

Appendix D

Determining Deployment and Pick up Times from Data Loaded in a PH5 file

Defining receiver deployment and pick up times are essential for archiving active source data sets where any data logger had been deployed multiple times. Without doing so it is not possible to properly reference the data stored in the PH5 file (and impedes SEG-Y gather construction). As a matter of standardization, deployment and pick up times are required for construction of all PH5 data sets. Determine the start and end times of the deployments using one of the two methods below.

1. Experiments where each DAS was deployed once for the duration of the project.

The kitchen tool, *das_start_stop* will provide the first and last sample time for each DAS' data stored within the PH5 file. Chose the earliest and latest start times from the output.

Example: `das_start_stop -n 11-001 >& das_start_stop.out`

`das_start_stop help:`

Usage: `das_start_stop --nickname PH5-file-prefix [--path path-to-PH5-files]`

Do stuff with start and stop times.

Options:

- h, --help show this help message and exit
- n PH5_file_prefix, --nickname=PH5_file_prefix
The PH5 file prefix (experiment nickname).
- p PH5_path, --path=PH5_path
Path to PH5 files. Defaults to current directory.
- c check_after, --check-after=check_after
Start checking after given time: YYYY:JJJ:HH:MM:SS
- d

2. Experiments where a DAS was deployed multiple times during the project.

In this instance the tool, *churn-array-deploy-times* will provide the start times of every data array (originating from the files uploaded into the PH5 file) stored within the PH5. Simply use the earliest time listed in each array file as the start time for DASs in the appropriate array and then calculate an end time based upon the sample counts, sample rate, and sample rate multiplier found in a DAS table from each array. Use *hdfview* to view the DAS tables for receivers, which are found in the Receivers group/DAS groups within the PH5 file as shown below. For a general tutorial on *hdfview* see **Appendix E**, *Hdfview*. Typically the RT-130 and Texan data-loggers write data to one hour long files, but check to be certain.

Example: `churn-array-deploy-times -n 11-001 >& churn.out`

churn-array-deploy-times help:

Usage: churn-array-deploy-times --nickname=PH5-file-prefix options

Options:

- h, --help show this help message and exit
- n PH5_file_prefix, --nickname=PH5_file_prefix
The PH5 file prefix (experiment nickname).
- p PH5_path, --path=PH5_path
Path to PH5 files. Defaults to current directory.
- bug

A subset of a churn output for an array:

Array: Array_t_001 Stations: 12

100	2010:326:00:01:33.000000	6	1290384093.0
100	2010:326:00:03:23.000000	3	1290384203.0

Below is view of a DAS table with the variables encircled which are required to compute the end time for a given deployment.

The screenshot shows the HDFVIEW application window. On the left is a file tree for '11-001.ph5' containing 'Experiment_g', 'Experiment_t', 'Receivers_g', and 'Das_g_10662'. The 'Das_g_10662' folder is expanded, showing a list of data files from 'Das_t' to 'Data_a_0011'. The main window displays a 'Table' view of the 'Das_t' file. The table has 8 columns: 'inst_num', 'raw_file_n', 'receiver_ta', 'response_t', 'sample_count_i', 'sample_rate_i', 'sample_rate_multiplier_i', and 'stream_nu'. The first four columns are empty, and the last four columns contain numerical data. The columns 'sample_count_i', 'sample_rate_i', and 'sample_rate_multiplier_i' are circled in red. A red callout bubble points to these three columns with the text 'Columns needed within the DAS table.'

inst_num	raw_file_n	receiver_ta	response_t	sample_count_i	sample_rate_i	sample_rate_multiplier_i	stream_nu
0		0	0	360000	100	1	1
1		0	0	360000	100	1	1
2		0	0	360000	100	1	1
3		0	0	360000	100	1	1
4		0	0	360000	100	1	1
5		0	0	360000	100	1	1
6		0	0	360000	100	1	1
7		0	0	360000	100	1	1

Figure 1. PH5 file opened with HDFVIEW. The sample count, sample rate, and sample rate multiplier column headings are circled showing the columns with in the DAS table necessary to use to calculate the end time of the array.