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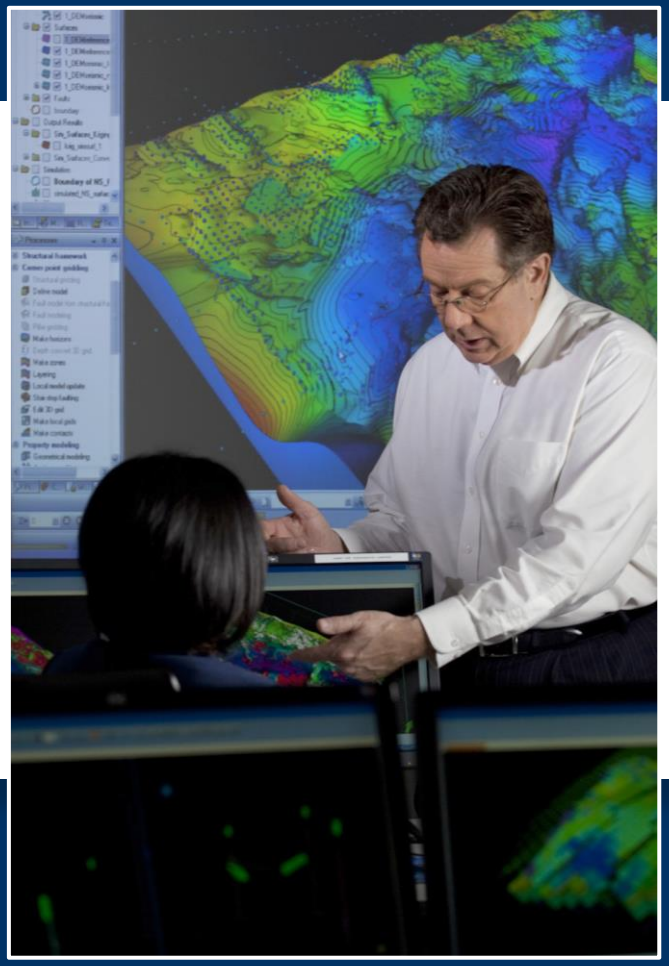
Petrel Geophysics
Module 5: Condition input data for seismic well tie

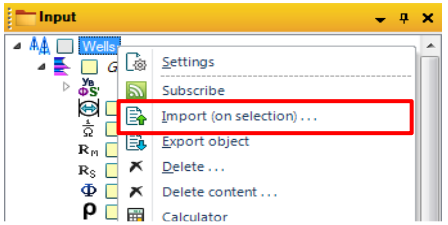
Schlumberger-Private

Lesson 1: Checkshot data loading



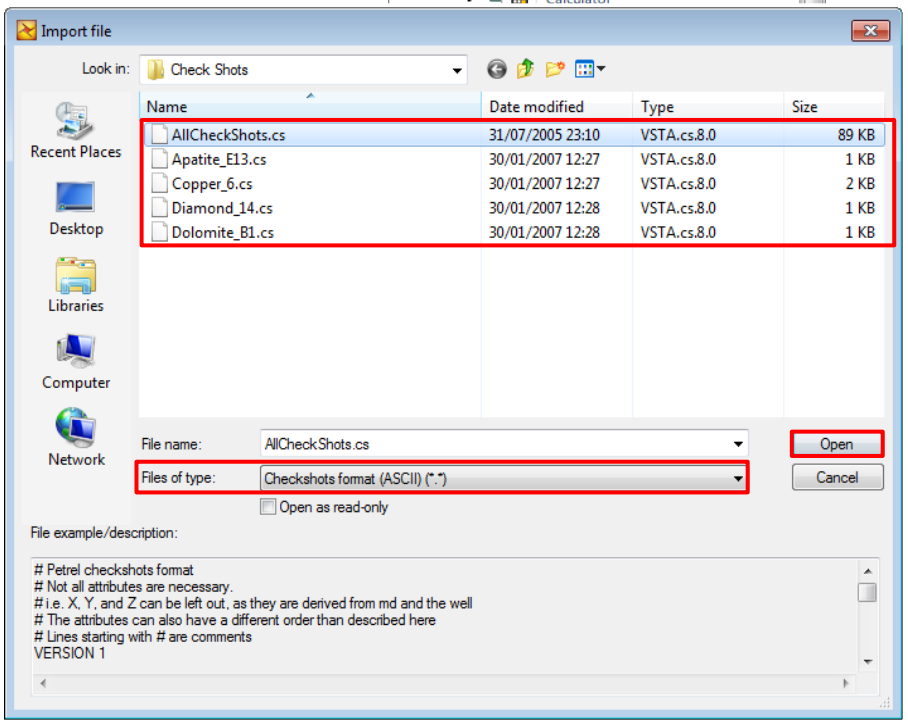
Load checkshot data (1)

