Recommendations on format changes from the Profiling Float Technical Workshop, Seattle, 2017.

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After the Profiling Float Technical Workshop, it was apparent that some small alterations to the meta files for each float needed to be made to allow easier, clearer diagnosis of float performance and lifetime.

Below are the suggestions made and discussed at the ADMT-18 meeting. We now put these to the ADMT-19 meeting for endorsement.

1. Add new PLATFORM_TYPE 'Navis EBR'. APPROVED AT ADMT18

This float has air bladder redesign and new cowling, an example shown here:



2. Standardise the entry for CONTROLLER_BOARD_TYPE_* in the standard managed tables. Finalise these names for ADMT19

An audit of the text string in these fields shows 99 different text variables. We suggested adding a controlled list to the standard tables. This list would comprise the values below, and can be added to/refined as required.

The controlled list should be used as the first portion of the CONTROLLER_BOARD_TYPE_* field, and the remainder of the field would be free text, to allow addition of revision numbers or anything else a PI would like to add.

EG: CONTROLLER_BOARD_TYPE_PRIMARY = "APF9 iridium version xyz"

| Apex floats: | Navis and SOLO: | Others: | |
|--------------|-----------------|---------------------|--|
| APF | N1 | CTF | |
| APF9 | N2 | CTS | |
| APF9E | GG32 | DORSON-BATHYSYSTEMS | |
| APF11 | HC12 | HM2000 | |
| APF3 | | 1535 | |
| APF6 | | MetOcean | |

| APF7 | PID7008 |
|-------|------------|
| APF8 | 015880-100 |
| APF8B | 1535 |
| APF8C | 41722 |
| APF8R | A9SSU |

3. Update FIRMWARE_VERSION definition in the ARGO USER'S manual:

Current definition in the manual:

"The firmware version. This is specified as per the format on the manufacturer's manual. Example: 072804 "

New definition proposed to specifically ask for the firmware version returned from the float test files.

"Firmware version, as returned from the float log files (iridium) or in the test and launch logs (Argos). Example: '072804' or '03/06/17 21:21:20 APF11-2MB-v2.5.2'"

For new APF11 floats, this has implications for the FIRMWARE_VERSION field size. It is currently string 32, which is not long enough to contain new APF11 firmware versions (see example above). Options to handle this: Finalise these recommendations for ADMT19

- Increase field length to string 64 (preferred option)
- Include only the date stamp (second best option)
- Don't include date/time stamps (least preferred option)

4. Updates to BATTERY_TYPE and BATTERY_PACKS fields

An audit of the BATTERY_TYPE field gave this summary:

- 1: 146
- 2: 3075 Alkaline
- 3: 7 Alkaline & Lithium
- 4: 346 Alkaline 15V
- 5: 722 Alkaline and Lithium
- 6: 440 Alkaline and lithium
- 7: 6 Alkaline, Lithium
- 8: 2 Alkaline/Lithium
- 9: 57 LITHIUM
- 10: 5891 Lithium
- 11: 5 Lithium 11V
- 12: 19 Lithium 14V
- 13: 64 Lithium 15V
- 14: 6 Lithium and Alkaline
- 15: 118 Lithium-17V
- 16 : 2 Lithium-Thioyl Chloride (Li-SOCI2)
- 17: 500 Lithium/Alkaline
- 18: 1134 missing_field
- 19: 103 n/a

We propose to Introduce controlled values for the battery-related variables to make them more parsable by adjusting existing variables and introducing new variables, dimensioned by N_PACK for some. We also suggest introducing controlled names for some of the fields as indicated below.

BATTERY_TYPE (already in place, new dimensioning for N_PACK, introduce controlled list)

| Alkaline | |
|-----------|--|
| Lithium | |
| Hybrid(?) | |

BATTERY_PACKS (already in place, new dimensioning for N_PACK, introduce controlled list)

| 4DD |
|-------------|
| 1C |
| U (unknown) |
| O (other) |

BATTERY_MANUFACTURER (N_PACK, string 32, introduce controlled list)

| Electrochem | |
|-------------|--|
| Tadiran | |

BATTERY_MODEL (N_PACK, string 64, free text) Eg 3PD1404

BATTERY_ENERGY_MJ (float) XX

BATTERY_ENERGY_USE (N_PACK, integer) Introduce a binary system, similar to the pass/fail real time QC tests recorded in HISTORY_QCTEST parameter. The sensors can be linked to the SENSOR variable.

An example for a SOLO11 float where one pack sends it's energy to the controller board, and the second to pump, telemetry and CTD:

N_PACK=1 have HEX='D' (value of 13, 1+4+8) N_PACK=2 have HEX='2' (value of 2)

For a standard APEX float, where all packs distribute energy to everything on the float:

N_PACK = 1 have HEX='F' (value of 15, 1+2+4+8)

| Sensor | Binary value |
|---|--------------|
| PUMP | 1 |
| CONTROLLER | 2 |
| TELEMETRY | 4 |
| CTD (assuming CTD is in N_SENSOR index 1-3) | 8 |
| SENSOR_INDEX4 | 16 |
| SENSOR_INDEX5 | 32 |
| etc | etc |