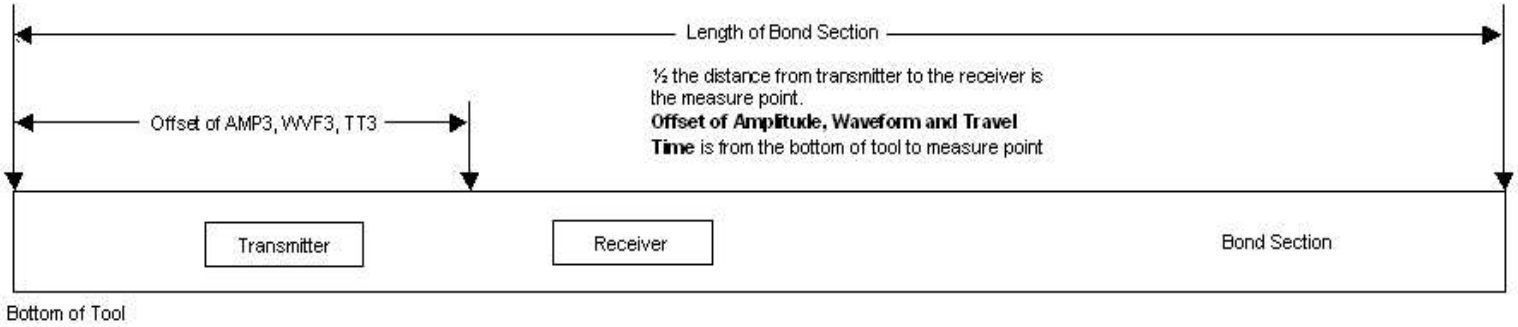
Gamma Ray Neutron CCL Tools



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

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

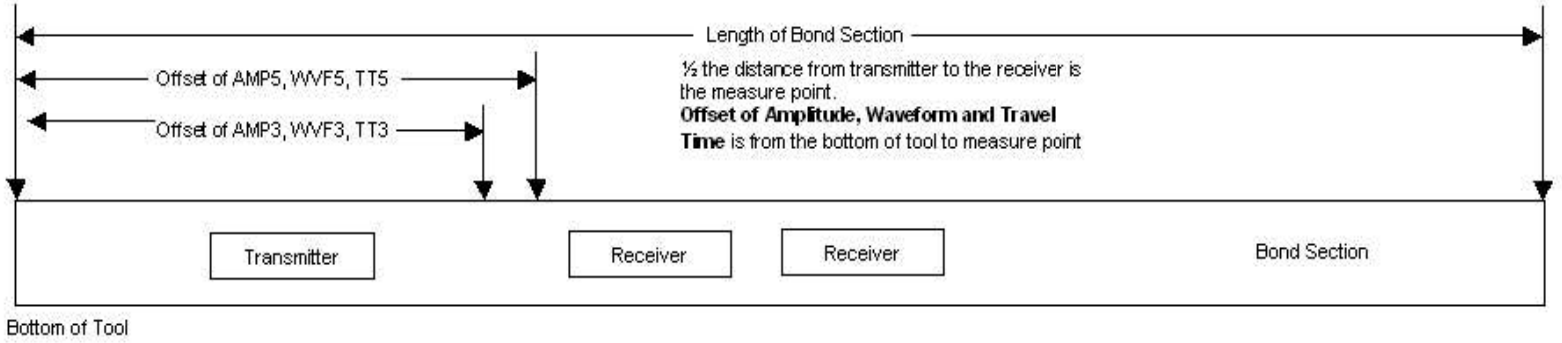
Single Receiver Bond Tools



Model					
Serial Number					
Diameter of Tool					
Length of Bond Section					
Offset For AMP3, WVF3, TT3					

FIG: 14.5 Single Receiver Bond Tool Length and Offset

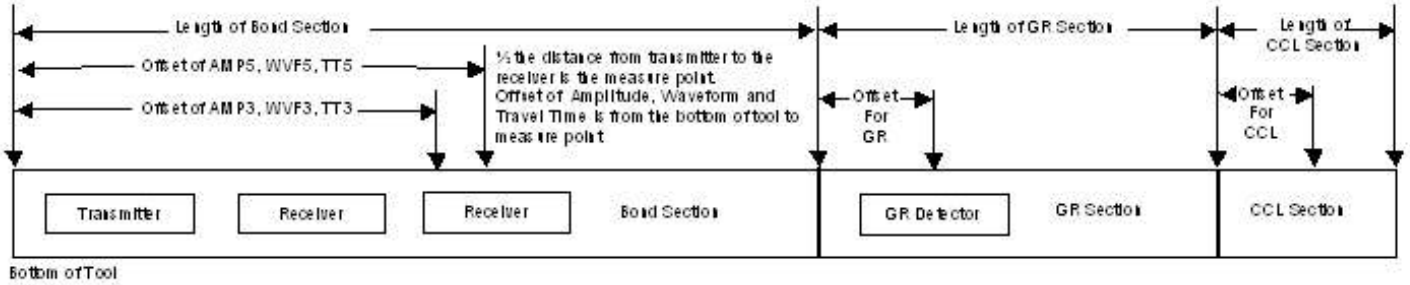
Dual Receiver Bond Tools



Model					
Serial Number					
Diameter of Tool					
Length of Bond Section					
Offset For AMP3, WVF3, TT3					
Offset For AMP5, WVF5, TT5					

FIG: 14.6 Dual Receiver Bond Tool Length and Offset

Dual Receiver Bond Tools GR CCL



Model					
Serial Number					
Diameter of Tool					
Length of Bond Section					
Offset For AMP3, WVF3, TT3					
Offset For AMP5, WVF5, TT5					
Length of GR Section					
Offset For GR					
Length of CCL Section					
Offset For CCL					

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.

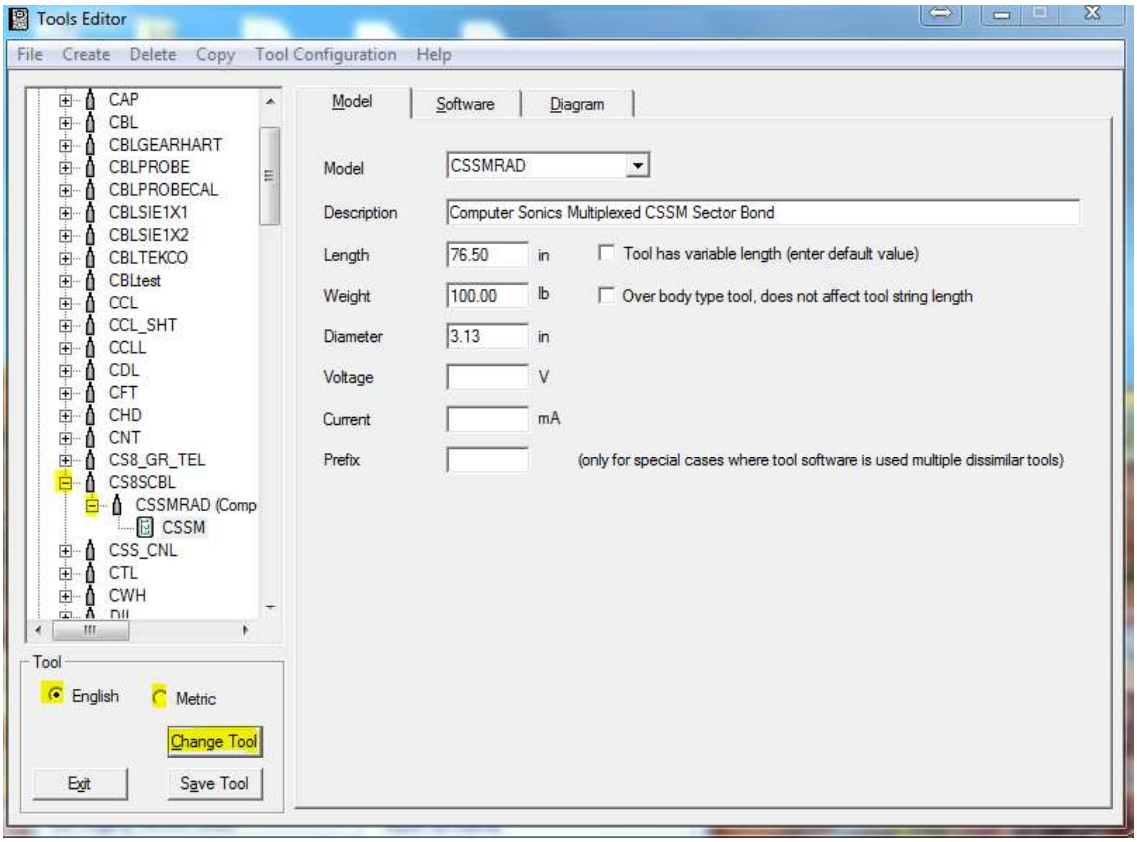


FIG: 14.8 Tools Editor

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.

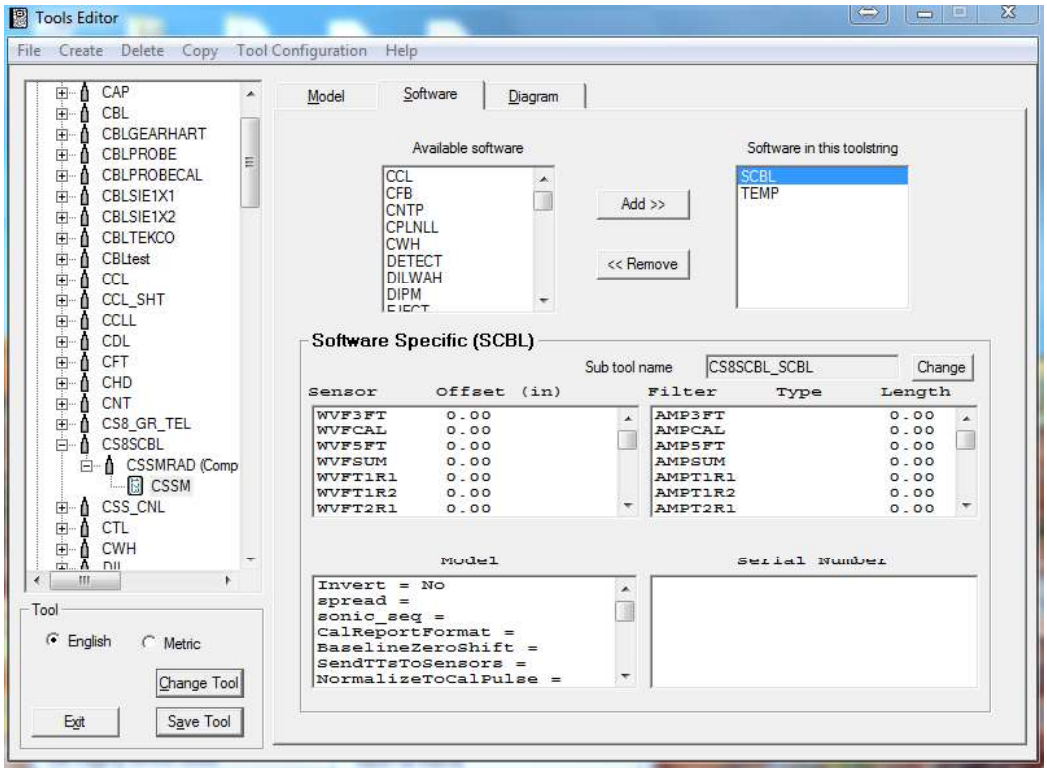


FIG: 14.9 Select Tool Model

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.

