Deimos SAT File Formats

Version History

|  |  |  |
| --- | --- | --- |
| Date | Author | Notes |
| 2018-03-05 | Shui Hung Kwok | Added DSIMULATOR Target list format |
| 2018-03-02 | Shui Hung Kwok | Initial draft |

# DSIMULATOR Target List format

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Column** | **Field** | **Description** | **Datatype** | **Units** | **Example** |
| 1 | Object Name | Currently limited to 16 characters. No whitespace allowed. | string |  | Cl0016+16\_gal276 |
| 2 | RA | Right Ascension | real | sexagesimal hours | 00:16:00.000 |
| 3 | Dec | Declination | real | sexagesimal degrees | +16:00:00.00 |
| 4 | Equinox | Equinox of RA/Dec coordinates | real | year | 2000.0 |
| 5 | Magnitude | Brightness of target | real | mag | 21.50 |
| 6 | Passband | Filter in which the brightness was measured | string |  | V |
| 7 | Pcode | Priority code: indicates target type and relative weighting of science targets as indicated [below](https://www2.keck.hawaii.edu/inst/deimos/dsim.html#pcode). | integer |  | 1000 |
| *Optional Fields* | | | | | |
| 8 | Sample | Sample to which the object belongs. When auto-selecting, objects in Sample 1 are selected first; remaining space is then filled with Sample 2, then Sample 3, etc. Default=1. | integer |  | 1 |
| 9 | Select | Flag indicating whether to pre-select the target. If non-zero, object is pre-selected. This is useful for objects that you definitely want to appear on the mask, eg, extremely high-priority objects, or e.g., a set of useful alignment stars. Default=0. | integer |  | 0 |
| 10 | SlitPA | Position angle of the slit | real | degrees | 180.00 |
| 11 | Len1 | Requested length above object (in direction of PA) | real | arcsec | 4.0 |
| 12 | Len1 | Requested length below object (opposite to PA) | real | arcsec | 4.0 |
| 13 | SlitWidth | Desired slit width. Not implemented, so this value is ignored. Slit width is set globally by the input parameters. | real | arcsec | 1.5 |

Example:

# OBJNAME RA DEC EQX MAG band PCODE LIST SEL? PA L1 L2

11013349 14:15:49.332 25:02:22.34 2000.0 19.19 R -2 0 1

11007300 14:15:35.215 25:00:26.93 2000.0 19.26 R -2 0 1

11028008 14:14:35.936 25:09:20.73 2000.0 20.44 R -2 0 1

11027556 14:15:04.153 25:09:00.97 2000.0 18.00 R -1 0 1

11013025 14:15:49.852 25:01:12.76 2000.0 23.38 R 100

11500307 14:15:39.858 24:59:56.40 2000.0 0.00 R 100

11006783 14:15:42.861 25:00:32.86 2000.0 21.07 R 100

11006484 14:15:42.924 25:01:01.99 2000.0 23.94 R 100

11013368 14:15:44.835 25:01:27.84 2000.0 22.47 R 100

11013366 14:15:44.425 25:01:39.15 2000.0 21.65 R 100

11006782 14:15:36.929 25:00:36.21 2000.0 19.18 R 100

11013370 14:15:39.591 25:01:21.24 2000.0 20.89 R 100

11007192 14:15:35.834 25:00:50.10 2000.0 23.38 R 100

11013013 14:15:39.166 25:01:43.75 2000.0 23.81 R 100

11013288 14:15:41.960 25:02:23.95 2000.0 23.53 R 100

11013128 14:15:41.506 25:02:30.50 2000.0 23.68 R 100

11013360 14:15:37.097 25:01:49.75 2000.0 22.84 R 100

11013352 14:15:36.943 25:02:08.59 2000.0 22.82 R 100 2

……

# Deimos DSimulator Output FITS Table Formats

## Table ObjectCat

|  |  |  |
| --- | --- | --- |
| **Name** | **Description** | **Unit/Type** |
| ObjectId | A number identifying the object in this list | integer |
| OBJECT | Name of object | string |
| RA\_OBJ | Object’s right ascension in hour | hour, float |
| DEC\_OBJ | Object’s declination in degree | degree, float |
| RADESYS | Coordinate Frame, blank | ? |
| EQUINOX | Equinox in year, eg 2000.0 | year, float |
| MJD-OBS | Modified Julian-date of observation, eg. 0 | 0.0 |
| mag | Object’s magnitude, what wavelength? | float |
| pBand | Photometric band, eg. B | char |
| RadVel | Radial velocity, eg 0 | ? |
| MajAxis | 0 | ? |
| MajAxPA | Major axis position angle, in deg | degree, float |
| MinAxis | 0 | ? |
| PM\_RA | Proper motion in RA | ? |
| PM\_Dec | Proper motion in DEC | ? |
| Parallax | 0, ? | degree, float |
| ObjClass | Object’s class, eg. Alignment Star, Program\_Target | string |
| CatFilePK | 1, ? | ? |

Example:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **ObjectId** | **OBJECT** | **RA\_OBJ** | **DEC\_OBJ** | **RADESYS** | **EQUINOX** | **MJD-OBS** | **mag** | **pBand** | **RadVel** | **MajAxis** | **MajAxPA** | **MinAxis** | **PM\_RA** | **PM\_Dec** | **Parallax** | **ObjClass** | **CatFilePK** |
| **0** | 0 | N2419-D17 ... | 114.605900 | 38.941200 |  | 2000.0 | 0.0 | 17.52 | I | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | Alignment\_Star | 1 |
| **1** | 1 | N2419-D6 ... | 114.584450 | 38.953953 |  | 2000.0 | 0.0 | 17.27 | I | 0.0 | 0.0 | 60.0 | 0.0 | 0.0 | 0.0 | 0.0 | Program\_Target | 1 |
| **2** | 2 | N2419-S1000 ... | 114.543467 | 38.910525 |  | 2000.0 | 0.0 | 20.86 | I | 0.0 | 0.0 | 60.0 | 0.0 | 0.0 | 0.0 | 0.0 | Program\_Target | 1 |
| **3** | 3 | N2419-S1004 ... | 114.543871 | 38.870425 |  | 2000.0 | 0.0 | 16.59 | I | 0.0 | 0.0 | 60.0 | 0.0 | 0.0 | 0.0 | 0.0 | Program\_Target | 1 |
| **4** | 4 | N2419-S1007 ... | 114.544088 | 38.854778 |  | 2000.0 | 0.0 | 18.78 | I | 0.0 | 0.0 | 60.0 | 0.0 | 0.0 | 0.0 | 0.0 | Program\_Target | 1 |
|  | … | … | … | … |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## Table CatFiles

|  |  |  |
| --- | --- | --- |
| **Name** | **Description** | **Unit** |
| CatFilePK | ? | ? |
| CatFileName | ? | ? |

Example:

|  |  |  |
| --- | --- | --- |
|  | **CatFilePK** | **CatFileName** |
| 0 | 1 | INDEF ... |

## Table MaskDesign

|  |  |  |
| --- | --- | --- |
| **Name** | **Description** | **Unit/Type** |
| DesId | A number identifying this mask | integer |
| DesName | Name of this mask | string |
| DesAuth | Namer of email of author | string |
| DesCreat | Software used | string |
| DesDate | Creation date | ISO date format |
| DesNslit | Number of slits | integer |
| DesNobj | Number of objects | integer |
| ProjName | Project’s name | string |
| INSTRUME | Instrument | string |
| MaskType | ??? |  |
| RA\_PNT | Pointing RA in hour | hour, float |
| DEC\_PNT | Pointing DEC in degree | degree, float |
| RADEPNT | ?? |  |
| EQUINPNT | Pointing equinox in year | year, float |
| PA\_PNT | Position angle in degree | degree, float |
| DATE\_PNT | Observation date, eg. 2018-03-02 | date |
| LST\_PNT | Local sidereal time, in degree | degree, float |

