tabgtigen

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Abstract

Create Good-Time-Intervals from table data

1 Instruments/Modes

EPIC MOS : ALL
EPIC PN : ALL
RGS : ALL
OM : ALL

2 Use

pipeline processing	yes
interactive analysis	yes

3 Description

The purpose of **tabgtigen** is to produce Good Time Intervals (GTIs) for data processing based on the time history of the housekeeping and other periodic data. The user specifies what data files to use and what filtering criteria to use. The filtering criteria take the form of a boolean expression, with table column names being used as the variables in the expression. If for a given row in a data set the boolean expression evaluates to true, then the time for this row is included in the determination of the GTIs. The output consists of one GTI file. The GTI list will be valid only for those ranges of time covered by all input data files.

For a description of the syntax rules the boolean selection expression must adhere to, please consult the documentation of the SAS package **selectlib**.

Please note: Many of the available operators and functions which can be used in the selection expression have merely limited applicability in the case of **tabgtigen** (e.g. region selection filters). This functionality, however, is available "for free" since it comes from the **selectlib** package which **tabgtigen** is based on.

4 Parameters

This section documents the parameters recognized by this task (if any).

Parameter	Mand	Type	Default	Constraints
table	yes	name of existing table		input table specifier

a table specifier which must point to a table in a data set. It must be in either of the three forms `setname`, `setname+tableid` or `setname[tableid]` where `setname` must be the name of an existing data set and `tableid` an identifier of a table in that data set. If the first form, `setname`, is used, the table data are sought in the *first* block of the named data set. `tableid` can either be an identifier starting with a letter which must then be the name of a table in the specified data set or a simple number which is directly interpreted as a block sequence number (starting from 1).

expression	yes	string		valid boolean expression according to above syntax rules

the boolean expression controlling the creation of the GTI file

gtiset	no	table specifier	gti.ds:ALLGTI	none

The name of the resulting output GTI table - can be the name of an already existing table (which will get overwritten) or the name of a new one in an existing or new data set.

timecolumn	no	string	TIME	name of existing column

name of the column in the input data set containing the time stamps

prefraction	no	real	0.5	-1.0–1.0

the fraction of the previous time interval to be included in the current GTI. A value of 1.0 means to include the whole interval. The default is to take half of the time interval as if the state change occurred between the sample instants. Please note: For the adjustment of the very START time there is no previous time interval to consider - the subsequent one is taken instead.

postfraction	no	real	0.5	-1.0–1.0

the fraction of the subsequent time interval to be included in the current GTI. A value of 1.0 means to include the whole interval. The default is to take half of the time interval as if the state change occurred between the sample instants. Please note: For the adjustment of the last STOP time there is no following time interval to consider - the previous one is taken instead.

mingtisize	no	real	0	>= 0

The output GTI table shall not contain GTIs with durations less than this limit. Its value shall be echoed in attribute `MINGTISZ` together with a new attribute `SUMSHORT` (the sum of all GTIs shorter than `mingtisize`).

5 Errors

This section documents warnings and errors generated by this task (if any). Note that warnings and errors can also be generated in the SAS infrastructure libraries, in which case they would not be documented here. Refer to the index of all errors and warnings available in the HTML version of the SAS

documentation.

There are no task-specific errors or warnings, i.e. all possible errors or warnings come from the used infrastructure libraries **selectlib**, **dal**, or **param**.

6 Input Files

1. Periodic HK type data files (as produced by HKSTRIP).
2. EPIC MOS HK data (from EPIC MOS Periodic Housekeeping File).
3. EPIC p-n HK data (from EPIC p-n Periodic Housekeeping File).
4. RGS p-n HK data (from RGS p-n Periodic Housekeeping File).
5. OM HK data (from OM Periodic Housekeeping File).
6. OM non-Periodic HK data (from OM non-Periodic Housekeeping File).
7. ERM data (from ERM Count Rate File).
8. Spacecraft Attitude data (from Spacecraft Attitude History File).
9. Spacecraft HK data (from Spacecraft Periodic Housekeeping Files).

7 Output Files

1. OGIP compliant GTI FITS file (for input to **evselect**) with additional attributes `MINGTISZ` (value of `mingtisize` parameter), `SUMSHORT` (sum of GTIs shorter than `mingtisize`).

8 Comments

None.

9 Future developments

None.

References