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.

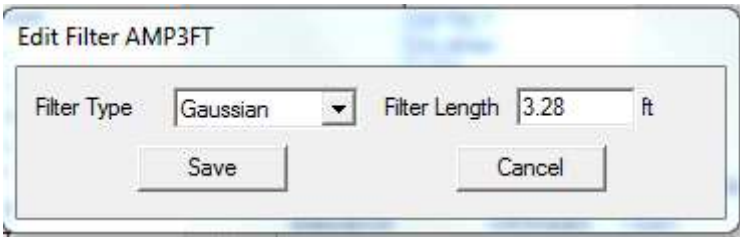


FIG: 14.11 Select the Filter Type and Filter Length

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.

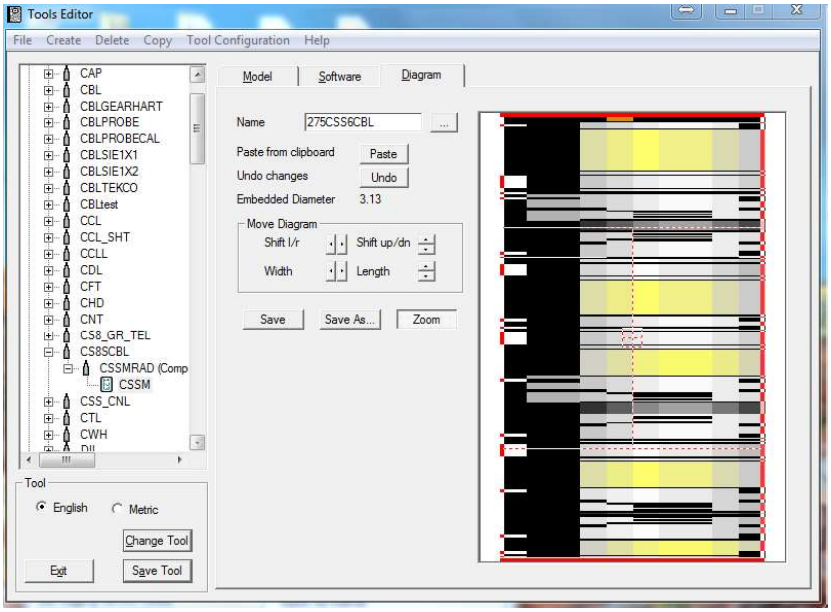


FIG: 14.12 Select Diagram

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.

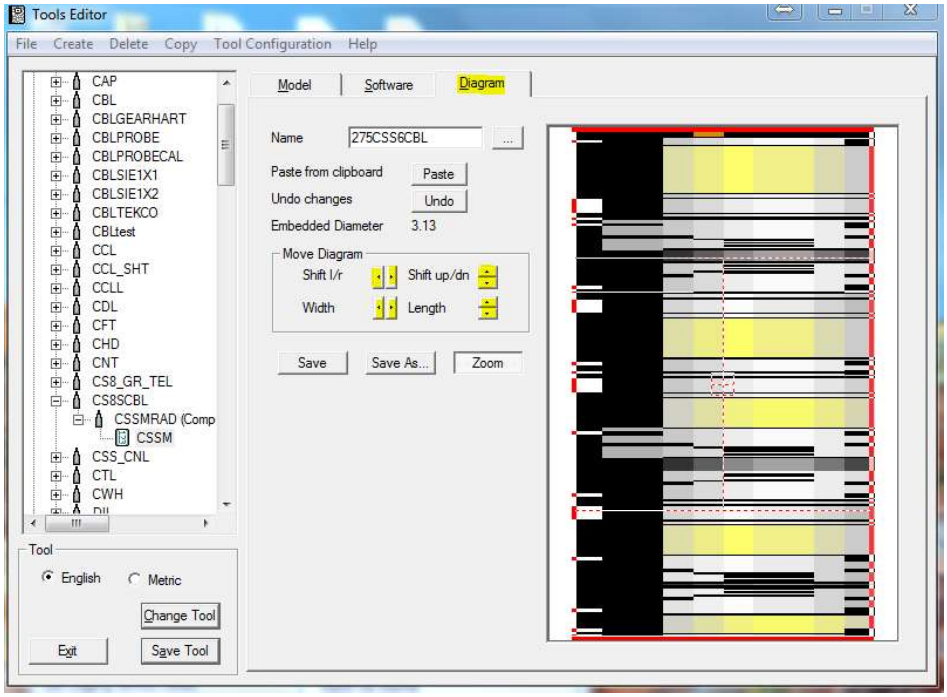


FIG: 14.13 Select Zoom

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.

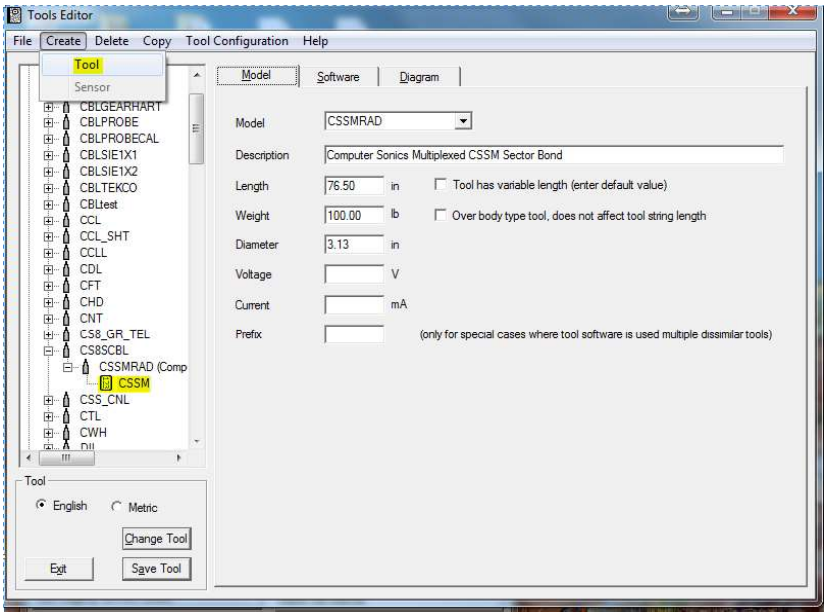


FIG: 14.14 Select Tool

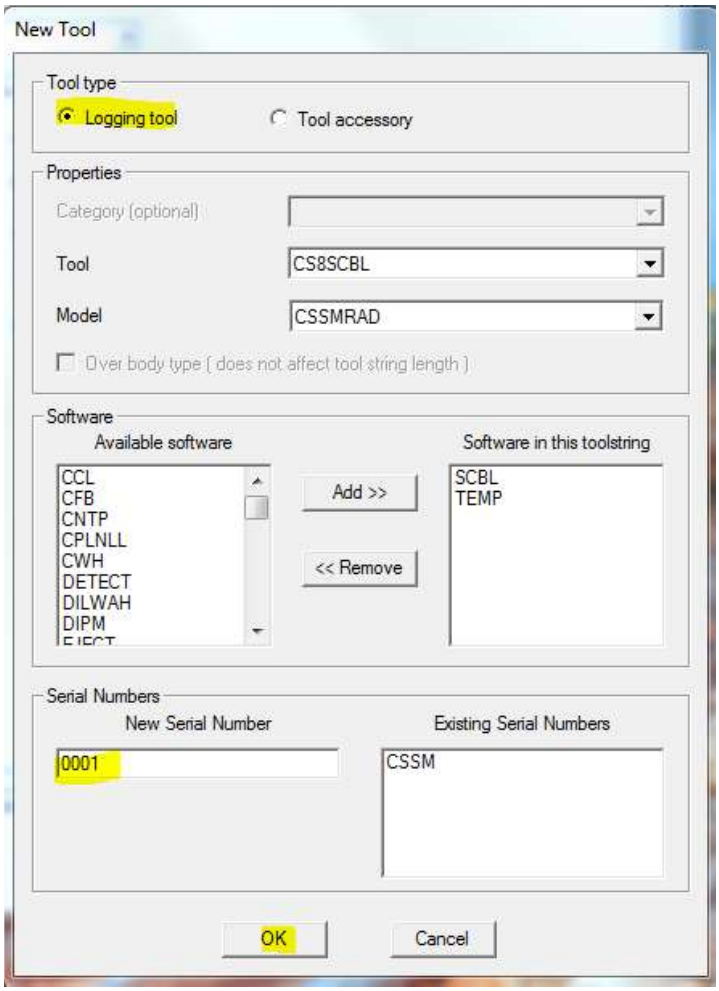


FIG: 14.15 Type the new serial

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>.