1. Right-click the **Wells** folder and click *Import (on selection)* to open the **Import file** dialog box.



2. Set Files of type to *Checkshots format (ASCII) (*.*)*.

3. Select one or more files to import and click *Open*.



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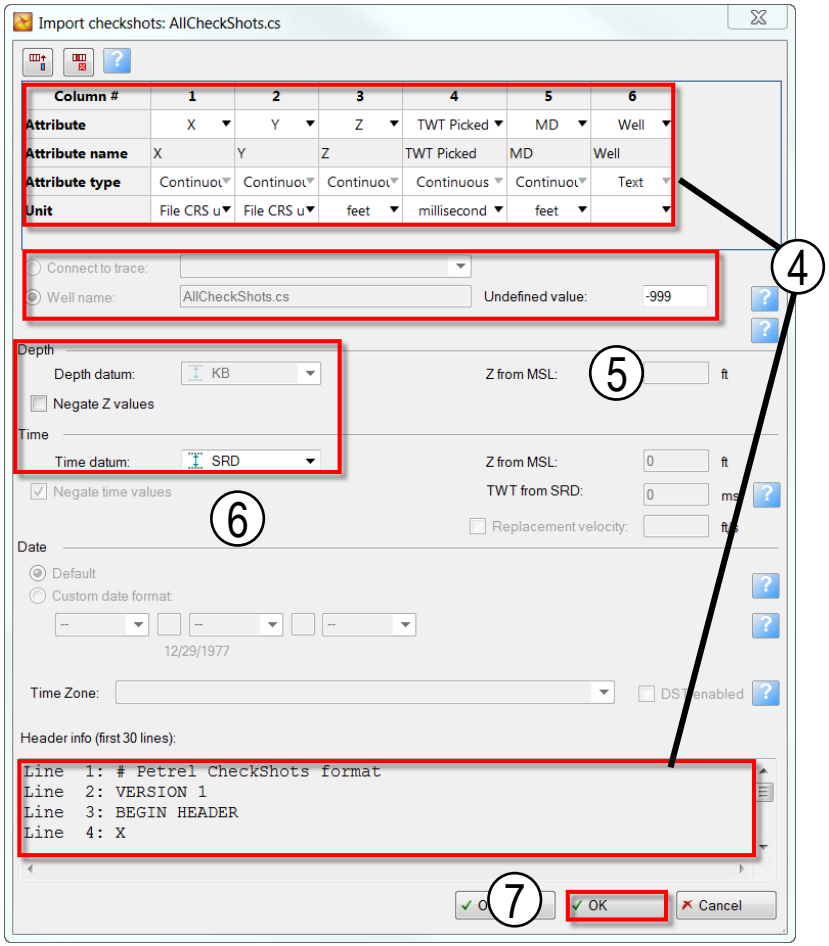
Load checkshot data (2)

4. From the header info in the lower section of the dialog box, insert the parameters into the spreadsheet at the top of the dialog box.

5. If the Well name is not included in the input checkshot file, assign and verify *Connect to trace* to the correct well.



