**SSU Mission File Description**

**Introduction**

Space Shuttle Ultra uses the mission file to specify several options about the vehicle and the mission. Mission files are declared in the scenario file with the entry “MISSION” and must be placed in the directory “<orbiter\_installation>\Missions\SSU”. Options are specified by having the option name, followed by the equal sign and then the option value. Here’s an example mission file for simulation of mission STS-107:

Name=STS-107

Orbiter=Columbia

OrbiterTexture=Columbia\_8thmod

TargetInc=39.000000

TargetLAN=0.000000

MECOAlt=105000.000000

MECOVel=7864.3277

MECOFPA=0.75

UseExtAL=FALSE

UseRMS=FALSE

UseODS=FALSE

PerformRollToHeadsUp=TRUE

OMSAssistEnable=true

OMSAssistDuration=102.000000

ThrottleDown=843.333

ThrottleUp=1154.266

SILTS=TRUE

**Description of all options**

|  |  |  |  |
| --- | --- | --- | --- |
| **Option Name** | **Type** | **Description** | **Default** |
| Name | String | Mission name |  |
| Orbiter | String | Orbiter name (also determines orbiter vehicle empty mass), valid values: “Columbia”, “Challenger”, ”Discovery”, “Atlantis”, “Endeavour” | Atlantis |
| OrbiterTexture | String | Filename of the texture to be used in the orbiter mesh |  |
| TargetInc | Number | Target inclination for MECO (deg) | 28.5 |
| MECOAlt | Number | Target altitude for MECO (m) | 105000 |
| MECOVel | Number | Target velocity for MECO (m/s) | 7869.635088 |
| MECOFPA | Number | Target flight path angle for MECO (deg) | 0.747083 |
| PerformRollToHeadsUp | Boolean | Roll to heads up is performed | FALSE |
| OMSAssistEnable | Boolean | OMS assist burn is performed | TRUE |
| OMSAssistDuration | Number | OMS assist burn duration (seconds) | 102 |
| MaxSSMEThrust | Number | Maximum SSME throttles commanded by GPC (%) | 104.5 |
| ThrottleDown | Number | 1º stage SSME throttle down velocity (fps) | 792 |
| ThrottleUp | Number | 1º stage SSME throttle up velocity (fps) | 1304 |
| UseRMS | Boolean | RMS is installed | FALSE |
| UseKUBand | Boolean | KU-Band antenna is installed | TRUE |
| UseSTBDMPM | Boolean | Starboard MPMs are installed | FALSE |
| UseODS | Boolean | ODS is installed | FALSE |
| UseExtAL | Boolean | OV has external airlock | FALSE |
| HasBulkheadFloodlights | Boolean | TRUE if the FWD bulkhead floodlight and docking lights are installed | FALSE |
| HasDragChute | Boolean | OV has drag chute | TRUE |
| Bridgerails | Comma-separated numbers | Comma-separated list of numbers indicating which bridgerails are present. Each number in list should be between 0 and 12 inclusive. | - |
| PayloadZPos<N> | Number | The Z coordinate (in the Orbitersim frame) of payload attachment point N.  N = 0-2 – Centerline active attachment  N = 3-5 – Centerline passive attachment  N = 6-9 – Port attachment  N = 10-13 – Starboard attachment | - |
| ODSZPos |  | The Z coordinate (in the Orbitersim frame) of the ODS or External airlock | 8.25 |
| SILTS | Boolean | SILTS pod (OV-102 only) | FALSE |
| LogSSMEData | Boolean | Enables SSME data logging | FALSE |