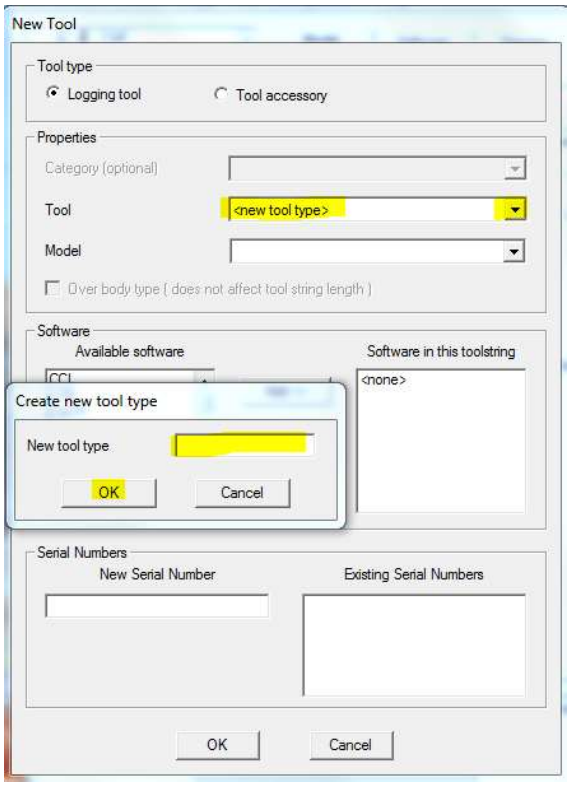


FIG: 14.16 Select new tool type and create a new tool type

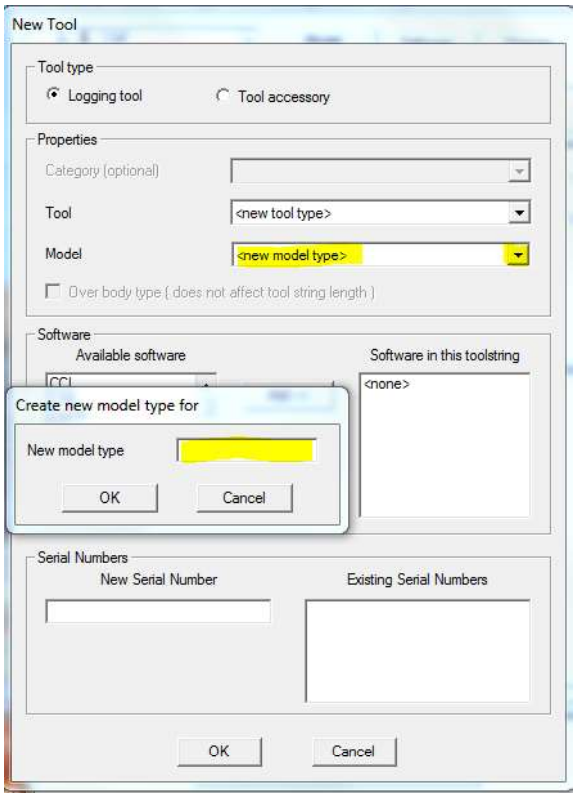


FIG: 14.17 Create new model type

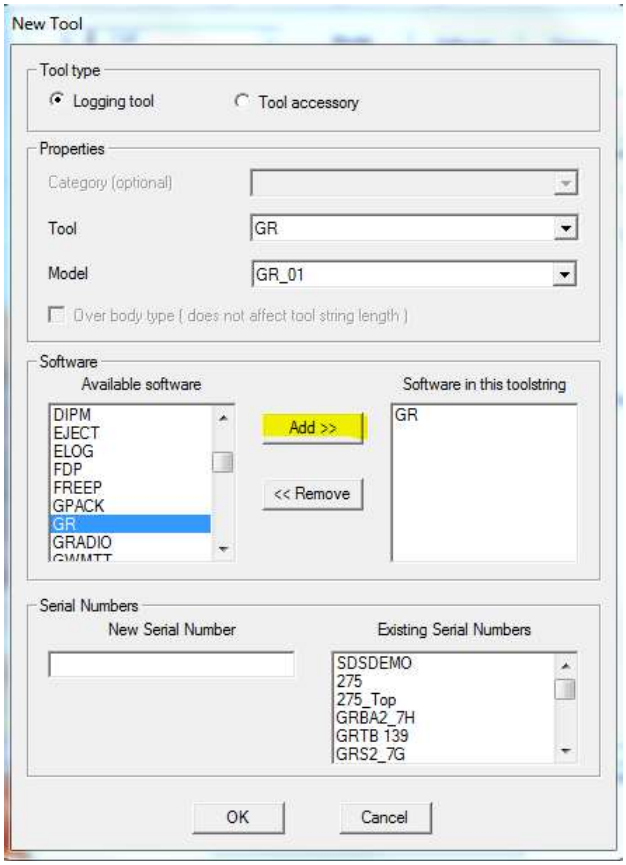


FIG: 14.18 Select GR software for GR tool.

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.

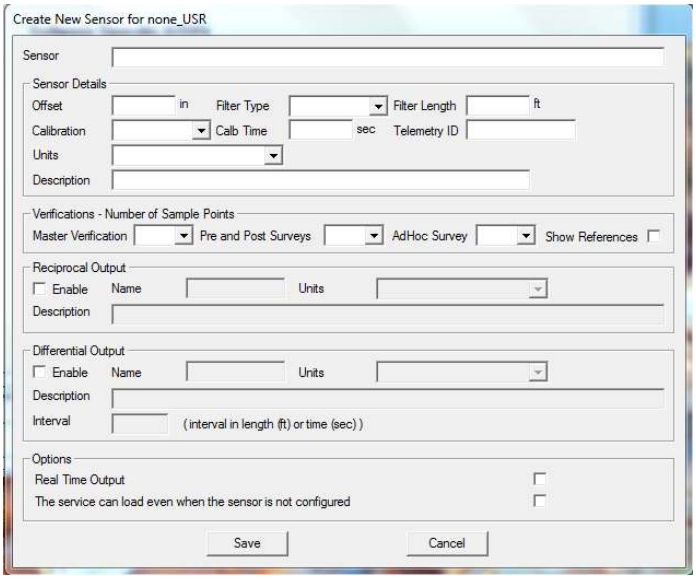


FIG: 14.19 Create a new Sensor

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 ¼ 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.

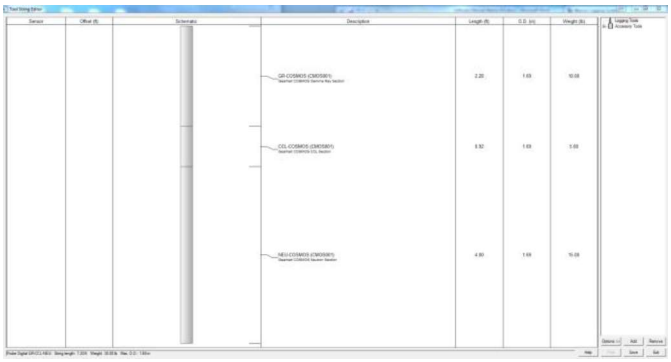


FIG: 14.20 Tool string editor

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 –** Tool. 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.

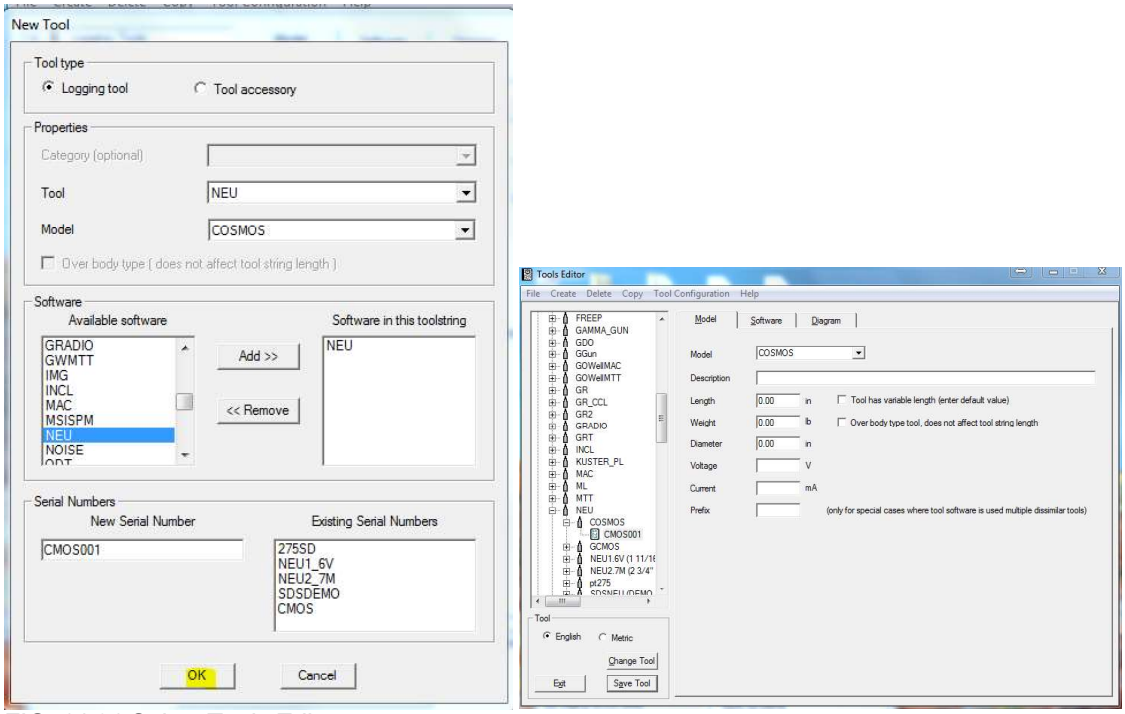


FIG: 14.21 Select Tools Editor

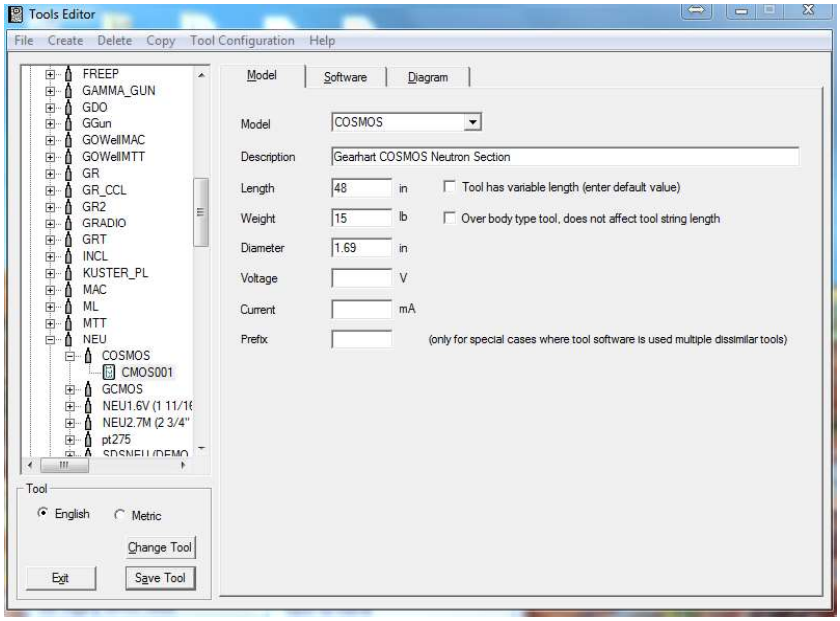


FIG: 14.22 Select Model

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.

