Storing Fixed Data Logger Results In STORET

Storing fixed data logger results in STORET brings up a number of issues. If using the existing Batch File loading method, there is first the need to edit the log so it can fit the format STORET requires. Second is the need to carefully prepare STORET to receive the file. Third is the limitation in STORET of 2000 rows of results per file. Fourth is time it takes STORET to physically load the file. Also a single error in the file will result in the file's rejection, meaning further editing. Finally, any breaks in the recording period of time results in further errors or file rejection.

A much better solution, which stores the essential data while preserving the integrity of the original log is to store fixed log files as portable data log (PDL) files. There are several advantages to this:

1. Much faster and less prone to error
2. All files can be loaded through SIM to take advantage of SIM's error checking features.
3. The original log file can be attached to the results.
4. Significantly reduced time and effort.

Three things must be done first. First, some preparation is needed in STORET. Next, a SIM configuration needs to be created. Finally, summary statistics and a file of associated information must be created.

Preparing STORET

The station where the logger is located must already exist in STORET.

A monitoring project the logger results support must also exist.

Either a characteristic group of the analytes measured by the logger must be created, or sufficient information allowing SIM to create valid characteristics must be included in the PDL file that will be imported to STORET.

I. Create a Trip in STORET. It is highly recommended using the Log File name for the Trip ID. Enter a Trip Start Date either matching or earlier than the first date of the log file that will be associated with the trip.

II. Preparing SIM Configuration File

The 'Example – Portable Data Logger With Characteristic Names' that is included with SIM is an excellent start.

I. A suggested SIM Configuration format without using a Characteristic Group:

Column:	Position:	Comments:
Trip ID	1	Set Instructions to 'From File'
Station Visit Number	2	Use **1** for each file
Project ID	3	
Station ID	4	
Activity Start Date	5	Format MM/DD/YYYY
Activity Start Time	6	Format HH24:MM
Activity End Date	7	Format MM/DD/YYYY
Activity End Time	8	Format HH24:MM
Activity ID	9	Use the log record id
PDL Line Number	10	
PDL Line Name	11	
Characteristic Name	12	
Field/Lab Procedure Source	13	
Field/Lab Procedure	14	
Result Value Units	15	
Sample Fraction	16	
Result Value	17	
**Result Document/Graphic	18	This will be a copy of the original logger file. Follow the instructions in the SIM guide for saving this file in the correct folder.
*Activity Start Time Zone		Type time zone in Defaults, i.e., **EST**
*Station Visit Number		Set Instructions to Create One Station Visit Per Day
*Medium		Type **Water** as Default
*Activity Type		Type **Field Msr/Obs** as default
*Activity Category		Type **Portable Data Logger** as default
*Activity End Time Zone		Must be same as Activity Start Time Zone

*Set these columns to "Generate"

** If using STORET with Personal Oracle the file must be either a .pdf or preferably a plain text file and it must be stored in the "C:/STORET/Orasto2/SIM/SIM201_DOCUMENTS" folder. If using STORET on a server, contact your Oracle DBA for the location of this folder on the server. You MUST include the entire path when typing in the name of the file.

II. A suggested SIM Configuration format with a Characteristic Group:

Column:	Position:	Comments:
Trip ID	1	Set Instructions to 'From File' Create a Trip exclusively for data logger results
Visit Number	2	Use "1" for each file
Project ID	3	
Station ID	4	
Activity Start Date	5	Format MM/DD/YYYY
Activity Start Time	6	Format HH24:MM
Activity End Date	7	Format MM/DD/YYYY
Activity End Time	8	Format HH24:MM
Activity ID	9	Use the log record id
PDL Line Number	10	
PDL Line Name	11	
Characteristic Group ID	12	
Row ID	13	
Result Value	14	
**Result Document/Graphic	15	This will be a copy of the original logger file. Follow the instructions in the SIM guide for saving this file in the correct folder.
*Activity Start Time Zone		Type time zone in Defaults, i.e. **EST**
*Station Visit Number		Set Instructions to Create One Station Visit Per Day
*Medium		Type **Water** as Default
*Activity Type		Type **Field Msr/Obs** as default
*Activity Category		Type **Portable Data Logger** as default
*Activity End Time Zone		Must be same as Activity Start Time Zone