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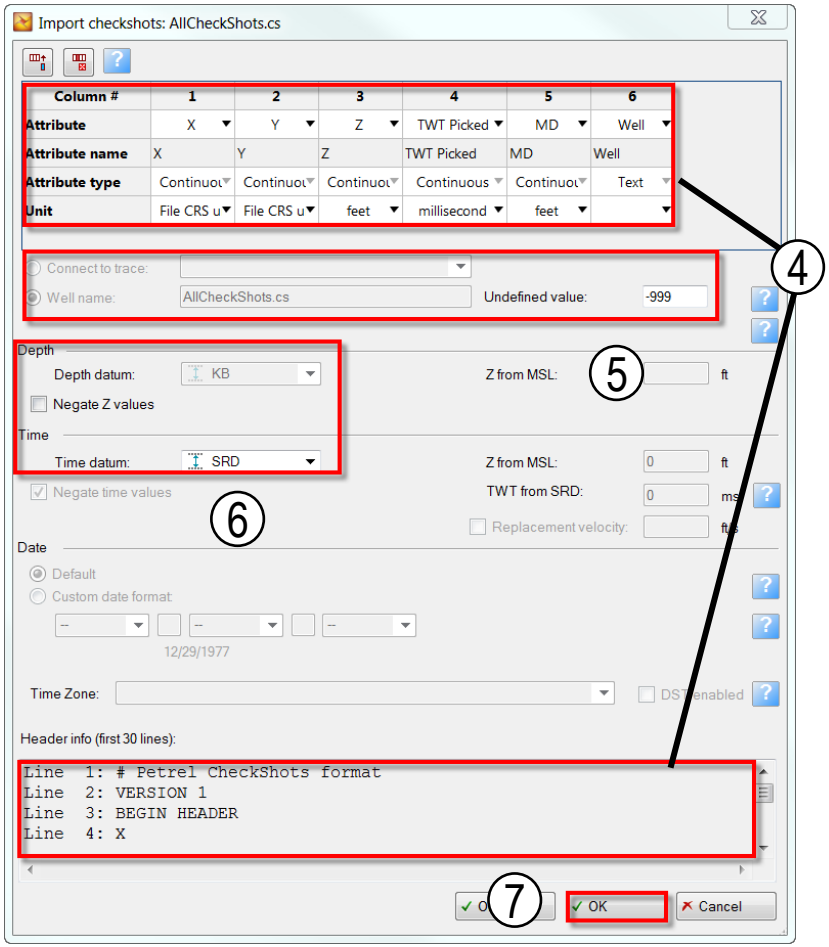
Load checkshot data (3)

6. Select time and depth datum.

7. Click *OK* to complete the checkshot data loading.



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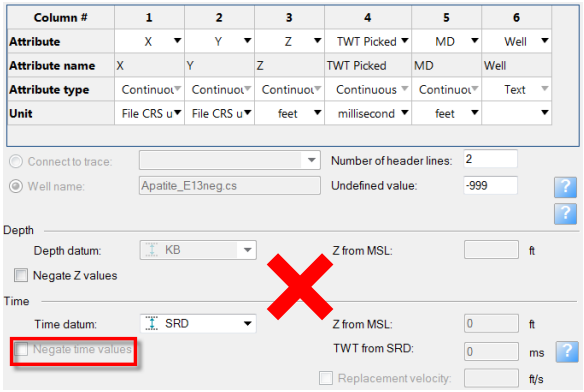
Load checkshots: Errors

Checkshot data is imported incorrectly when the input file contains positive time values. Change the column to TWT and check *Negate time values.*

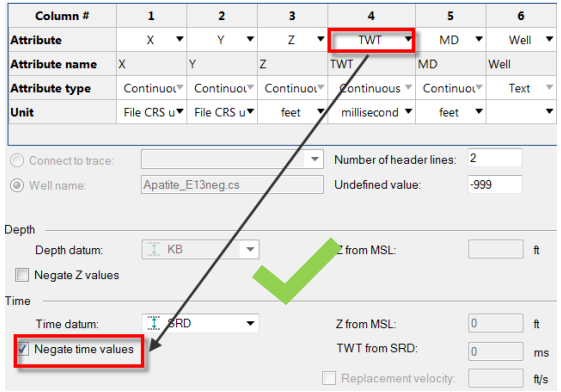
X-Coord	Y-Coord	Z	TWT	MD
1599743.87	-172747.82	0.00	0.00	95.00
1599743.09	-172748.18	-100.00	39.71	195.01
1599743.02	-172748.21	-105.00	41.70	200.01
1599738.12	-172747.07	-304.90	119.30	399.98
1599732.30	-172747.23	-704.80	268.00	799.9
etc				

TWT must be negative!

Wrong!



Correct!