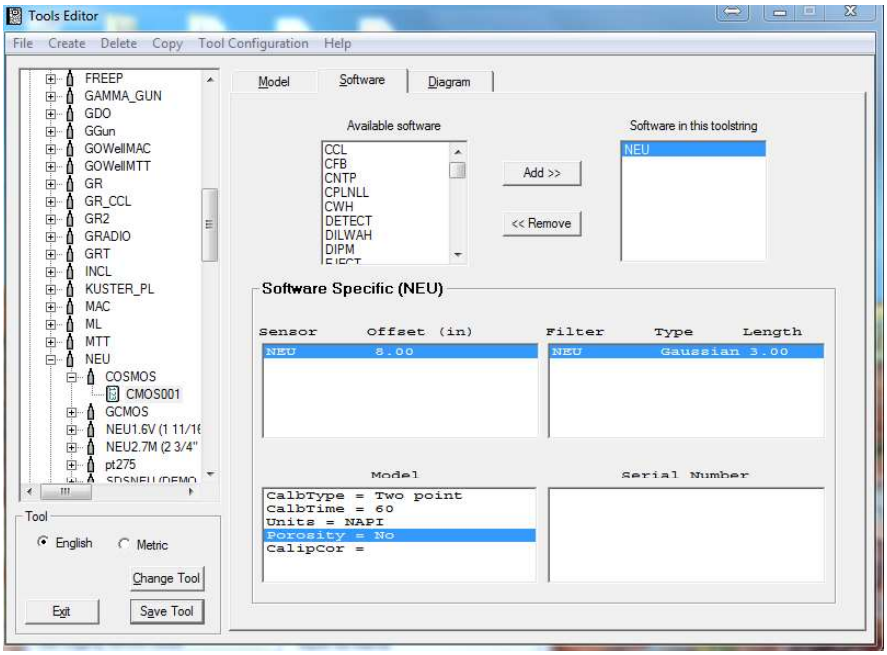


FIG: 14.23 Set Sensor, Filter, and Model values

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).

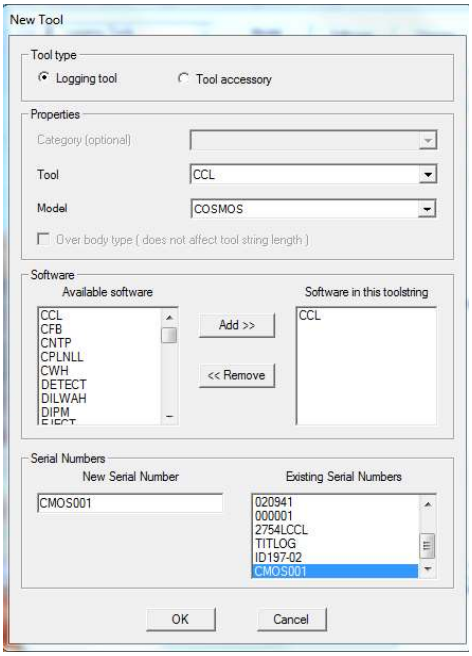


FIG: 14.24 Set New Tool

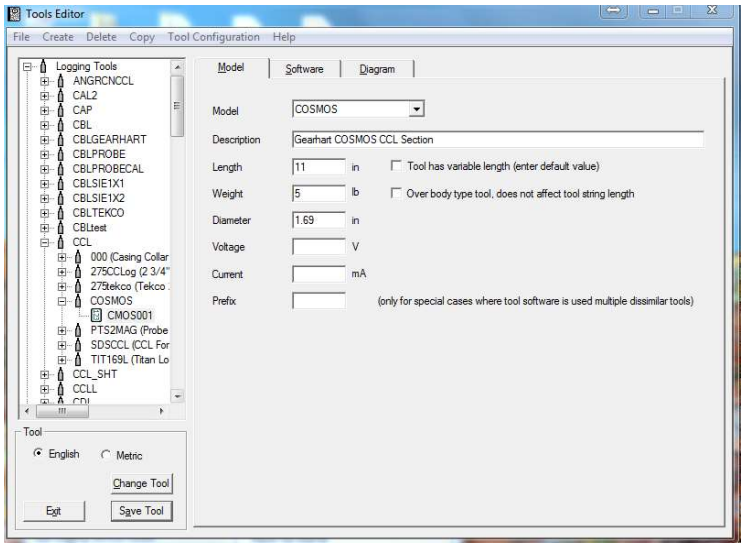


FIG: 14.25 Set Model values

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.

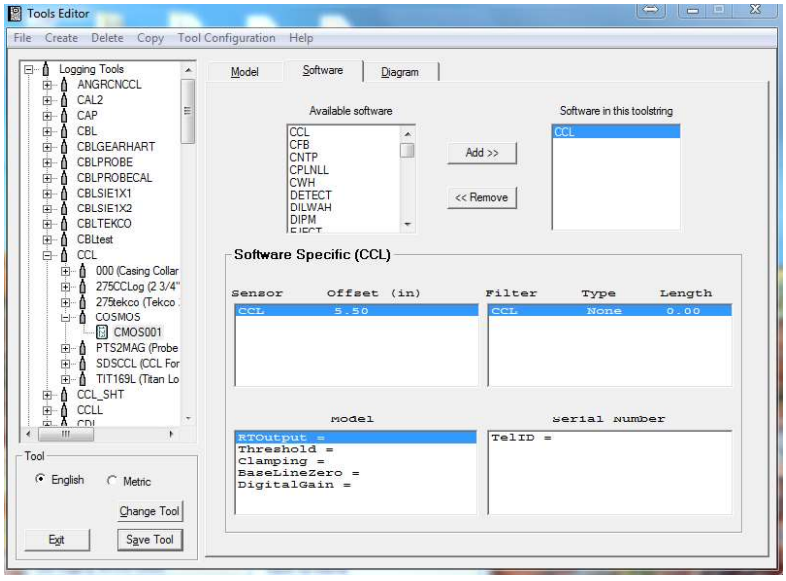


FIG: 14.26 Set Sensor, Filter, and Model values

Finally, we need to create our Gamma Ray tool. Once again click on **Create** in the menu bar. Then choose **Tool**. 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.

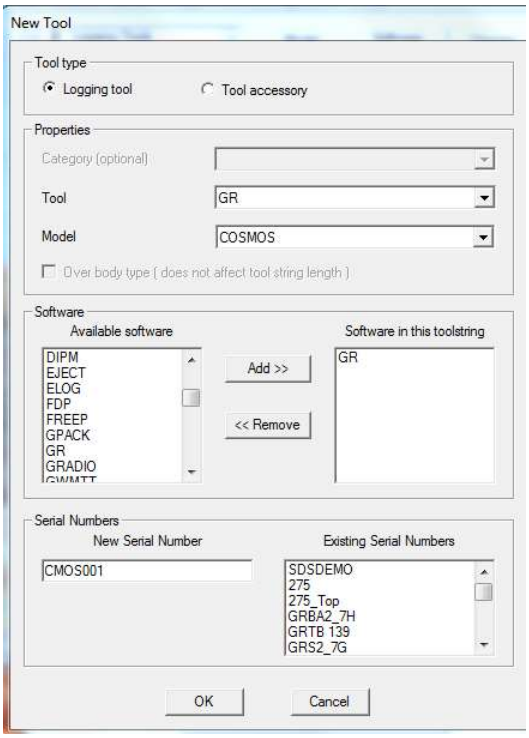


FIG: 14.27 Set New Tool

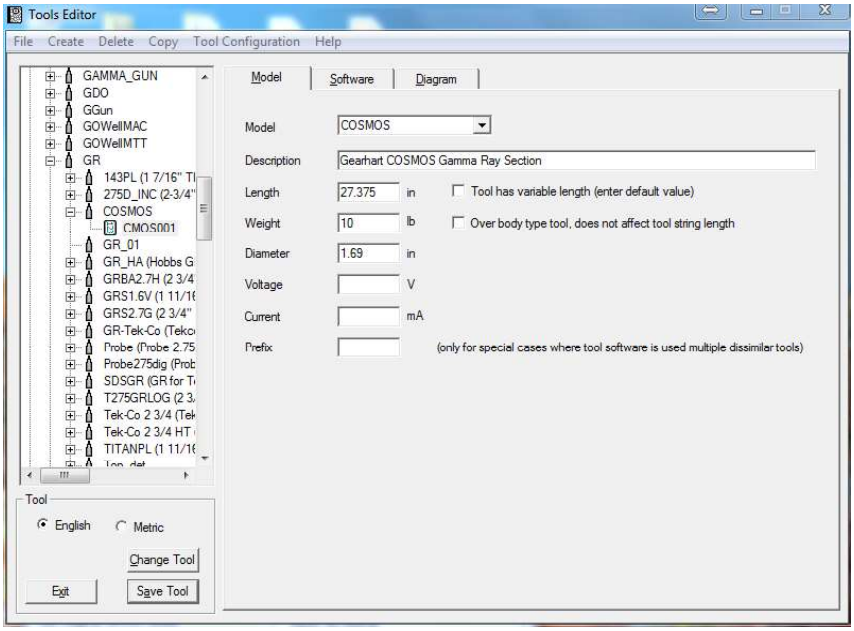


FIG: 14.28 Set Model values

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.

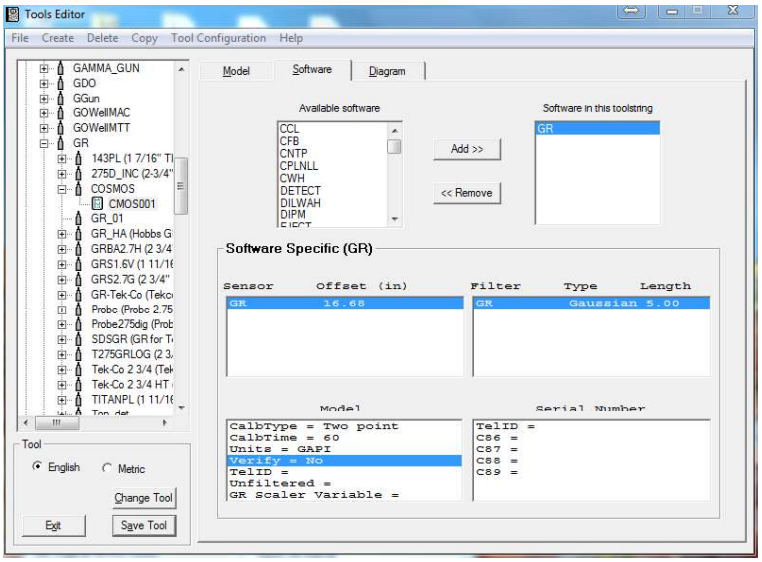


FIG: 14.29 Set Sensor, Filter, and Model values .

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 Create, then Tool. 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.

