

# **28 Freepoint Service**



The warrior panel supports motorized and non-motorized frepoint tools depending on a combination of panel type and installed boards. Before importing a freepoint service check the panel type in the warrior control panel.

eneral Acquisition Plot   Hot Keys/S	hortcuts   Licenses   Depth/Tension	1	
Acq. system settings	Cable selection		
Panel type CPFE -	-		
External Power	Add Remove		
	Line resistance 50.0 Ohm Set		
Refresh monitors every	Default font for gauges		
Waveforms     500     msec       Numerics     1000     msec	Microsoft Sans Serif	Import Service	٤
Options	·	Select service(s) to import	
✓ Load up tool string earlor automaticall ✓ Warn about losing depth, if moving. Font for Acquisition window. Might need to fit in Acquisition window.	y at service load. smaller font size for all textEdit font	84=Probe Compensate Neutron STX Telemetry 85=Probe Digital CNL 86=Compensated Neutron SIE(Pos) 87=Compensated Neutron SIE(Neg) 88=HOTWELL PNN-C	
If perforating service, pop up message	e with tool zero point when service loads.	89=Noise Log	ſ
Make Acquisition window always on t	op of other windows.	91=Freepoint Applied	
Update with max range of data at log	stop.	92=Freepoint Applied (CPFE and up - 60 Hz)	
Default les donts soble	240	94=Freennint - SIF	
Deraulting depth scale	10	Fri Apr 26 14:44:28 2013	
Default log time scale	10		
Default log time scale Default log time rate	10	Last Change Thu Jun 27 14:56:58 2013	

FIG:28.1 Frepoint Service must match Panel Type

## 28.1 FREEPOINT Service CPFE and newer panels.

The current warrior system uses a combination of TELA board and the DSP for the freepoint service. Currently there is a 500ma limit for setting the tool, if your freepoint tool requires more current to set it, you will require an external panel. Supported tools include Applied Electronics Bowspring and Magnetic tools and Homco tools. Other models of Freepoint tools could also be setup in the Warrior system if the frequency of the transponder is known.

When the Freepoint service is first started, the window show below will appear. This is the Freepoint service control panel. It shows a graphical representation of the Freepoint output and a text output. It has selection buttons that allow one to select whether the next station is to be run is to be torque or stretch. There are three large buttons that control the Freepoint tool setup, starting and stopping time log passes, and station manager access.

### 28.1.1 FREEPOINT CONTROL PANEL



FIG: 28.2 Freepoint Control panel

28.1.2 FREEPOINT TOOL SETUP



FIG: 28.3 Freepoint Setup

When the **Setup** button on the Freepoint control panel is pressed, the window shown below will appear. This is the Freepoint setup control panel. Up to five different setups may be saved. Which setup is used may be selected by clicking on the dropdown box and choosing from Heavy Drill Pipe, Drill Pipe, Large Casing, Small Casing, and Tubing. Any changes made to the log sample rate or reading for 100% movement will be saved to the setup that has been selected.

A normal sample rate for the log should be set to 5 to 10 samples per second.

The 100% movement box is used to control the sensitivity of the response similar to the gain knob on an analog panel. Note that the lower the number the more sensitive the response will become. This does not have to be a whole number and may contain a decimal point (2.75 would be valid).

The Set Tool button engages power supply in the interface panel and temporarily applies a DC voltage to the line to set the Freepoint tool. Note that the tool power switch on the interface panel must be on and the 'Neg, Auto, Pos' switch must be in Auto position.

The Zero slide bar is used to set the zero position of the output before the log pass is started and torque or stretch is applied to the casing.

There is an optional check box to clamp the Freepoint output to 0% to 100% so that it does not go off of the page on the log.

#### 28.1.3 Running the Service

Once the Freepoint service has been selected and the tool lowered into the well to a depth where the casing is known to be free, the tool should be set and the output zeroed. Stretch or torque should be put on the casing and the 100% movement number adjusted to get near a 100% output reading.

This should be repeated until you are satisfied that the equipment is responding correctly in free pipe. Once satisfied, the 100% Movement number should not be changed while recording stations.

You are now ready to record the first station. Click the Start Log button on the Freepoint Control panel. The system will start recording on time. Have the rig apply torque or stretch and the output will be recorded. When you have seen the tool response, click the Stop Log button to stop the pass. The minimum and maximum Freepoint readings will be entered into the Station Manager table at the encoder depth (note that since the encoder depth is used. You can only simulate a log by using the encoder and resetting the depth before each pass).

