

General Special Requirements

| Program, Obs(.Exposure_Spec) | Comment |
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| Rules and Conventions | |
| all have default Days | should select units of all duration specifications from list provided |
| 630 54 | observation level special requirement applies to ALL visits in that observation |
| Supported Formats for General Special Requirements | |
| { } are example argument_1, argument_2, argument_3, argument_4, argument_5 | |
| Target Position Requirements | |
| 630 1 | OFFSET <X-value>, <Y-value> DB: Offset {0.2} {0.3} |
| Other Requirements | |
| 630 4 | ON HOLD <comment> DB: On Hold {for ground based observation} |
| 630 4 | TARGET OF OPPORTUNITY RESPONSE TIME <duration> DB: Target of Opportunity {15 Days} |
| 630 16 | MAXIMUM VISIT DURATION <duration> DB: Maximum Visit Duration {300 Secs} |
| 630 6 | PARALLEL [<min> to <max> ITERATIONS] [WITH <min_sep> MINIMUM SEPARATION] [SLEW-ONLY] DB: Parallel {3} {7} {5 Arcsec} {SlewOnly=FALSE} |
| 630 17 | BACKGROUND LIMITED. BACKGROUND NO MORE THAN <percentage> ABOVE MINIMUM DB: Background Limited {10%} |
| 630 1 | NO PARALLEL DB: No Parallel |
| 630 6 | PARALLELS EXCLUDE POINTINGS <value(s)> DB: Parallels Exclude Pointings {ECLIPTIC_NORTH_CAP, REGION_OF_M33} |
| 630 6 | PARALLELS INCLUDE POINTINGS <value(s)> DB: Parallels Include Pointings {ECLIPTIC_ALL,ECLIPTIC_MID_LATITUDE,ECLIPTIC_PLANE} |
| 630 2 | REALTIME DB: Realtime |
| 630 3 | WAVEFRONT SENSING <value> DB: Wavefront Sensing {ROUTINE} |
| 630 6 | VISIT SPLITTING DISTANCE <distance> DB: Visit Splitting Distance {35.0 Arcsec} |
| 630 5 | REQUIRED DB: Required |
| 630 3 | SPECIAL COMMANDING <text> DB: Special Commanding {SPEC COM 9} |
| 630 3 | DMS PRIORITY <value> DB: DMS Priority {ELEVATED} |
| 630 18 | MOMENTUM UNLOAD [BIAS_X, BIAS_Y, BIAS_Z] DB: Momentum Unload {2.5} {1.8} {3} |