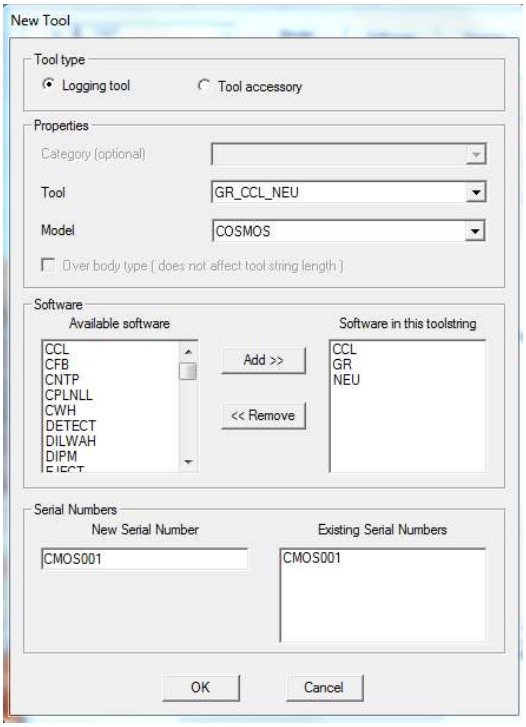


FIG: 14.30 Set New Tool

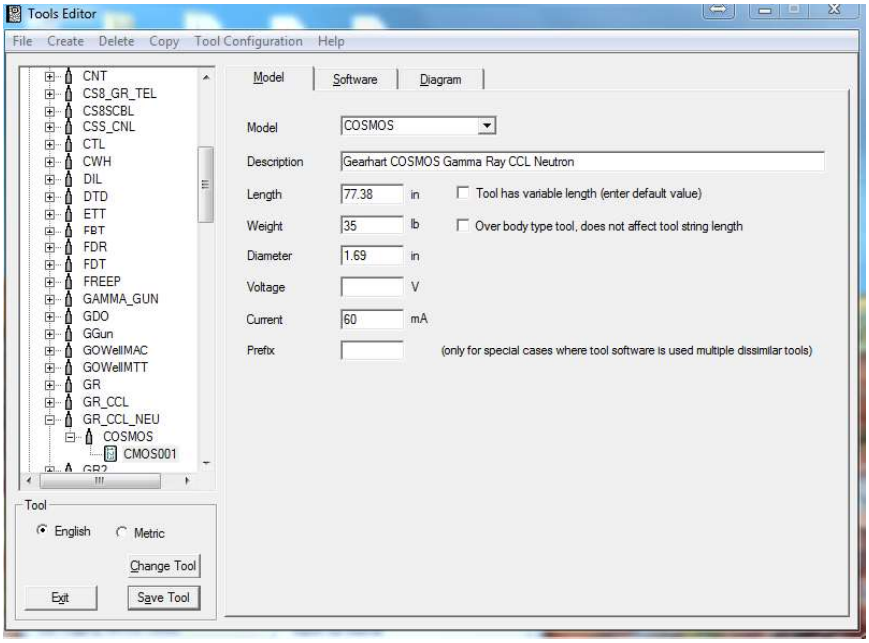


FIG: 14.31 Set Model values

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.

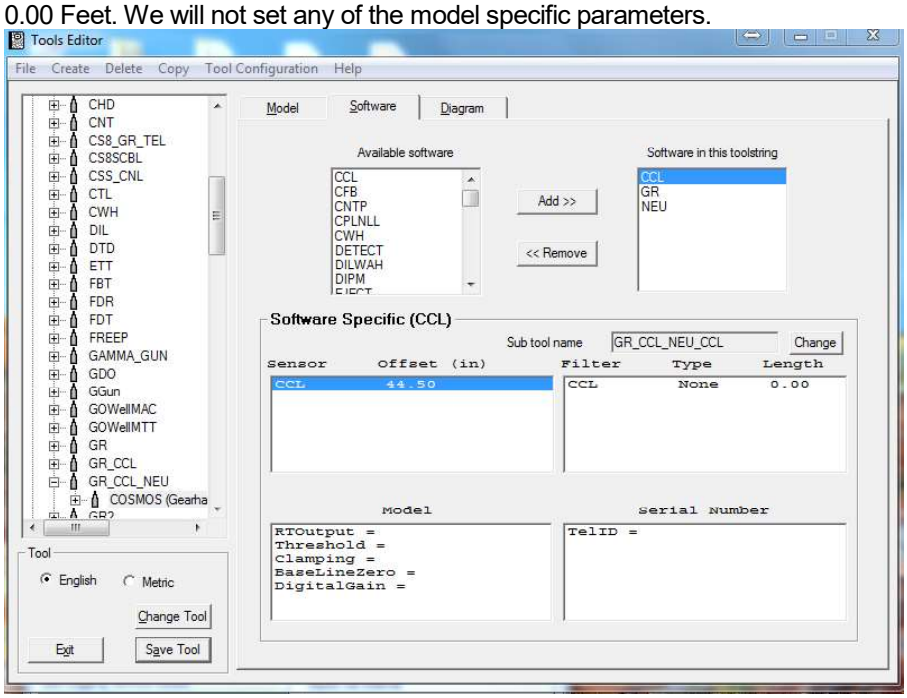


FIG: 14.32 Set Sensor, Filter, and Model values

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.

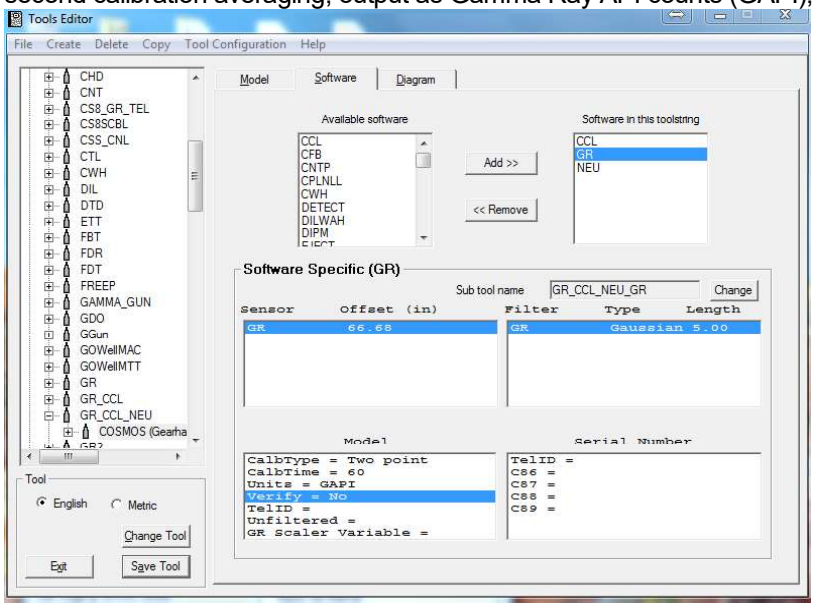


FIG: 14.33 Set Sensor, Filter, and Model values

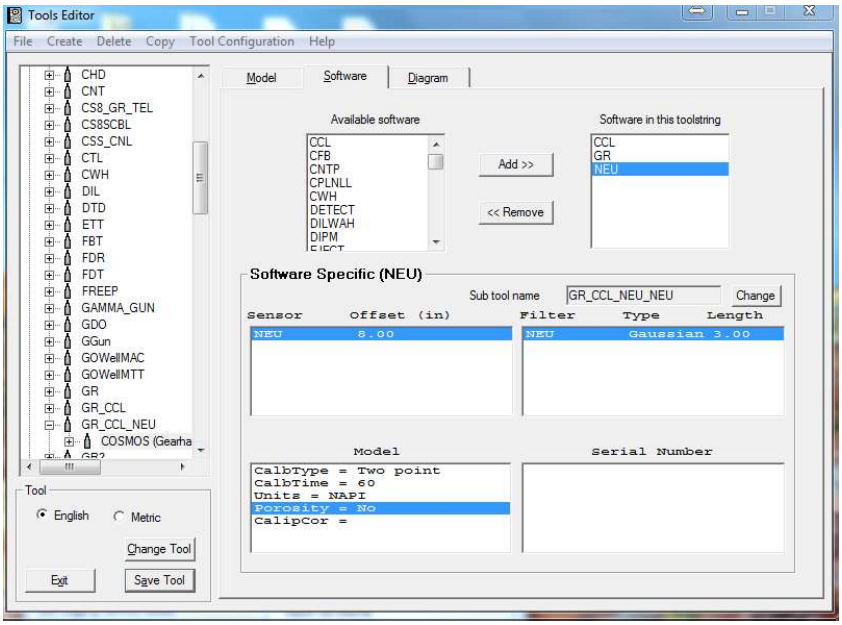


FIG: 14.34 Set Sensor, Filter, and Model values

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.

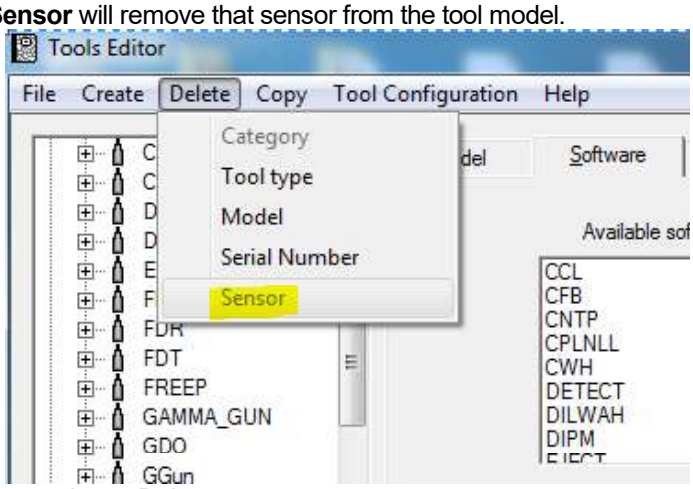


FIG: 14.35 Select sensor option to Delete

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.

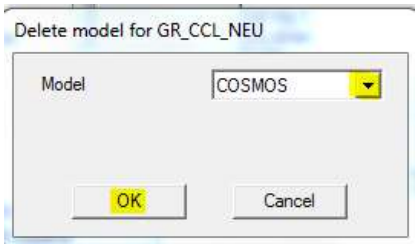


FIG: 14.36 Delete model for GR

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.