Drop down the well to the depth that you wish to make the next pass and repeat the process. Make as many passes as desired to determine the Freepoint location in the well. Each pass will have the maximum output entered into the station manager table.

The depths at which you run the stations do not have to be in descending order. You would normally start at the top of the well, and start doing stations going down. Once stuck pipe is found, you can come back up to a depth between there and your last free pipe station to refine the stuck depth. Whatever order the stations are run, they will be entered into the Station Manager table in descending order.

28.1.4 Station Manager

ile												
Op	ben	Edit	G	enerate	Sav	e	Sound	F	FT	Exit	]	
#	Depth	200hz	600hz	1000hz	2000hz	4000hz	6000hz	Sound	_	Date		
- 32	70.41	13.70	10.63	9.88	9.29	7,60	5.99	10 s	Thu Aug 0	8 17:38:03	2013	
-31	70.51	14.38	10.94	10,94	9.51	7.78	5.91	10 s	Thu Aug 0	B 17:37:07	2013	- 3
30	70.60	13.74	11.07	10.36	9.00	7.90	6.24	10 s	Thu Aug 0	8 17:36:14	2013	
29	70.70	13.96	10.42	10.06	9.20	7.82	6.15	10 s	Thu Aug 0	8 17:35:08	2013	
28	70.80	13.91	10.94	10.34	9.35	7.49	6.09	10 s	Thu Aug 0	8 17:34:18	2013	
27	70.91	14.17	10.49	10.19	9.36	7.74	6.37	10 s	Thu Aug 0	8 17:33:26	2013	
26	71.01	14.19	10.85	10.59	9.72	7.54	6.12	10 s	Thu Aug 0	B 17:32:10	2013	-
25	71,11	14.27	10.83	10.74	9.42	8.24	5.98	10 s	Thu Aug 0	8 17:31:12	2013	
24	71.21	14.21	10.46	10.31	9.33	7.96	6.39	10 s	Thu Aug 0	8 17:29:47	2013	
23	71.31	14.74	10.55	10.00	9.14	7.82	6.14	10 s	Thu Aug 0	8 17:28:29	2013	
22	71.40	14.14	10.78	10.08	9.25	7.54	6.07	10 s	Thu Aug 0	8 17:26:21	2013	
21	71.51	13.66	10.33	9.99	9.17	7,49	6.33	10 s	Thu Aug 0	8 17:25:08	2013	-
20	71.60	14.06	10.84	10.58	9.74	7.59	6.24	10 s	Thu Aug 0	8 17:23:53	2013	
19	71,70	13.28	10.80	10.57	9.44	7.83	6.19	10 s	Thu Aug 0	8 17:22:22	2013	-
18	71.81	13.92	10.50	10.27	9.45	7.92	6.32	10 s	Thu Aug 0	8 17:21:20	2013	
17	71,90	14.31	10.91	10.50	9.61	7.70	6.02	10 s	Thu Aug 0	8 17:20:23	2013	
16	71.90	13.79	11.13	10.90	9.91	7.94	6.52	10 s	Thu Aug 0	8 17:19:45	2013	
15	72.00	15.04	10.84	10.47	9.74	7.44	6.11	10 s	Thu Aug 0	8 17:18:08	2013	
14	72.10	13.69	10.91	10.11	9.36	7.57	5.99	10 s	Thu Aug O	8 17:17:14	2013	-

FIG: 28.4 Freepoint Table

As each station is run, the minimum and maximum values are placed into the station manager table. Notice that the stations can be done in any order but are placed into the table in descending order.

Once a station has been entered into the table. It can be viewed and edited. Any field except the station # can be edited. This can be useful to make your final presentation more acceptable. There is a check box to disable the station so that it will not be included in the final log presentation in the event that the tool slipped or something else occurred to make the station invalid.

When all of the stations have been edited as desired, the final log presentation can be made by clicking the **Generate** button, and then click the **Depth Log** button.