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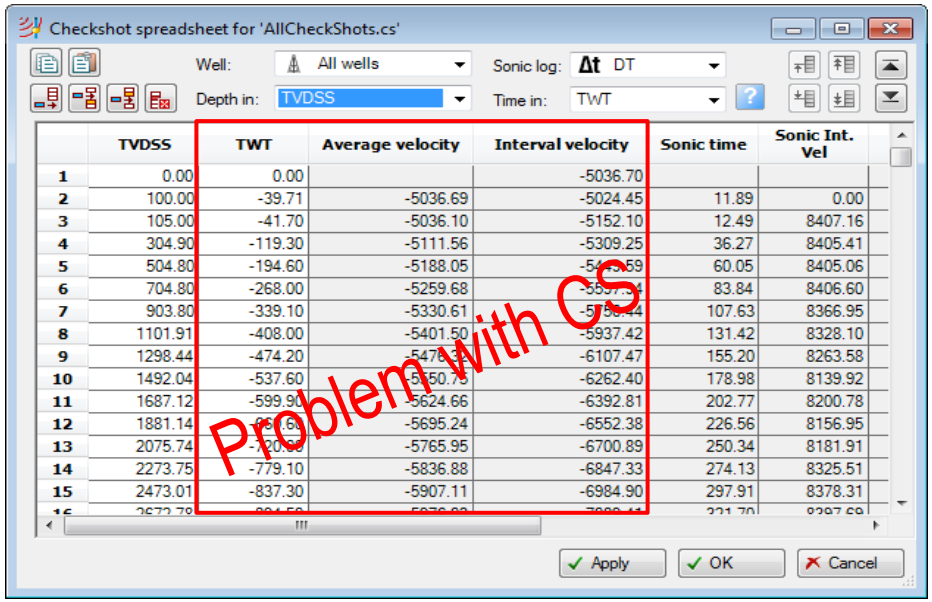
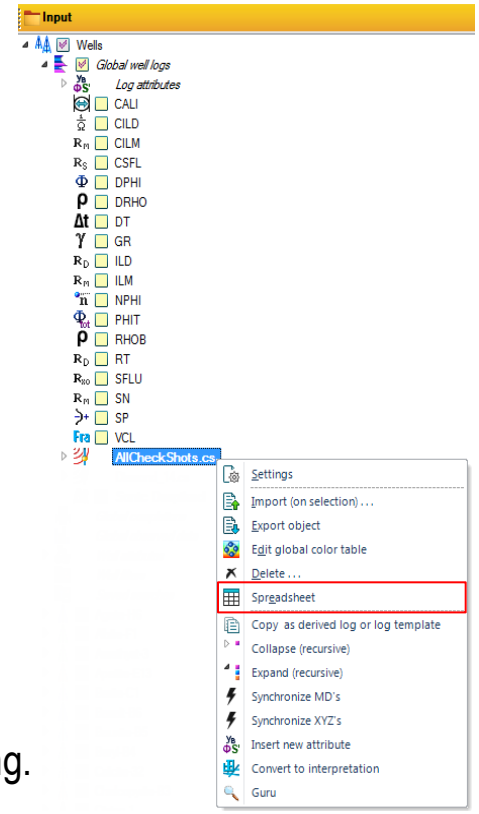
QC checkshots (1)

1. Right-click checkshots in the **Global well logs** folder and open the spreadsheet.
2. Check for negative velocities and TWT.



	TVDSS	TWT	Average velocity	Interval velocity	Sonic time	Sonic Int. Vel
1	0.00	0.00		-5036.70		
2	100.00	-39.71	-5036.69	-5024.45	11.89	0.00
3	105.00	-41.70	-5036.10	-5152.10	12.49	8407.16
4	304.90	-119.30	-5111.56	-5309.25	36.27	8405.41
5	504.80	-194.60	-5188.05	-5[illegible]59	60.05	8405.06
6	704.80	-268.00	-5259.68	-5[illegible]94	83.84	8406.60
7	903.80	-339.10	-5330.61	-5[illegible]44	107.63	8366.95
8	1101.91	-408.00	-5401.50	-5937.42	131.42	8328.10
9	1298.44	-474.20	-5478.[illegible]	-6107.47	155.20	8263.58
10	1492.04	-537.60	-5550.75	-6262.40	178.98	8139.92
11	1687.12	-599.90	-5624.66	-6392.81	202.77	8200.78
12	1881.14	-[illegible]	-5695.24	-6552.38	226.56	8156.95
13	2075.74	-[illegible]	-5765.95	-6700.89	250.34	8181.91
14	2273.75	-779.10	-5836.88	-6847.33	274.13	8325.51
15	2473.01	-837.30	-5907.11	-6984.90	297.91	8378.31
16	2672.78	-[illegible]	-5976.88	-[illegible]	321.70	8397.69



NOTE: It is important to always QC the loaded data. In this example, negative time and velocity values reflect errors in the checkshot loading.