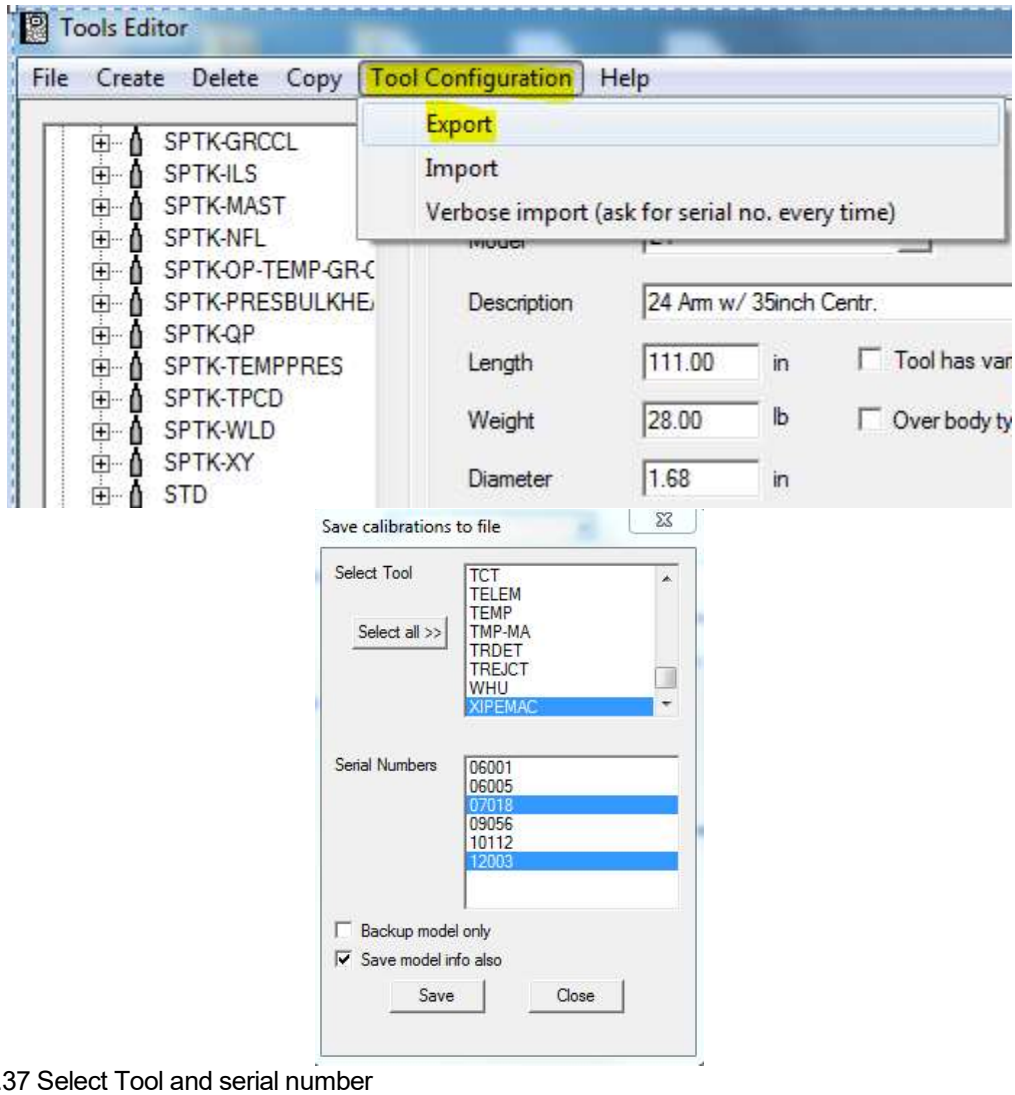


FIG: 14.37 Select Tool and serial number

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.

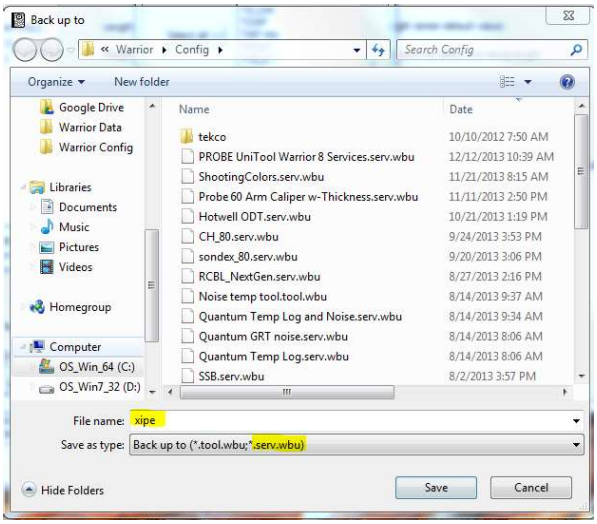


FIG: 14.38 Save Xipe calibration

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

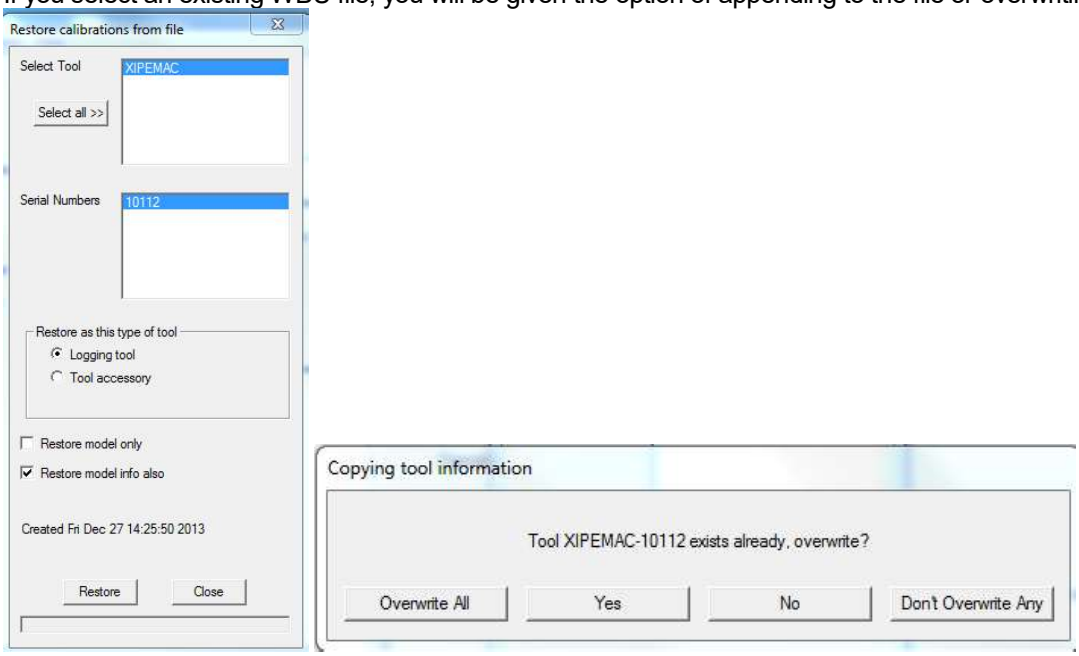


FIG: 14.39 Save XIPE

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.

Software Module Descriptions

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	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, RLL3, SP
DILP	Dual Induction Log - Phoenix	CILD, CILM, RLL3, SP	CILD, CILM, CLL3, RILD, RILM, RLL3, SP
DILWAH	Dual Induction Log - Hotwell	ILD, ILM, LL8, SP	CILD, CILM, CLL8, RILD, RILM, RLL8, SP
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

FIG: 14.40 Software Module Descriptions

EJECT	Tracer Ejector	- none -	EJECT, AREA, DET1, DET2, etc.
Software	Description	Sensors	Outputs
ELOG	DETEQ ELOG tool	IEE, VSN, VLN, SP	IEE, VSN, VLN, SP, RSN, RLN, CSN, CLN, SPR
FDP	FLUID DENSITY - Sondex	FDEN	FDRATE, FDEN, FDENC
FREEP	Free Point	FREEP	FREEP
GPACK	GRAVEL PACK Tool	?	?
GR	Gamma Ray Tools	GR	GR
IEL	INDUCTION ELECTRIC Log	DIC, SN, SP	DIC, DIR, SN, SP
LITH	Probe Litho- Density	W1, W2, W3, W4, SSD, Q, DCAL	W1, W2, W3, W4, SSD, Q, DCAL, LSD, RHOB, RHOC, DPOR, PE
MAC	Multi- Arm Caliper	MIN, MAX	MIN, MAX, MINRW, MAXRW,AVG, AVGRW, PCTRW, WDIFF
MAGN	MAGNOTOMETER?	?	?
ML	MICRO-LOG	MN, MI, MCAL, MSFL	MN, MI, MCAL, MSFL
MSFL	MICRO Spherically Focused	MSFL, MSFLCAL	MSFL, MSFLCAL
MSISPM	?	?	?
NEU	Single Detector Neutron	NEU	NEU, (NPOR)
NOISE	NOISE	RANGE1, RANGE2, RANGE3, RANGE4, NOISE, (200Hz, 400Hz, 1000Hz, 2000Hz, 4000HZ, 6000Hz)	200Hz, 400Hz, 1000Hz, 2000Hz, 4000HZ, 6000Hz
PIA	?	?	?
PNXFLOW	?	?	?
PRESTEMP	Pressure - Temperature	USER - DEFINED	USER - DEFINED
QPS	Quartz Pressure / Temperature	QP, QTMP	PRES, TEMP

FIG: 14.41 Software Module Descriptions

SCBL	Sector Cement Bond Log Compensated Cement Bond Log (BOND TOOLS WITH SEPARATE CAL SIGNAL WAVEFORM)	WVFCAL, WVF3FT, WVF5FT, WVFT1R1, WVFT1R2, WVFT2R1, WVFT2R2, WVFT1R3, WVFT2R3, WVFS1, WVFS2, WVFS3, WVFS4, WVFS5, WVFS6, WVFS7, WVFS8, WVFSYNC, WVFSUM	AMPCAL, AMP3FT, AMP5FT, AMPT1R1, AMPT1R2, AMPT2R1, AMPT2R2, AMPT1R3, AMPT2R3, AMPS1, AMPS2, AMPS3, AMPS4, AMPS5, AMPS6, AMPS7, AMPS8, AMPSIM, TTCAL, TT3FT, TT5FT, TTT1R1, TTT1R2, TTT2R1, TTT2R2, TTT3R1, TTT3R2, TTS1, TTS2, TTS3, TTS3, TTS4, TTS5, TTS6, TTS7, TTS8, TTSUM
SFT	Sequential Formation Tester	SPRES, HPRES, VTIX, SWPOS	- - - -
SGR	Spectral Gamma Ray	SGR	K, U, T, GR, GRUF
SLT	Sonic Logging Tool	TT1, TT2, TT3, TT4, WVF1, WVF2, WVF3, WVF4	DT, AMP1, AMP2, AMP3, AMP4
SLTN	Obsolete – USE SLT	----	----
STD	STANDARD – (Truck Settings)	- none -	
SWNP	Sidewall Neutron	SWN, SCAL	
TCC	?	?	
TEMP	Temperature	TEMP	TEMP, DTMP
USR	USER DEFINED TOOL	USER DEFINED SENSORS	USER DEFINED
XYC	X Y Caliper	XCAL, YCAL	XCAL, YCAL

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.