Generate:	<u> </u>
D	epth Log
	Close

FIG: 28.5 Generate

Destination	2.			
Database	C:\ProgramData\Warrio	r\Data\Noise For Larry	Warric	
Dataset	field/well/run1/_dlog8_			
Format	NOISE			
Logarithmic Auto Merge –	interpolation			
Logarithmic Auto Merge –	interpolation		Add	
Loganithmic Auto Merge –	interpolation	Re	Add	ок

FIG: 28.6 Generate Depth

There is a check box for Logarithmic Interpolation that will produce a slight smoothing effect to the output curves. Additional curves from the same database, such as a CCL or gamma ray, can be auto merged into the output. When the **OK** button is clicked, the interactive plot will be presented on a  $\frac{1}{2}$ " /100' scale. Using the Plot Job Editor, a presentation can now be made for the customer. This will normally include a heading, the Freepoint survey table, the generated depth log. The individual station passes could also be included and a tool string diagram if desired.

### 28.2 FREEPOINT With CPFD and older panels.

The main difference between the CPFD and CPFE panels with reguards to the freepoint service is the CPFD has an auxiliary transformer and a Freepoint board. The auxiliary transformer can supply up to 1000ma to set the tool. The operation is the same except that the tool power supply does not need to be turned on to set the tool since the auxiliary transformer produced the set current and is enabled by a software controlled relay.

Acq. system se	ttings	Hot Keys/S	hortcuts Licenses Depth/Ten	nsion				
Panel type External Powe	r [	D ¥	Add Re	emove				
Refresh monito Waveforms	ins every	msec	Default font for gauges	Import	Service	i		
Numerics	1000	msec				Select servic	ce(s) to import	
Options Load up to Wam about Font for Acquisit to fit in Acquisit	ol string edito it losing depth ition window ition window.	rautomatical <mark>)</mark> n, if moving. Might need	y at service load. smaller font size for all text	85=Pr 86=Cr 87=Cr 88=Hi 99=Kr	obe Digital CNL ompensated Neu ompensated Neu OTWELL PNN-C bise Log	tron SIE(Pos) tron SIE(Neg)	)	
If perforation Make Acqu	ig service, pa uisition windo	p up message w always on t	e with tool zero point when service op of other windows.	e loads. 91=Fr 92=Fr 93=Fr	eepoint Applied eepoint Applied eepoint Applied	(CPFE and up (CPFE and up	9 9 - 60 Hz) 9 - 360 Hz)	(
Default log der	n max range	ol udla al log	stop.	94=Fr 95=Fr	eepoint - SIE			
bordant log det	e scale		14	10 Fri Ap	r 26 14:44:28 20	13		
Default log time	2222072		1		hanne Thu has	27 14-50-50 2	010	

### FIG:28.7 Frepoint Service must match Panel Type

### 28.2.1 Running the Service

The logging operation of the service is the same as earlier Freepoint services. See section  $\frac{28.1.3}{2}$ 

### 28.3 Freepoint Service Homco-GO

The Warrior system supports Freepoint tools that require minimum DC voltage for motorized deployment. This includes Applied Electronics Bowspring and Magnetic tools, and Homco tools. Other models of Freepoint tools could also be setup in the Warrior system if the frequency of the transponder is known.

### 28.3.1 FREEPOINT CONTROL PANEL

Setup	100 %
Start Log	75 %
Run Station Manager	50 %
0%	25 %
raw: 0.000 cps	0%

FIG: 28.8 Freepoint Control panel

The Freepoint control panel appears the same as the control panel used for other freepoint tools. The difference is when you select the setup button you have an added slider for the 100% reading. 28.3.2 FREEPOINT TOOL SETUP

Set
Set
•

FIG: 28.9 Freepoint Setup

When the **Setup** button on the Freepoint control panel is pressed, the window shown below will appear. This is the Freepoint setup control panel. Up to six different setups may be saved. Which setup is used may be selected by clicking on the dropdown box and choosing from Heavy Drill Pipe, Drill Pipe, Large Casing, Small Casing, collars, and Tubing. Any changes made to the log sample rate or reading for 100% movement will be saved to the setup that has been selected.

A normal sample rate for the log should be set to 5 to 10 samples per second.

The Zero slider bar is used to set the frequency for when no torque or stretch is applied. The 100% slider bar is used to set the frequency for the maximum Torque or Stretch to be used.

There is an optional check box to clamp the Freepoint output to 0% to 100% so that it does not go off of the page on the log.



FIG: 28.10 Freepoint PMON Threshold

Remember that the signals in the PMON (pulse monitor) window need to be discriminated properly, similar to a gamma/ neutron service.

28.3.4 Running the Service

The logging operation of the service is the same as earlier Freepoint services. See section  $\frac{28.1.3}{2}$