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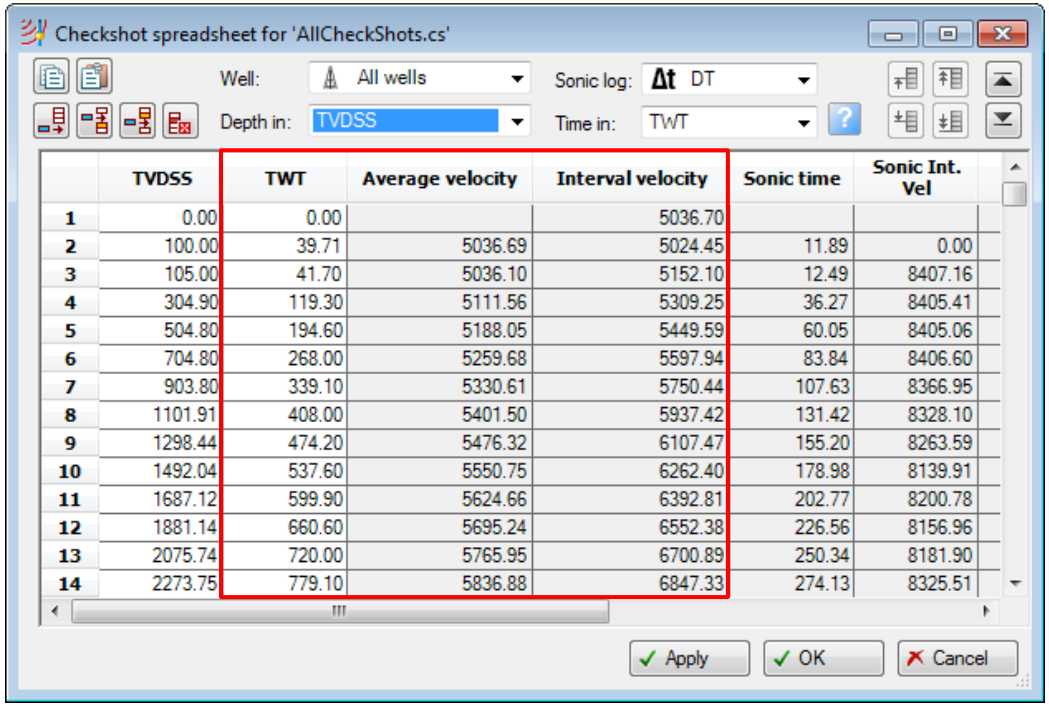
QC checkshots

Correctly loaded checkshot survey parameters – TWT, TVDSS, and velocities – are positive numbers.



	TVDSS	TWT	Average velocity	Interval velocity	Sonic time	Sonic Int. Vel
1	0.00	0.00		5036.70		
2	100.00	39.71	5036.69	5024.45	11.89	0.00
3	105.00	41.70	5036.10	5152.10	12.49	8407.16
4	304.90	119.30	5111.56	5309.25	36.27	8405.41
5	504.80	194.60	5188.05	5449.59	60.05	8405.06
6	704.80	268.00	5259.68	5597.94	83.84	8406.60
7	903.80	339.10	5330.61	5750.44	107.63	8366.95
8	1101.91	408.00	5401.50	5937.42	131.42	8328.10
9	1298.44	474.20	5476.32	6107.47	155.20	8263.59
10	1492.04	537.60	5550.75	6262.40	178.98	8139.91
11	1687.12	599.90	5624.66	6392.81	202.77	8200.78
12	1881.14	660.60	5695.24	6552.38	226.56	8156.96
13	2075.74	720.00	5765.95	6700.89	250.34	8181.90
14	2273.75	779.10	5836.88	6847.33	274.13	8325.51