Example:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **DesId** | **DesName** | **DesAuth** | **DesCreat** | **DesDate** | **DesNslit** | **DesNobj** | **ProjName** | **INSTRUME** | **MaskType** | **RA\_PNT** | **DEC\_PNT** | **RADEPNT** | **EQUINPNT** | **PA\_PNT** | **DATE\_PNT** | **LST\_PNT** |
| **0** | 1 | n2419c ... | Evan Kirby <enk@astro.caltech.edu> ... | Dsimulator: Ver 0.0b ... | 2017-09-22T10:36:40 | 100 | 107 | M31 ... | DEIMOS ... | ??? ... | 114.593027 | 38.792944 |  | 2000.0 | 50.0 | 2017-10-21 | -30.0 |

## Table DesiSlits

|  |  |  |
| --- | --- | --- |
| **Name** | **Description** | **Unit/Type** |
| dSlitId | Slit Id, a number | integer |
| DesId | Mask ID | integer |
| SlitName | Name of slit, eg. 000 | 3 digits |
| slitRA | Slit’s RA, in hour | hour, float |
| slitDec | Slit’s DEC in degree | degree, float |
| slitTyp | Type, A=Alignment, P=Program target | char |
| slitLen | Length of slit, in arcsec | arcsec, float |
| slitLPA | Slit’s position angle in degree | degree, float |
| slitWid | Slit’s width, in arcsec | arcsec, float |
| slitWPA | Slit’s width PA, in degree ?? | degree, float |

Example:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **dSlitId** | **DesId** | **SlitName** | **slitRA** | **slitDec** | **slitTyp** | **slitLen** | **slitLPA** | **slitWid** | **slitWPA** |
| **0** | 0 | 1 | 000 | 114.605902 | 38.941200 | A | 4.000 | 50.0 | 4.0 | 140.0 |
| **1** | 1 | 1 | 001 | 114.584492 | 38.953970 | P | 5.851 | 60.0 | 0.7 | 140.0 |
| **2** | 2 | 1 | 002 | 114.543678 | 38.910619 | P | 6.669 | 60.0 | 0.7 | 140.0 |
| **3** | 3 | 1 | 003 | 114.543766 | 38.870376 | P | 6.508 | 60.0 | 0.7 | 140.0 |
| **4** | 4 | 1 | 004 | 114.544311 | 38.854877 | P | 5.946 | 60.0 | 0.7 | 140.0 |
|  | … | … | … |  |  |  |  |  |  |  |

## Table SlitObjMap

|  |  |  |
| --- | --- | --- |
| **Name** | **Description** | **Unit/Type** |
| DesId | Mask Id | integer |
| ObjectId | Object’s Id | integer |
| dSlitId | Slit’s Id | integer |
| TopDist | Distance to top end of slit arcsec | arcsec, float |
| BotDist | Distance to bottom end of slit arcsec | arcsec, float |

Example:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **DesId** | **ObjectId** | **dSlitId** | **TopDist** | **BotDist** |
| **0** | 1 | 0 | 0 | 2.000 | 2.000 |
| **1** | 1 | 1 | 1 | 2.796 | 3.055 |
| **2** | 1 | 2 | 2 | 2.657 | 4.013 |
| **3** | 1 | 3 | 3 | 3.601 | 2.907 |
| **4** | 1 | 4 | 4 | 2.256 | 3.690 |
|  | … | … | … |  |  |

