

OGIP¹ Calibration Memo CAL/SW/2006-001

Length Limits In Calibration Database Software and Files

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SUMMARY

Here we document limits on the length of filenames, header keywords and other metadata used in the HEASARC Calibration Database (CALDB).

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LOG OF SIGNIFICANT CHANGES

Release Date	Sections Changed	Brief Notes
2006 Jan 19	All	Original Version added
2006 Jan 23	§3	

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1 Introduction

The only sin is limitation.

Emerson, "Circles," Essays, First Series (1841, repr. 1847)

The HEASARC Calibration Database (CALDB) uses file metadata in order to identify files in the calibration archive uniquely. Software uses this metadata to retrieve calibration files from the archive. Since the CALDB software is largely written in FORTRAN, and because calibration files use FITS formats for data storage, there are implicit limitations to these metadata. Exceeding these limits can provoke unwanted results by, for example, truncating values. These limits are documented here.

2 Length Limits on Calibration File Metadata

The limits on Calibration file metadata are given in table 1. Calibration file metadata are both stored in individual calibration file extensions as FITS header keywords and/or given in calibration index files as column names for each indexed FITS file extension. CALDB users and creators and managers of calibration databases using the HEASoft package should be aware of these limits.

In table 1, column 1 gives the name of the metadata column in the calibration index file, while column 2 gives the name of the corresponding keyword to be used in the FITS file extension header. Note that some of the columns in the calibration index file (like CAL_DIR, CAL_FILE, etc) are only populated when the FITS extension is indexed and do not correspond to extension header keywords.

The mandatory calibration file extension header keywords are defined in CAL/GEN/92-011, "Required and Recommended FITS keywords for Calibration Files", while calibration index files are discussed in CAL/GEN/92-008, "Calibration Index Files"

3 Case Sensitivity

The HEASARC CALDB is **not** case-sensitive. Metadata values can be entered either as lower or upper case in a calibration index file, but the calibration data retrieval software (the subroutine `gtcalf`) converts all such values into upper case. Similarly the calibration data retrieval software converts user input into upper case before comparing to the calibration index file metadata in order to determine the appropriate calibration file.

Table 1: Limits in CALDB Keywords and Calibration Index File Metadata

CALDB Index Column	Data File KEYWORD	Data Type	Description	CRCIF Limit
TELESCOP	TELESCOP	character	Telescope or mission name	10
INSTRUME	INSTRUME	character	Instrument name	10
FILTER	FILTER	character	Filter Name	10
CAL_DEV		character	Calibration Device	20
CAL_DIR		character	Calibration File Directory	70
CAL_FILE		character	Name of Cal File	40
CAL_CLAS	CCLS0001	character	Cal File Class	3
CAL_DTYP	CDTP0001	character	Cal File Data Type	
CAL_CNAM	CCNM0001	character	Calibration data codename	20
CAL_CBD	CBD1000n	character	Calibration Boundary	70 (per boundary)
CAL_XNO		Integer*2	Calibration extension number	32768
CAL_VSD	CVSD0001	character	validity start date	10
CAL_VST	CVST0001	character	validity start time	8
REF_TIME		Double Precision	reference time	
CAL_QUAL		Integer*2	data quality	0 – 5
CAL_DATE		character	date of ingest	10
CAL_DESC	CDES000n	character	description	70