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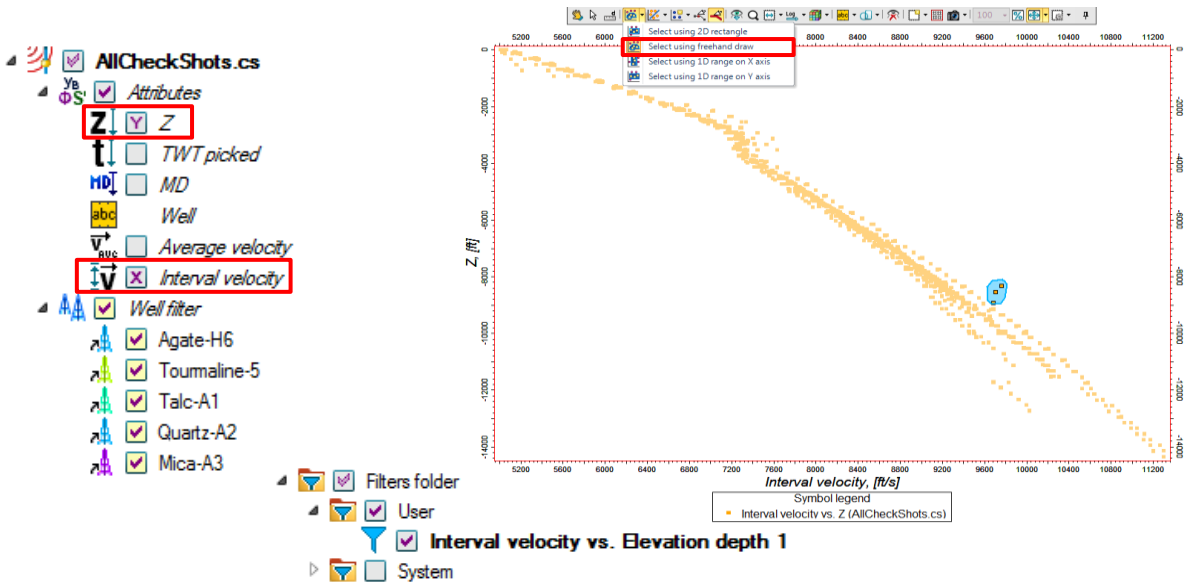
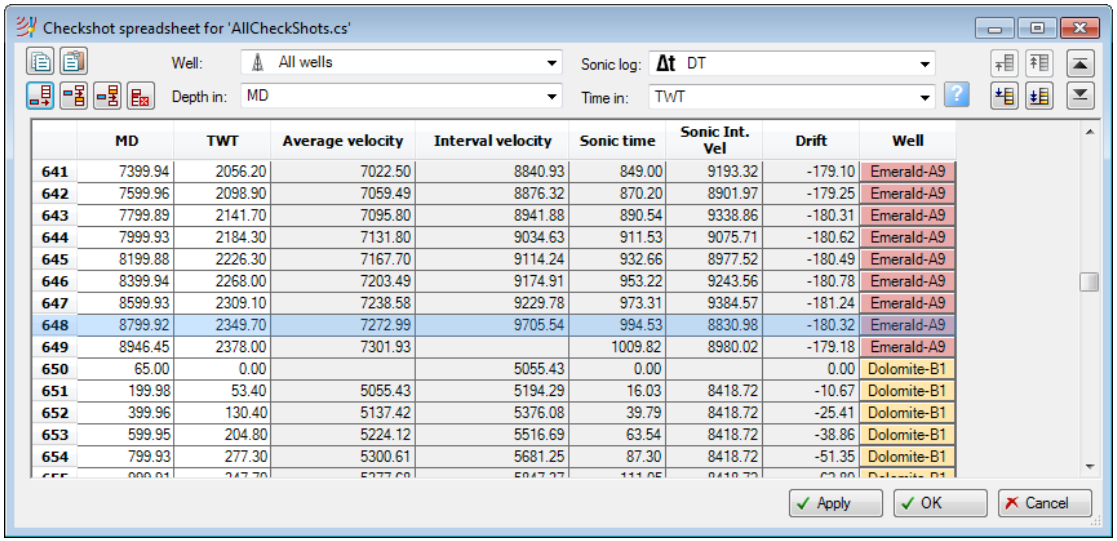
Edit checkshot data (1)

1. In a **Function** window, display the Interval velocity attribute of checkshots against Z (or TWT). Use a well filter to display individual checkshot surveys.
2. Use one of the filter icons from the **Window** toolbar and select the outliers. The automatically created filter is stored in **Filters** folder in the **Input** pane.



