**SSU Mission File Description**

**Introduction**

Space Shuttle Ultra uses the mission file to specify several parameters about the vehicle and the mission. Mission files are declared in the scenario file with the entry “MISSION” followed by the name of the mission file, and must be placed in the directory “<orbiter\_installation>\Missions\SSU”.

Parameter values are specified by having the parameter name, followed by the equal sign and then the value. Parameters not specified in the mission file will use a hardcoded default value. Here’s an example mission file for simulation of mission STS-107:

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| --- |
| 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 |

The SSU installation already has some mission files for the included scenarios.

The next page contains a description of all available options.

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| **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, default SSU textures:  “Columbia\_original”, “Columbia\_8thmod”, “Challenger\_original”, “Challenger\_3rdmod”, “Discovery\_original”, “Discovery\_9thmod”, “Atlantis\_original”, “Atlantis\_5thmod”, “Endeavour\_original”, “Endeavour\_3rdmod” |  |
| 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 | FALSE |
| 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 |