# Catalog Metadata

## Catalogs as FITS BINTABLES

The keywords listed below are required or recommended for all FITS files in both primary (P) and extension (E) headers that contain catalogs.

The following table(s) of HLSP metadata, to be included in science products, are color-coded:

| | |
|---|---|
| | Required |
| | Recommended |
| | Suggested |

File headers must also include the basic structural FITS keywords and the list of common keywords.

| | Keyword | HDU | Notes |
|---|---|---|---|
| | TUNIT | E | Brightness unit for column containing values of physical quantities |
| | RADESYS | E | Mnemonic for celestial coordinate reference system (typically 'FK5' or the preferred 'ICRS'). |
| | <Filt>MAG0 | E | Flux corresponding to zero magnitude in the <Filt> passband. Note that the last character is a capital "oh", not a zero. |

## Catalog Fields

Most of the metadata in catalogs is often in the definition of the database fields, or table column names, units, and numeric types. Below are the recommended fields for source catalogs, where text in brackets is entirely user-defined.

| | Name | DataType | Notes |
|---|---|---|---|
| | DEC | double | Declination coordinate of source |
| | RA | double | Right ascension coordinate of source |
| | SOURCE | string | Alphanumeric identifier of source |
| | <Filt> | float | Brightness of source in the passband named <Filt>, with NULL value (NaN) indicating no measurement |
| | <Filt>_err | float | Uncertainty in source brightness. |
| | <Filt>_flag | int | Applicable, encoded flags that apply to the brightness in the named passband, with the convention that zero indicates no pathologies. |