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| 630 19 | EXPOSE ONLY - NO MECHANISM COMMANDING DB: Expose Only - No Mechanism Commanding |
| Guiding Requirements | |
| 630 1 | PCS MODE <value> DB: PCS Mode {COARSE} |
| 630 4 | GUIDE STAR [ID <id>] [IN <guider>] DB: Guide Star ID {GS12345678} {Guider 2} |
| 630 4 | GUIDE STAR LIMITS <BRIGHT>-<FAINT> DB: Guide Star Limits {11} {13} |
| | SEGMENT GUIDE STAR |
| Target Position Requirements | |
| OFFSET <X-value>, <Y-value> | |
| 951 1 MIRI Dark | must be external target |
| 951 2 | if target acq OFFSET applies only to science exposures |
| 951 3 | exception if observation uses a NIRSpec MSA Target acq also applies to target acq |
| 951 4 *NOT IN APT* | APT should warn if OFFSET values take target outside aperture |
| Other Requirements | |
| ON HOLD <comment> | |
| 951 4 | comment field required |
| TARGET OF OPPORTUNITY RESPONSE TIME <duration> | |
| 951 6 *NOT IN APT* | minimum duration allowed is 24 hours |
| 951 6 | durations < 14 days are considered disruptive |
| 951 6 explanation | if disruptive ToOs cause scheduling inefficiencies an additional overhead may be added to total time charged |
| 951 5 | all Targets of Opportunity will get an automatic ON HOLD added |
| 951 5 | duration is required with no default value |
| 951 6 *NOT IN APT* | GUI should level durations < 14 days as "Disruptive" |
| MAXIMUM VISIT DURATION <duration> | |
| 951 7 and 8 (split) | default MAXIMUM VISIT DURATION is 24 hours (86400 seconds) |
| 951 9 | APT will issue warning if > 24 hours |
| PARALLEL [<min> to <max> ITERATIONS] [WITH <min_sep>MINIMUM SEPARATION] [SLEW-ONLY] | |
| 951 10 | max must be greater than or equal to min |
| 951 11 | min must be specified if max value given |
| 606 1 | use SLEW-ONLY to obtain slew-only parallel observation |
| 951 1 warning | MIRI Dark must use PARALLEL |
| 951 12 NO PARALLEL | MIRI Anneal must use PARALLEL |
| 951 13 warning | NIRCam Dark must use PARALLEL |
| 951 14 warning | NIRSpec Dark must use PARALLEL |
| 951 15 not allowed | NIRSpec MSA Masking must use PARALLEL |
| 951 16 *NOT in APT* | FGS Internal Flat must use PARALLEL |
| warning for DARKs | if any above do not include PARALLEL issue a warning |
| 951 10 | if <min> greater than 5 issue warning |
| 951 17 | if <min_sep> greater than or equal to 20" issue warning |
| SLEW-ONLY should only be used for | |
| 951 18 added default | NIRSpec Internal Lamp |
| 951 19 added default | NIRISS Internal Flat |
| 951 20 added default | MIRI External Flat |

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| they do | the above templates should get PARALLEL SLEW-ONLY by default |
| 951 21-23 warning for NIRSpec error for other two | warning if missing |
| 951 24-26 | error should be issued if PARALLEL without SLEW-ONLY |
| 951 27 NIRISS ExtCal | error if any other templates use PARALLEL SLEW-ONLY |
| 951 27 APT says NO | SLEW-ONLY can be used for NIRISS External Calibration |
| BACKGROUND LIMITED. BACKGROUND NO MORE THAN <percentage> ABOVE MINIMUM | |
| 951 28 FGS ExtCal | BACKGROUND LIMITED not available for FGS |
| 951 29 Realtime Com | BACKGROUND LIMITED not available for SC |
| and a bunch more... see PR 89085 | |
| NO PARALLEL | |
| 951 30 untrue | NO PARALLEL cannot also have PARALLEL |
| PARALLELS EXCLUDE POINTINGS <value(s)> | |
| 951 31 | PARALLEL must be used diagnostic if not specified |
| 639 1 | ECLIPTIC_ALL (ECLIPTIC_PLANE and ECLIPTIC_MID_LATITUDE) |
| 639 2 | ECLIPTIC_MID_LATITUDE |
| 639 2 | ECLIPTIC_NORTH_CAP |
| 639 2 | ECLIPTIC_PLANE |
| 639 4 | ECLIPTIC_SOUTH_CAP |
| 639 2 | GALACTIC_CENTER |
| 639 2 | GALACTIC_MID_LATITUDE |
| 639 2 | GALACTIC_NORTH_CAP |
| 639 2 | GALACTIC_PLANE |
| 639 6 | GALACTIC_SOUTH_CAP |
| 639 6 | GALAXY_ALL (GALACTIC_PLANE, GALACTIC_MID_LATITUDE, GALACTIC_CENTER) |
| 639 6 | HIGH_STAR_COUNT (GALAXY_ALL and all 4 REGIONS) |
| 639 6 | REGION_OF_LMC |
| 639 5 | REGION_OF_M31 |
| 639 4 | REGION_OF_M33 |
| 639 5 | REGION_OF_SMC |
| 639 1, 4, 5 legal 951 33 illegal | PARALLELS EXCLUDE POINTINGS and PARALLELS INCLUDE POINTINGS can be combined as long as not contradictory ex EXCLUDE REGION_OF_M31 INCLUDE HIGH_STAR_COUNT |
| PARALLELS INCLUDE POINTINGS <value(s)> | |
| 951 32 | PARALLEL must be used diagnostic if not specified |
| 639 3 | ECLIPTIC_ALL (ECLIPTIC_PLANE and ECLIPTIC_MID_LATITUDE) |
| 639 3 | ECLIPTIC_MID_LATITUDE |
| 639 4 | ECLIPTIC_NORTH_CAP |
| 639 3 | ECLIPTIC_PLANE |
| 639 7 | ECLIPTIC_SOUTH_CAP |
| 639 7 | GALACTIC_CENTER |
| 639 7 | GALACTIC_MID_LATITUDE |
| 639 7 | GALACTIC_NORTH_CAP |
| 639 7 | GALACTIC_PLANE |
| 639 8 | GALACTIC_SOUTH_CAP |

