

## APPLY RECIPE (at run time)

- ❖ Recipe application triggered by FSM action CONFIGURE
  - Hardware will be configured with calibration constants previously stored in the recipe
  - Must find a way to trigger a consistency check
    - E.g. FSM transition activating a control manager
    - Check would not be "blocking" for FSM
    - Check results should appear in some log panel and/or alarm panel
- ❖ For each calibration table previously used to create the recipe (the full list is stored in the Recipe Creation Table) the control manager will:
  - Retrieve and display {Run#} and time-stamp from the Calibration-Upload table
  - For all Run# in {Run#}, display all information about the scan from which this calibration was obtained
    - Get\_Calibration\_Run\_Table\_Information(Run#) → (RunType, Recipe, Time-Stamp, SiPM V&T, PACIFIC configuration)
  - Check that SiPM V&T match the actual ones
    - If not, put warning in alarm panel
  - Get latest time-stamp in Calibration-Upload Table and check that is not more recent than calibration time-stamp of recipe itself
    - If not, put warning in alarm panel

## TAKE THE SCAN

- ❖ Update Calibration Run Table
  - Run#
  - Run Type, Recipe, Time Stamp
  - SiPM V & T
  - PACIFIC configuration
    - Store key to access PACIFIC Config. Table
- ❖ Save scan configuration & DAQ FSM configuration
  - /calib/sf/ScanConfig/<Run#>/scanrun.xml
- ❖ Save DAQTELL40 FSM configuration
  - /calib/sf/DAQFEEFSMConfig/<Run#>/fsmconfig.xml
    - Temporarily implemented in /group/sf/etc/sfTell40/reports/SFA/SFCAVERN\_A\_20220809\_232154\_All\_excluded\_links.csv

Analysis

## DATA ANALYSIS RESULTS

- ❖ Working area
  - /calib/sf/\${SCIFI\_CALIB\_PHASE}/<Run-Type>/<Run-#>
    - Currently \${SCIFI\_CALIB\_PHASE}='CavernCommissioning'
    - Note that a single calibration result can be obtained from several runs
- ❖ Save data (if applicable)
  - Scans based on non-MDF data, like BER, should be kept in standard location
    - /calib/sf/<Run-Type>/<Run-#>
- ❖ Save meta-data
  - Keep copy of /group/sf/etc/OnlineDB/ScanAnalysisSetup/<Run-Type>.xml
  - Keep copy of DB info (maps of TELL40, FEE, etc. typically in csv or xml)
    - E.g. BER scans store these in sub-directory <Run-#>/input
  - Keep copy of FEE and TELL40 scan & FSM configuration
    - /calib/sf/ScanConfig/<Run#>/scanrun.xml
    - /calib/sf/DAQFEEFSMConfig/<Run#>/fsmconfig.xml
- ❖ Save results
  - /calib/sf/\${SCIFI\_CALIB\_PHASE}/<Run-Type>/<Run-#>/xml
  - /calib/sf/\${SCIFI\_CALIB\_PHASE}/<Run-Type>/<Run-#>/plots

## UPLOAD RESULTS TO DB

- ❖ Upload triggered by hands
  - Limited to certain users
  - Software retrieves and displays all information about the scan from which this calibration was obtained
    - For all Run#: Get\_Calibration\_Run\_Table\_Information(Run#) → (RunType, Recipe, Time-Stamp, SiPM V&T, PACIFIC configuration)
- ❖ Update Calibration Table
  - Get results from xml files in /calib/sf/\${SCIFI\_CALIB\_PHASE}/<Run-Type>/<Run-#>/xml
  - Put values in the appropriate (meaning the one corresponding to the Run-Type) calibration table
    - Tables are single-entry, meaning only the latest value is kept and no history
    - Tables are "updated", meaning if no new values exist for a certain parameter, the previous values is kept
    - No record is kept in the DB of which parameter has been updated and which not (see below)
- ❖ Update Calibration Import Table
  - Put values in the appropriate (meaning the one corresponding to the Run-Type) calibration-import table
    - Tables are single-entry, meaning only the latest value is kept and no history
    - Tables contain only the array of all run-# of which this calibration consists and the time stamp of the last update and no other info
- ❖ Log File of Upload Tool
  - No record is kept in the DB of which parameter is actually updated and which one inherits the old value
    - The XML files in /calib/sf/\${SCIFI\_CALIB\_PHASE}/<Run-Type>/<Run-#>/xml contain the full record
    - The upload software tool keeps these details (including a reference to the XML files) in the log file
      - The log file could be "historical" (i.e. all in one file), nice and easy to consult

## CREATE RECIPE

- ❖ Recipe creation triggered by hands
  - Limited to certain users
  - recipe uses latest version of each calibration tables (LIS, Time, etc.)
    - Can we say this holds regardless of whether this is DEFAULT or any other recipe?
- ❖ For each calibration table
  - Display {Run#} list & time-stamp of the calibration (unique entry in corresponding Calib Import Table)
  - For each {Run#}, display all information about the scan from which this calibration was obtained
    - Get\_Calibration\_Run\_Table\_Information(Run#) → (RunType, Recipe, Time-Stamp, SiPM V&T, PACIFIC configuration)
  - Check that (SiPM V&T, PACIFIC Config.) are the same as those of the other calibration tables
    - This is a calibration-to-calibration consistency check; if it fails, warn the user and ask for confirmation
  - Check that (SiPM V&T, PACIFIC Config.) selection for the recipe match those of the calibration table
    - This is a recipe-to-calibration consistency check; if it fails, warn the user and ask for confirmation
  - Insert calibration-table values into recipe
    - If value not found in calibration table, warn user and use default asking user for confirmation
  - Store {Run#} list and time-stamp of last update (from Calib Import Table) in the Recipe Creation Table
    - Since this is done for every table, several instances of {Run#} and time-stamp will be kept, one per calibration table