AAVS Calibration DB Documentation

# Collection Overview: db.py

The database consists of four collections: Antenna, Fit, Channel and Coefficient. To increase efficiency all time stamps are stored as Unix timestamps.

## Antenna

Apart from the status fields for the pols, the antenna collection only holds static data.

### Fields

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Comment** | |
| id | BSON | unique id of the antenna | |
| antenna\_nr | Int | antenna number within the station | |
| station\_id | Int |  | |
| x\_pos | Float | meters from the station centre in x direction | |
| y\_pos | Float | meters from the station centre in y direction | |
| base\_id | Int |  | |
| tpm\_id | Int |  | |
| tmp\_rx | Int | rx number within the tpm | |
| antenna\_type | String | new antenna types can be defined in the antenna class | |
| status\_x | String | current status of the x pol | new status can be defined in the antenna class |
| status\_y | String | current status of the y pol |

## Fit

### Fields

|  |  |  |
| --- | --- | --- |
| **Name** | **Type** | **Comment** |
| id | BSON | unique id of the fit |
| acquisition\_time | Int | Unix timestamp of the acquisition time. See 1.2.2 for more info. |
| antenna\_id | BSON | id of the antenna the fit relates to |
| pol | Int | x = 0, y =1 |
| fit\_time | Int | Unix timestamp of the fit time. See 1.2.2 for more info. |
| fit\_comment | String |  |
| channels | List | List with channels (collection) |
| flags | String |  |
| phase\_0 | Float |  |
| delay | Float |  |
| status\_y | String |  |

### Functions

To save a time stamp in the form of a datetime instance use the function set\_acquisition\_time or set\_fit\_time respectively. The time stamp should be in UTC.

To retrieve a time stamp as a datetime instance use the function get\_acquisition\_time or get\_fit\_time respectively. The returned time stamp is in UTC.

## Channel

### Fields

|  |  |  |
| --- | --- | --- |
| **Name** | **Type** | **Comment** |
| id | BSON | unique id of the channel |
| frequency | Int | Unix timestamp of the acquisition time. See 1.2.2 for more info. |
| amp | Float |  |
| phase | Float | x = 0, y =1 |
| fit\_id | BSON | id of the related fit |
| antenna\_id | BSON | id of the related antenna |

## Coefficient

### Fields

|  |  |  |
| --- | --- | --- |
| **Name** | **Type** | **Comment** |
| id | BSON | unique id of the coefficient |
| antenna\_id | BSON | id of the related antenna |
| pol | Int | x = 0, y =1 |
| calibration | List | List of complex numbers as strings. See 1.4.2 for more info. |
| download\_time | Int | Unix timestamp of the download time. See 1.2.2 for more info. |

### Functions

To save a time stamp in the form of a datetime instance use the function set\_download\_time. The time stamp should be in UTC.

To retrieve a time stamp as a datetime instance use the get\_download\_time function. The returned time stamp is in UTC.

To save a list of complex numbers use the function set\_calibrations and to retrieve it use the get\_calibrations function.

## Functions