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| 639 8 | GALAXY_ALL (GALACTIC_PLANE, GALACTIC_MID_LATITUDE, GALACTIC_CENTER) |
| 639 8 | HIGH_STAR_COUNT (GALAXY_ALL and all 4 REGIONS) |
| 639 5 | REGION_OF_LMC |
| 639 4 | REGION_OF_M31 |
| 639 5 | REGION_OF_M33 |
| 639 8 | REGION_OF_SMC |
| 639 1, 4, 5 legal 951 33 illegal | PARALLELS EXCLUDE POINTINGS and PARALLELS INCLUDE POINTINGS can be combined as long as not contradictory ex EXCLUDE REGION_OF_M31 INCLUDE HIGH_STAR_COUNT |
| REALTIME | |
| 951 34 | warning if visit exceeds 3.5 hours (12600 seconds) |
| 951 35 | error if visit exceeds 8 hours (28800 seconds) |
| WAVEFRONT SENSING <value> | |
| 625 5 | ROUTINE |
| 625 5 | 5 independent unlinked visits per target |
| 625 3 | SENSING_CONTROL |
| 625 2 | SENSING_ONLY |
| will be added to all WFSC templates listed below | |
| 951 36 | MIRI MIMF requires SENSING_ONLY |
| 951 37 | NIRSpec MIMF requires SENSING_ONLY |
| 951 38 | WFSC Commissioning requires SENSING_CONTROL |
| 951 39 | WFSC Global Alignment requires SENSING_CONTROL |
| 951 40 | WFSC NIRCcam Coarse Phasing requires SENSING_CONTROL |
| 625 8 | WFSC NIRCcam Fine Phasing SENSING_ONLY or |
| 625 7 | WFSC NIRCcam Fine Phasing SENSING_CONTROL or |
| 625 9 | WFSC NIRCcam Fine Phasing ROUTINE |
| 951 42 | WFSC NIRCcam Fine Phasing LOS JITTER requires SENSING_ONLY |
| other templates | |
| 951 43-45 use ALL 3 | NIRCcam Engineering may use SENSING_ONLY |
| 951 46-48 use ALL 3 | NIRISS External Calibration may use SENSING_ONLY |
| 951 49-51 use ALL 3 | FGS External Calibration may use SENSING_ONLY |
| 951 53 SOSS can | no other templates can use SENSING_CONTROL |
| 951 52 SOSS can | no other templates can use ROUTINE |
| 951 54-56 | WAVEFRONT SENSING must have DMS PRIORITY ELEVATED |
| VISIT SPLITTING DISTANCE <distance> | |
| 951 57 | default is function of Galactic Latitude |
| 951 58 | warning if override value more than default value |
| REQUIRED | |
| SPECIAL COMMANDING <text> | |
| 951 59 | error if <text> field not populated |
| DMS PRIORITY <value> | |
| 630 20 | STANDARD |
| 951 41 | ELEVATED |
| 630 21 | HIGH |
| not explicit | STANDARD default for all except WFSC |
| 951 61-64 | WFSC standard is ELEVATED |
| 951 60 | only observations with WAVEFRONT SENSING may use DMS PRIORITY ELEVATED |