## Table MaskBlu

|  |  |  |
| --- | --- | --- |
| **Name** | **Description** | **Unit/Type** |
| BluId | Blue mask Id | integer |
| DesId | Mask Id | integer |
| BluName | Mask name | string |
| guiname | GUI name | string |
| BluObsvr | Observer’s name and email | string |
| BluCreat | Software used | string |
| BluDate | Creation date | ISO date |
| LST\_Use | Local sidereal time ? degree | degree, float |
| Date\_Use | Date, yyyy-mm-dd | date |
| TELESCOP | Telescope, Keck I, Keck II | string |
| RefrAlg | Refraction algorithm, eg slalib | string |
| AtmTempC | Atmospheric temperature, degree | degC, float |
| AtmPres | Atmospheric pressure, mbar? | float |
| AtmHumid | Relative humidity, fraction 0-1 | float |
| AtmTTLap | Tropospheric lapse rate, degC/Km ?? | ?? |
| RefWave | Reference wavelength, in micron | um, float |
| DistMeth | ?? |  |

Example:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **BluId** | **DesId** | **BluName** | **guiname** | **BluObsvr** | **BluCreat** | **BluDate** | **LST\_Use** | **Date\_Use** | **TELESCOP** | **RefrAlg** | **AtmTempC** | **AtmPres** | **AtmHumid** | **AtmTTLap** | **RefWave** | **DistMeth** |
| **0** | 1 | 1 | n2419c ... | n2419c | Evan Kirby <enk@astro.caltech.edu> ... | DSIMULATOR -- 02Jul25 ... | 2017-09-22T10:36:40 | 5.636 | 2017-10-21 | Keck II ... | SLALIB ... | 0.0 | 615.0 | 0.4 | 0.0065 | 656.3 | INDEF ... |

## Table BluSlits

|  |  |  |
| --- | --- | --- |
| **Name** | **Description** | **Type** |
| bSlitId | Blue Slit Id | integer |
| BluId | Mask Id | integer |
| dSlitId | Slit Id | integer |
| slitX1 | Slit X1, arcsec | float |
| slitY1 | Slit Y1, arcsec | float |
| slitX2 | Slit X2, arcsec | float |
| slitY2 | Slit Y2, arcsec | float |
| slitX3 | Slit X3, arcsec | float |
| slitY3 | Slit Y3, arcsec | float |
| slitX4 | Slit X4, arcsec | float |
| slitY4 | Slit Y4, arcsec | float |

Example:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **bSlitId** | **BluId** | **dSlitId** | **slitX1** | **slitY1** | **slitX2** | **slitY2** | **slitX3** | **slitY3** | **slitX4** | **slitY4** |
| **0** | 0 | 1 | 0 | 255.496 | 156.367 | 252.569 | 156.335 | 252.565 | 159.257 | 255.492 | 159.289 |
| **1** | 1 | 1 | 1 | 244.103 | 210.942 | 239.888 | 211.641 | 239.888 | 212.152 | 244.102 | 211.453 |
| **2** | 2 | 1 | 2 | 107.327 | 176.250 | 102.541 | 177.075 | 102.541 | 177.587 | 107.327 | 176.762 |
| **3** | 3 | 1 | 3 | 39.562 | 94.827 | 34.893 | 95.645 | 34.893 | 96.158 | 39.562 | 95.339 |
| **4** | 4 | 1 | 4 | 14.079 | 62.857 | 9.813 | 63.611 | 9.813 | 64.123 | 14.079 | 63.370 |
|  | … | … | … | … |  |  |  |  |  |  |  |

## Table RDBmap

|  |  |  |
| --- | --- | --- |
| **Name** | **Description** | **Type** |
| MEMBER\_NAME | Fits table name | string |
| KwdOrCol | ??, eg C? | char |
| Element | Column name in fits table | string |
| RDBtable | Table name in database | string |
| RDBfield | Field name in database | string |

Example:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **MEMBER\_NAME** | **KwdOrCol** | **Element** | **RDBtable** | **RDBfield** |
| **0** | BluSlits | C | bSlitId | BluSlits | bSlitId |
| **1** | BluSlits | C | BluId | BluSlits | BluId |
| **2** | BluSlits | C | dSlitId | BluSlits | dSlitId |
| **3** | BluSlits | C | slitX1 | BluSlits | slitX1 |
| **4** | BluSlits | C | slitY1 | BluSlits | slitY1 |
|  | … |  |  |  |  |