*Set these columns as 'Generate"

** If using STORET with Personal Oracle the file must be either a .pdf or preferably a plain text file and it must be stored in the "C:/STORET/Orasto2/SIM/SIM201_DOCUMENTS" folder. If using STORET on a server, contact your Oracle DBA for the location of this folder on the server. You MUST include the entire path when typing in the name of the file.

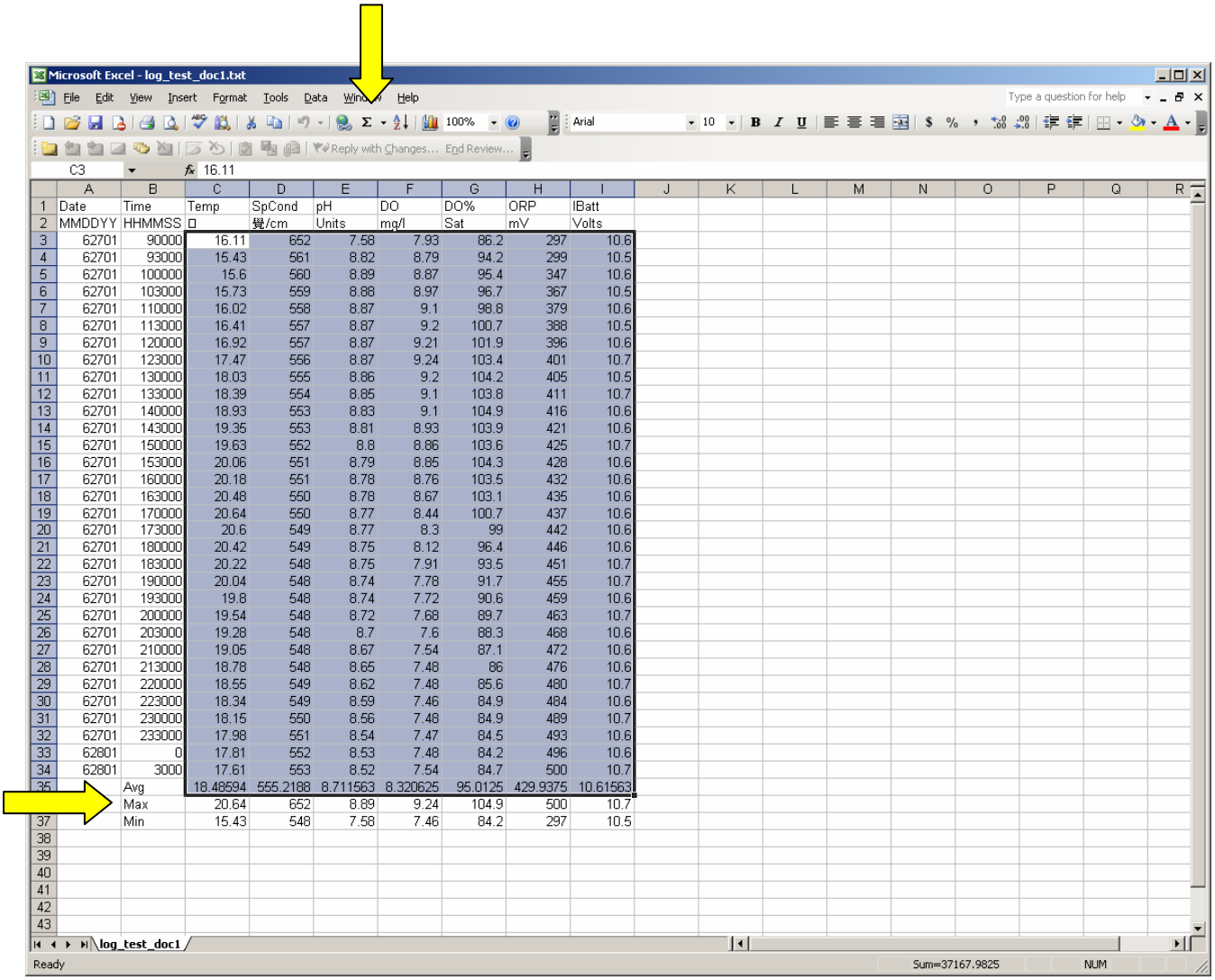
Preparing The Log File

A second file must be created from the original logger results file. This second file will be used to generate the information needed by STORET and SIM.

Sample log file:

Date	Time	Temp	SpCond	pH	DO	DO%	ORP	IBatt
MMDDYY	HHMMSS		S/cm	Units	mg/l	Sat	mV	Volts
62701	90000	16.11	652	7.58	7.93	86.2	297	10.6
62701	93000	15.43	561	8.82	8.79	94.2	299	10.5
62701	100000	15.6	560	8.89	8.87	95.4	347	10.6
62701	103000	15.73	559	8.88	8.97	96.7	367	10.5
62701	110000	16.02	558	8.87	9.1	98.8	379	10.6
62701	113000	16.41	557	8.87	9.2	100.7	388	10.5
62701	120000	16.92	557	8.87	9.21	101.9	396	10.6
62701	123000	17.47	556	8.87	9.24	103.4	401	10.7
62701	130000	18.03	555	8.86	9.2	104.2	405	10.5
62701	133000	18.39	554	8.85	9.1	103.8	411	10.7
62701	140000	18.93	553	8.83	9.1	104.9	416	10.6
62701	143000	19.35	553	8.81	8.93	103.9	421	10.6