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| MOMENTUM UNLOAD [BIAS_X, BIAS_Y, BIAS_Z] | |
| 951 65 | if optional parameters specified then all 3 are required |
| EXPOSE ONLY - NO MECHANISM COMMANDING | |
| only allowed for | |
| 951 66 | MIRI External Flat |
| 951 67 | NIRCam Engineering Imaging |
| 951 68 OSS 8+ | NIRISS External Calibration |
| 951 69 | NIRSpec Internal Lamp |
| 951 70 | not allowed NIRSpec Internal Lamp BRIGHTOBJ |
| 951 71 | SPECIAL COMMANDING must be used with this requirement |
| Guiding Requirements | |
| PCS MODE <value> | |
| 630 22 | Moving |
| 630 23 | Track |
| 630 24 | Coarse |
| 630 24 | for Coarse the visit splitting distance will be 180" |
| 630 25 | None |
| default and allowed values for PCS MODE | |
| 630 26 630 27 | sci "GO" mode default Fine Guide or Moving |
| 630 30-33 | sci "GO" Coarse, None, Track Moving not allowed |
| 630 28 630 29 | sci "Engineering" mode default Fine Guide or Moving |
| 630 34 | sci "Engineering" mode allowed Coarse |
| 630 35 | sci "Engineering" mode allowed None |
| 630 36 | sci "Engineering" mode allowed Track |
| 630 37 | sci "Engineering" mode allowed Moving |
| 616, 653, 671 | Focus default Fine Guide |
| 630 38 | Focus allowed Coarse |
| 630 39 | Focus allowed None |
| 630 40 | Focus allowed Track |
| 630 41 | Focus allowed Moving |
| 681 | WFSC Commissioning default Coarse |
| 630 42 | WFSC Commissioning allowed Fine Guide |
| 630 43 | WFSC Commissioning allowed None |
| 630 44 | WFSC Commissioning allowed Track |
| 630 45 | WFSC Commissioning allowed Moving |
| 682 | WFSC Global Alignment default Coarse |
| 630 46 | WFSC Global Alignment allowed Fine Guide |
| 630 47 | WFSC Global Alignment allowed None |
| 630 48 | WFSC Global Alignment allowed Track |
| 630 49 | WFSC Global Alignment allowed Moving |
| 686 | WFSC NIRCam Coarse Phasing default Track |
| 630 50 | WFSC NIRCam Coarse Phasing allowed Fine Guide |
| 630 51 | WFSC NIRCam Coarse Phasing allowed Coarse |
| 630 52 | WFSC NIRCam Coarse Phasing allowed None |
| 630 53 | WFSC NIRCam Coarse Phasing allowed Moving |

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| 605 MIRI Dark ex. | Internal Engineering default None select distinct pcs_mode from visit where internal_target='Y' gives NONE |
| 630 26 630 28 | no explicit requirement PCS MODE Fine Guide it is the default if no PCS MODE is specified for a fixed external target |
| 630 27 630 29 | for moving targets the default PCS MODE is Moving |
| GUIDE STAR [ID <id> | [IN <guider>] |
| 951 73 | provide 11 character guide star ID |
| 951 73 | or provide guider |
| 943 7 | GUIDE STAR can't be used with PCS MODE None |
| 951 74 | GUIDE STAR can't be used with PCS MODE Coarse |
| 951 75 | guide star ID 10 character base 36 string A-Z and 0-9 |
| GUIDE STAR LIMITS <BRIGHT>-<FAINT> | |
| 951 76 | <BRIGHT> is less than <FAINT> |
| SEGMENT GUIDE STAR | |
| 951 77 | GUIDE STAR must be fully specified when using SEGMENT GUIDE STAR |
| 951 77 | Position angle required when using Segment Guide Star |