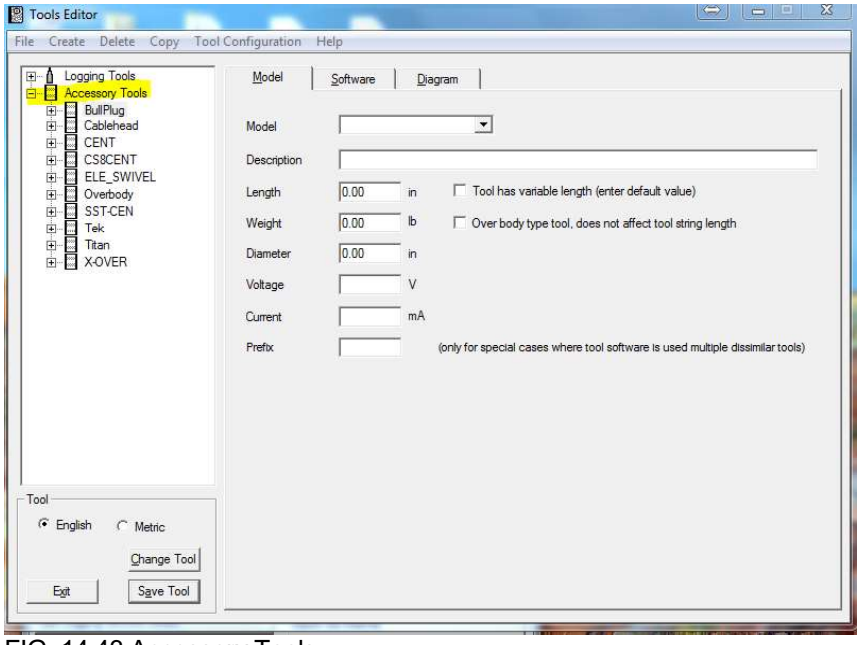


FIG: 14.43 Accessory Tools

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.

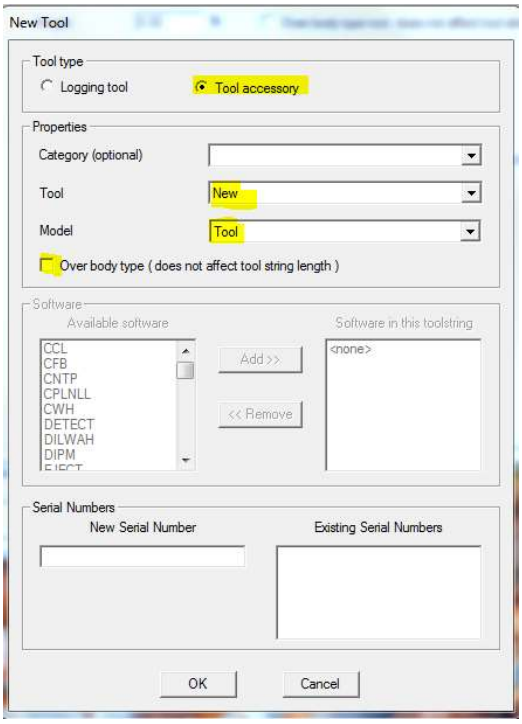


FIG: 14.44 New Accessory Tools

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.

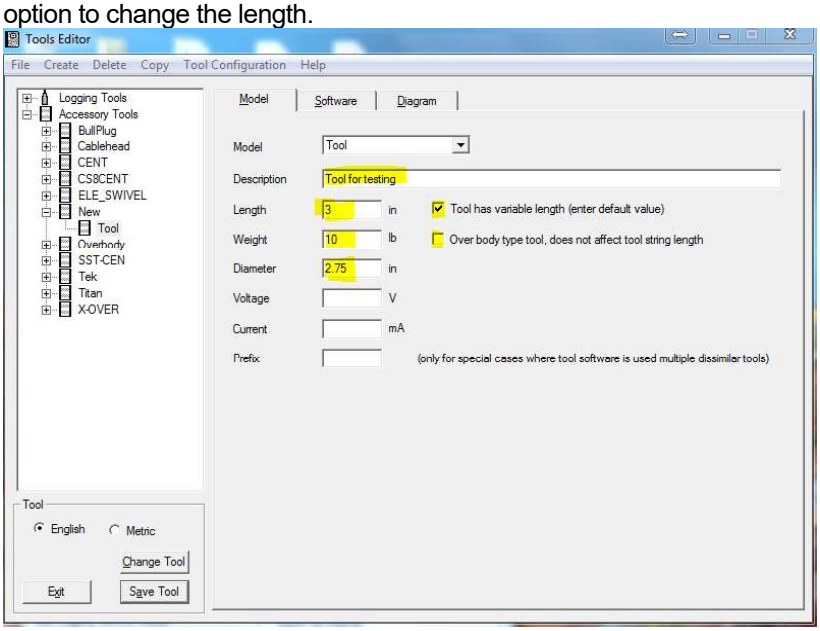


FIG: 14.45 tool Information

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.

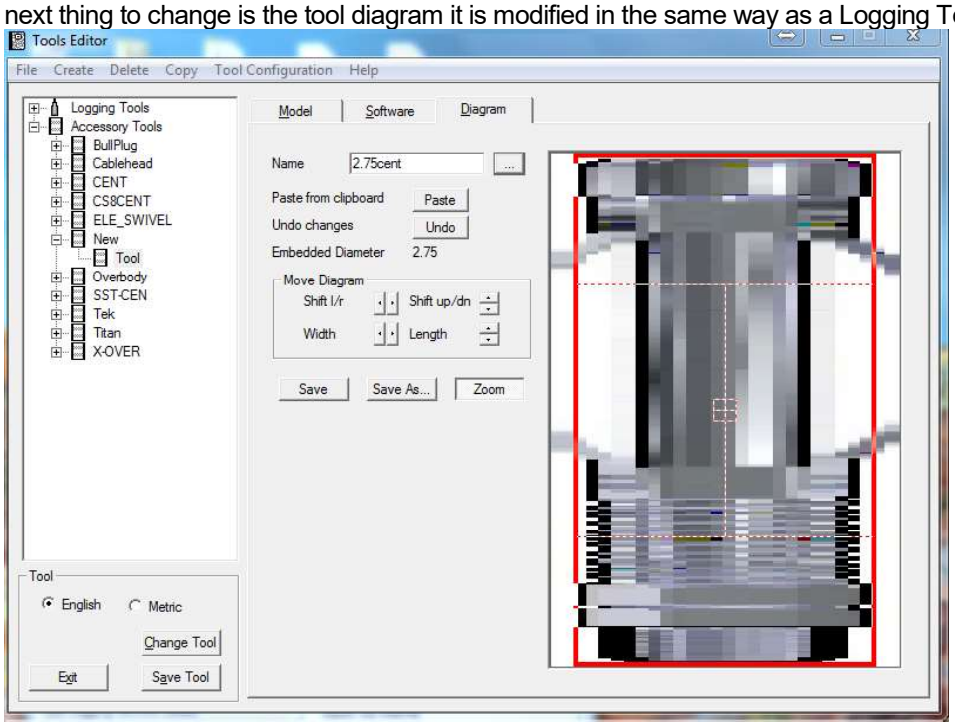


FIG: 14.46 tool diagram

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.

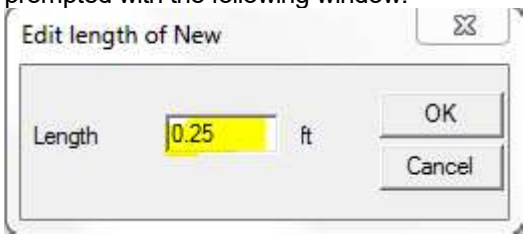


FIG: 14.47 Edit length of New tool

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

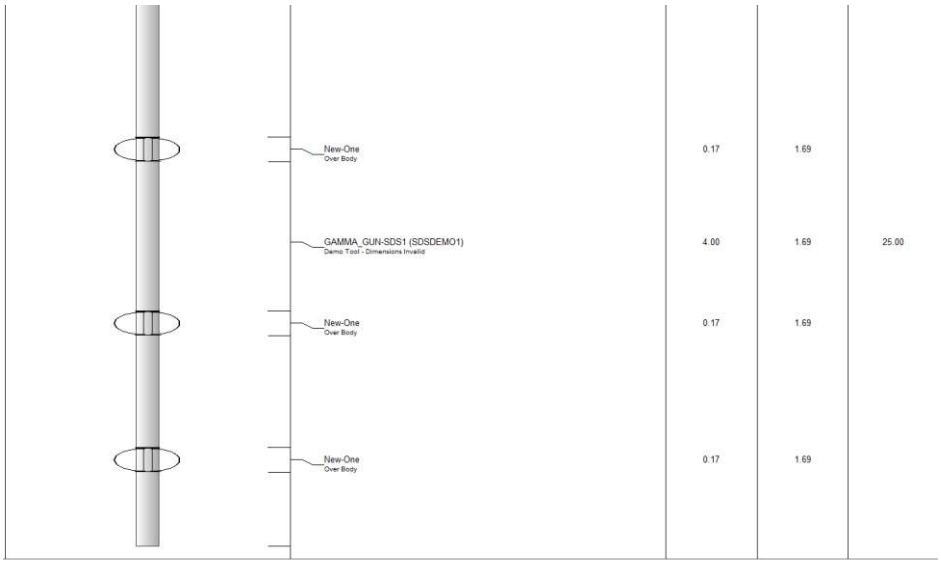


FIG: 14.48 Over Body

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 aconplish tis is with the use of the Prefix function.

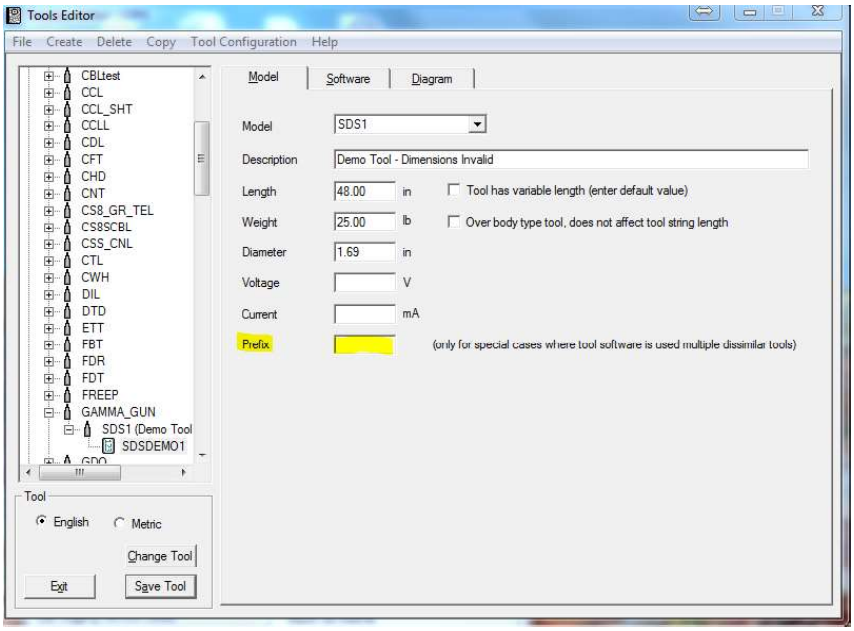


FIG: 14.49 Tool Prefix

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.