62701	150000	19.63	552	8.8	8.86	103.6	425	10.7
62701	153000	20.06	551	8.79	8.85	104.3	428	10.6
62701	160000	20.18	551	8.78	8.76	103.5	432	10.6
62701	163000	20.48	550	8.78	8.67	103.1	435	10.6
62701	170000	20.64	550	8.77	8.44	100.7	437	10.6
62701	173000	20.6	549	8.77	8.3	99	442	10.6
62701	180000	20.42	549	8.75	8.12	96.4	446	10.6
62701	183000	20.22	548	8.75	7.91	93.5	451	10.7
62701	190000	20.04	548	8.74	7.78	91.7	455	10.7
62701	193000	19.8	548	8.74	7.72	90.6	459	10.6
62701	200000	19.54	548	8.72	7.68	89.7	463	10.7
62701	203000	19.28	548	8.7	7.6	88.3	468	10.6
62701	210000	19.05	548	8.67	7.54	87.1	472	10.6
62701	213000	18.78	548	8.65	7.48	86	476	10.6
62701	220000	18.55	549	8.62	7.48	85.6	480	10.7
62701	223000	18.34	549	8.59	7.46	84.9	484	10.6
62701	230000	18.15	550	8.56	7.48	84.9	489	10.7
62701	233000	17.98	551	8.54	7.47	84.5	493	10.6
62801	0	17.81	552	8.53	7.48	84.2	496	10.6
62801	3000	17.61	553	8.52	7.54	84.7	500	10.7

Calculate Average, Maximum and Minimum from the results. In Excel, highlight all rows with results, then click the arrow to the right of the Autosum symbol, ∑ followed by clicking in turn, Average, Max and Min. Make note of these values and the characteristics they are associated with since these are the actual values that will be entered into SIM.