Edit checkshot data (2)

3. Click the *Select using freehand draw* icon and paint a closed area in the **Function** window. Make sure that the filter polygon contains some bad points.
4. In the Checkshots spreadsheet, click the *Delete selected row(s) in the table* icon to remove the rows, then click *Apply* to make the change in the checkshot data.
5. Check the other wells for outliers.



	MD	TWT	Average velocity	Interval velocity	Sonic time	Sonic Int. Vel	Drift	Well
641	7399.94	2056.20	7022.50	8840.93	849.00	9193.32	-179.10	Emerald-A9
642	7599.96	2098.90	7059.49	8876.32	870.20	8901.97	-179.25	Emerald-A9
643	7799.89	2141.70	7095.80	8941.88	890.54	9338.86	-180.31	Emerald-A9
644	7999.93	2184.30	7131.80	9034.63	911.53	9075.71	-180.62	Emerald-A9
645	8199.88	2226.30	7167.70	9114.24	932.66	8977.52	-180.49	Emerald-A9
646	8399.94	2268.00	7203.49	9174.91	953.22	9243.56	-180.78	Emerald-A9
647	8599.93	2309.10	7238.58	9229.78	973.31	9384.57	-181.24	Emerald-A9
648	8799.92	2349.70	7272.99	9705.54	994.53	8830.98	-180.32	Emerald-A9
649	8946.45	2378.00	7301.93		1009.82	8980.02	-179.18	Emerald-A9
650	65.00	0.00		5055.43	0.00		0.00	Dolomite-B1
651	199.98	53.40	5055.43	5194.29	16.03	8418.72	-10.67	Dolomite-B1
652	399.96	130.40	5137.42	5376.08	39.79	8418.72	-25.41	Dolomite-B1
653	599.95	204.80	5224.12	5516.69	63.54	8418.72	-38.86	Dolomite-B1
654	799.93	277.30	5300.61	5681.25	87.30	8418.72	-51.35	Dolomite-B1

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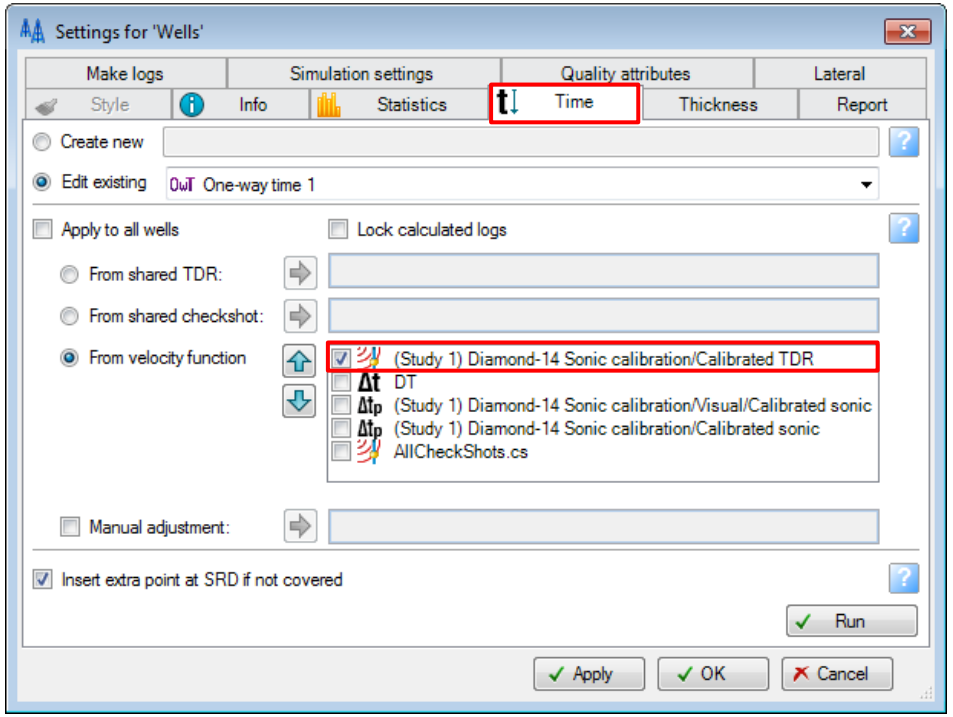
Time-depth relationships

The **Time** tab in the *Wells* folder **Settings** dialog box contains a list of available sources for the time-depth relationship for all wells.

If you select more than one object, the list is used in a hierarchical order.



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Exercises