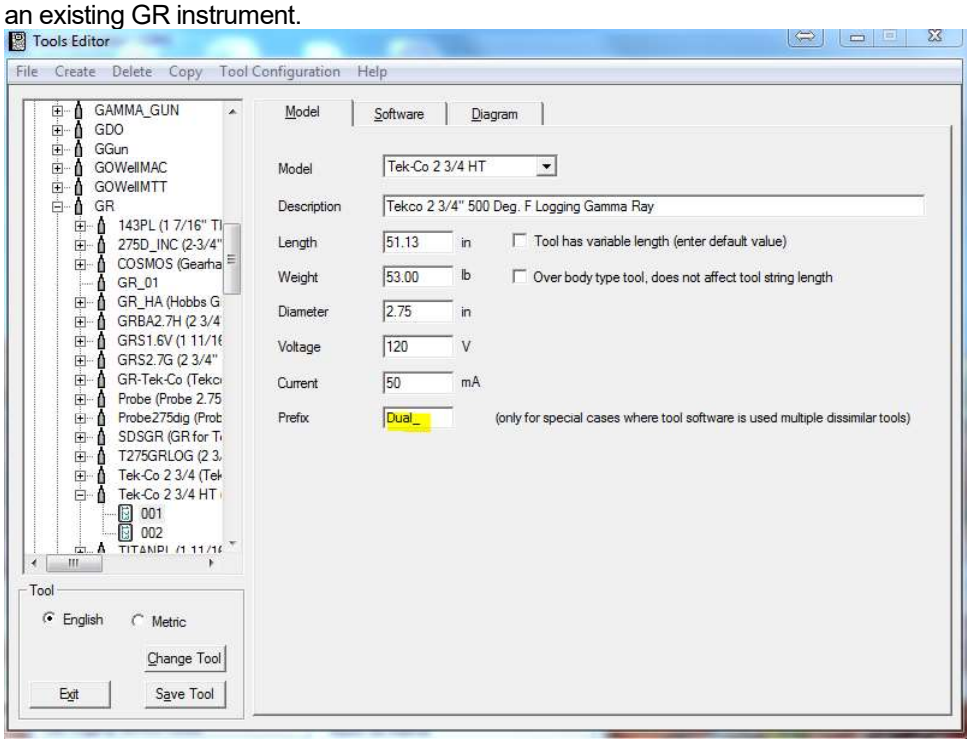


FIG: 14.50 Tool Prefix Example

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”

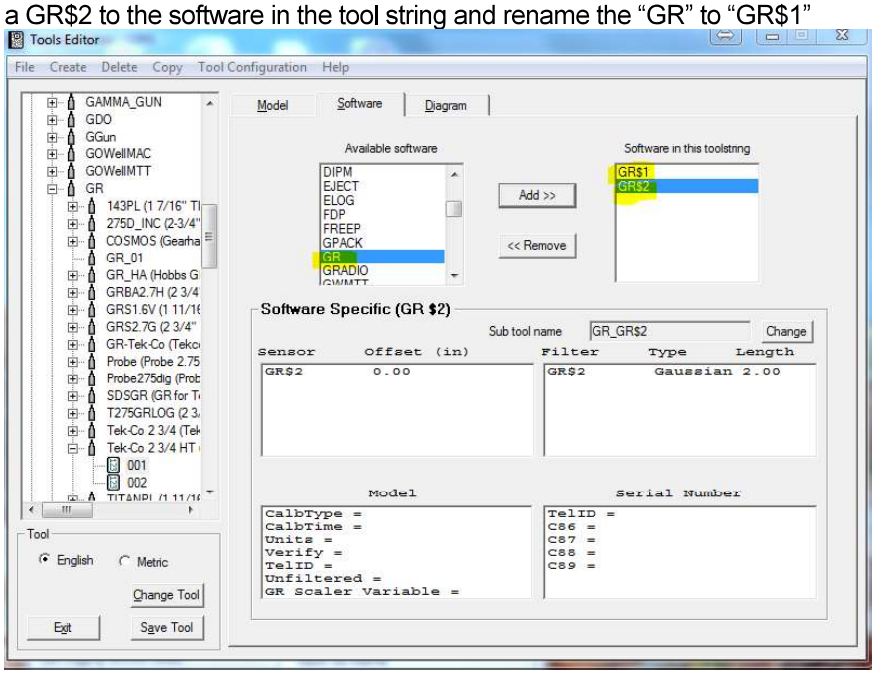


FIG: 14.51 Multiple similar sensors

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.

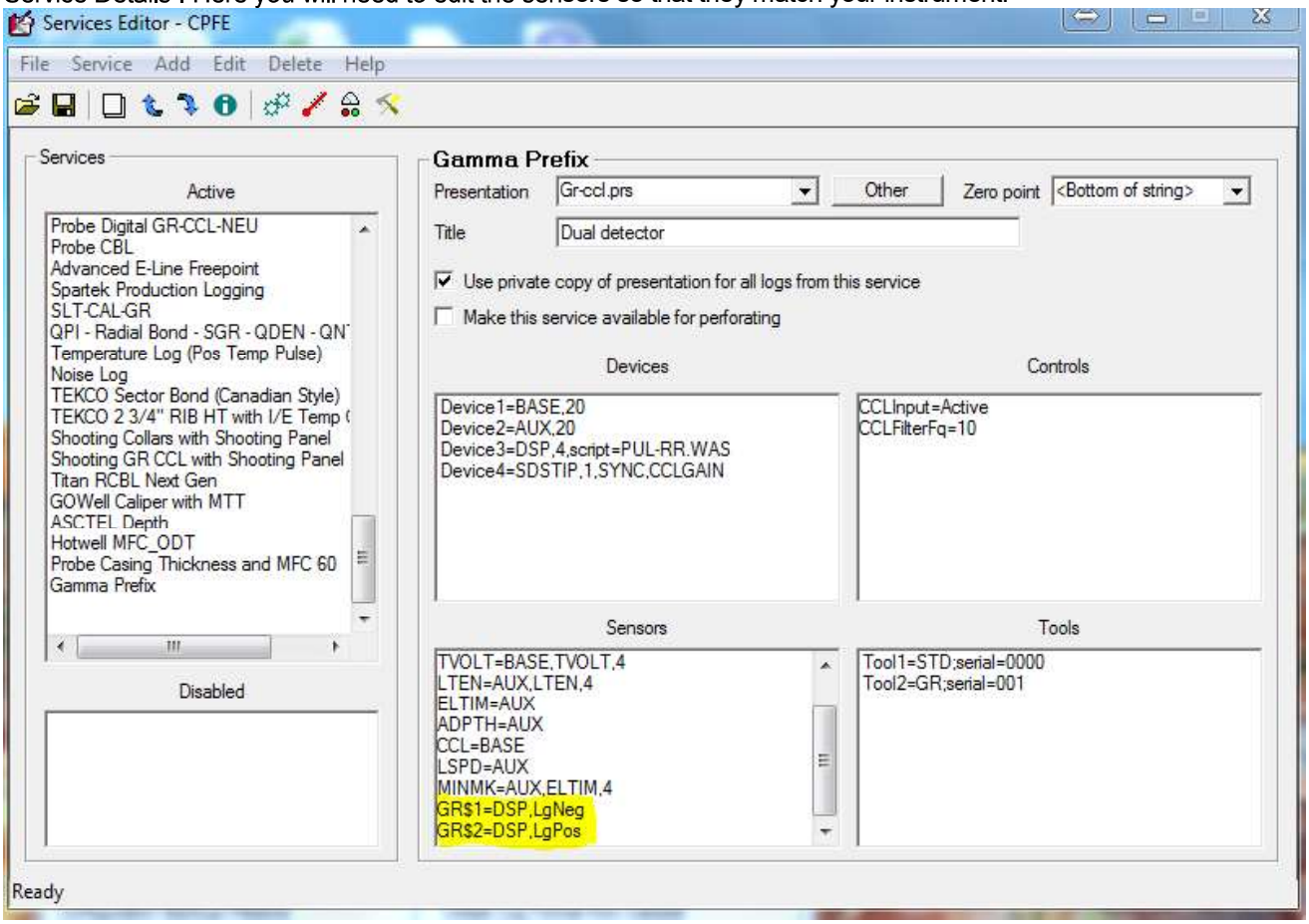


FIG: 14.52 Service Editor for GR$1 and GR$2

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

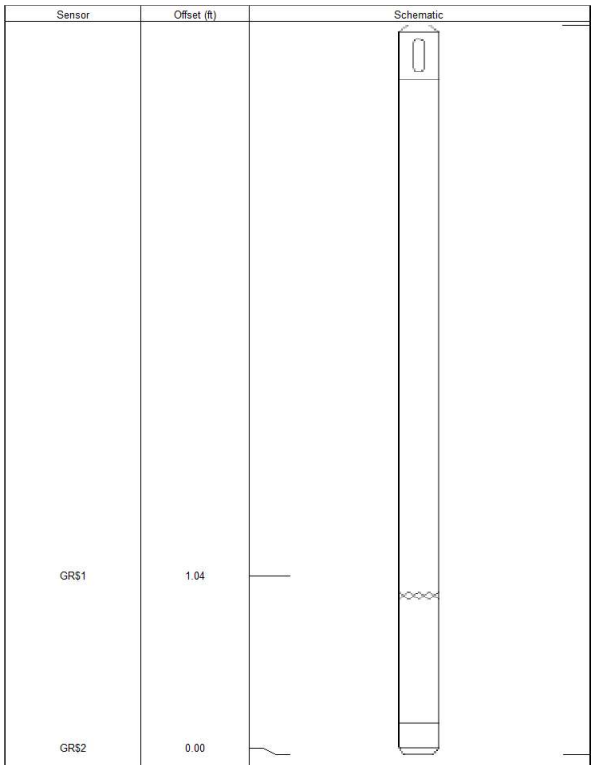
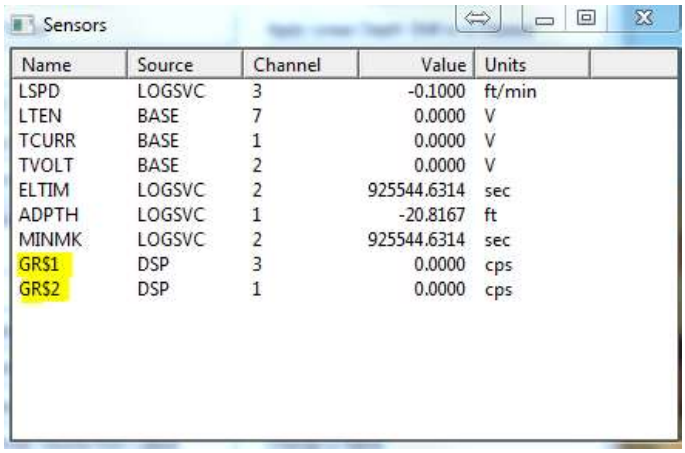


FIG: 14.53 Tool Diagram with GR$1 and GR$2



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