	A	B	C	D	E	F	G	H	I
1	Date	Time	Temp	SpCond	pH	DO	DO%	ORP	IBatt
2	MMDDYY	HHMMSS	□	覺/cm	Units	mg/l	Sat	mV	Volts
3	62701	90000	16.11	652	7.58	7.93	86.2	297	10.6
4	62701	93000	15.43	561	8.82	8.79	94.2	299	10.5
5	62701	100000	15.6	560	8.89	8.87	95.4	347	10.6
6	62701	103000	15.73	559	8.88	8.97	96.7	367	10.5
7	62701	110000	16.02	558	8.87	9.1	98.8	379	10.6
8	62701	113000	16.41	557	8.87	9.2	100.7	388	10.5
9	62701	120000	16.92	557	8.87	9.21	101.9	396	10.6
10	62701	123000	17.47	556	8.87	9.24	103.4	401	10.7
11	62701	130000	18.03	555	8.86	9.2	104.2	405	10.5
12	62701	133000	18.39	554	8.85	9.1	103.8	411	10.7
13	62701	140000	18.93	553	8.83	9.1	104.9	416	10.6
14	62701	143000	19.35	553	8.81	8.93	103.9	421	10.6
15	62701	150000	19.63	552	8.8	8.86	103.6	425	10.7
16	62701	153000	20.06	551	8.79	8.85	104.3	428	10.6
17	62701	160000	20.18	551	8.78	8.76	103.5	432	10.6
18	62701	163000	20.48	550	8.78	8.67	103.1	435	10.6
19	62701	170000	20.64	550	8.77	8.44	100.7	437	10.6
20	62701	173000	20.6	549	8.77	8.3	99	442	10.6
21	62701	180000	20.42	549	8.75	8.12	96.4	446	10.6
22	62701	183000	20.22	548	8.75	7.91	93.5	451	10.7
23	62701	190000	20.04	548	8.74	7.78	91.7	455	10.7
24	62701	193000	19.8	548	8.74	7.72	90.6	459	10.6
25	62701	200000	19.54	548	8.72	7.68	89.7	463	10.7
26	62701	203000	19.28	548	8.7	7.6	88.3	468	10.6
27	62701	210000	19.05	548	8.67	7.54	87.1	472	10.6
28	62701	213000	18.78	548	8.65	7.48	86	476	10.6
29	62701	220000	18.55	549	8.62	7.48	85.6	480	10.7
30	62701	223000	18.34	549	8.59	7.46	84.9	484	10.6
31	62701	230000	18.15	550	8.56	7.48	84.9	489	10.7
32	62701	233000	17.98	551	8.54	7.47	84.5	493	10.6
33	62801	0	17.81	552	8.53	7.48	84.2	496	10.6
34	62801	3000	17.61	553	8.52	7.54	84.7	500	10.7
35		Avg	18.48594	555.2188	8.711563	8.320625	95.0125	429.9375	10.61563
36		Max	20.64	652	8.89	9.24	104.9	500	10.7
37		Min	15.43	548	7.58	7.46	84.2	297	10.5
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39									
40									
41									
42									
43									

Use these calculated values in STORET. Create a file with four columns as shown in the following example:

PDL #	PDL Name	Characteristic Name	Result
1	Avg	Temperature, Water	18.4894
1	Avg	Specific conductance	555
1	Avg	pH	8.7
1	Avg	Dissolved Oxygen (DO)	8.32
1	Avg	Dissolved oxygen saturation	95.1
2	Max	Temperature, Water	20.84
2	Max	Specific Conductance	652
2	Max	pH	8.89
2	Max	Dissolved oxygen (DO)	9.24
2	Max	Dissolved oxygen saturation	7.46
3	Min	Temperature, Water	15.43
3	Min	Specific Conductance	548
3	Min	pH	7.58
3	Min	Dissolved oxygen (DO)	7.46
3	Min	Dissolved oxygen saturation	84.2

Include and populate the other columns, i.e. Project ID, listed in one of the suggested SIM configurations. When everything in this file matches the SIM configuration, save the file then load the file into SIM.

When retrieving the data, it will be stored as a Field Measurement/Observation, allowing the summary data to be used with other samples and observations data. Clicking "Document/Graphic" for any data result allows opening up the original log file.