

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:

```
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.

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	TRUE
OMSAssistDuration	Number	OMS assist burn duration (seconds)	102
MaxSSMETHrust	Number	Maximum SSME throttles commanded by GPC (%)	104.5
ThrottleDown	Number	1° stage SSME throttle down velocity (fps)	792
ThrottleUp	Number	1° 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