

Liquid Galaxy Stellarium Documentation

Stellarium

GitHub: <https://github.com/miths/LG-Stellarium>

Documentation: [Mithil Ghinaiya-LG-Stellarium-GSoC'21](#)

Project proposal: [Mithil proposal GSoc 2021](#)

Electron-based desktop application

GitHub: <https://github.com/miths/LG-Stellarium-Application>

Documentation: [LG-Stellarium-Application documentation](#)

Project proposal: [Mithil Ghinaiya LG-Stellarium-Application GSoC-21](#)

Usage

Refer: [LG-Stellarium user manual](#)

To make changes to code and build application

refer: <https://github.com/Stellarium/stellarium/blob/master/BUILDING.md>

Implementation

Function details

```
static void LG_communicate_master(StelCore *core, StelMovementMgr *mmgr,
QSettings* conf, StelMainScriptAPI *msapi);
```

- Location: core->StelLGConnect.cpp
- Responds to requests by slaves with current parameters.
- Only runs on master PC.

```
static void LG_communicate_slave(StelCore *core, StelMovementMgr *mmgr,
QSettings* conf, StelMainScriptAPI *msapi, int unsigned microsecond,
QString ip);
```

- Location: core->StelLGConnect.cpp
- Initiates UDP connection with master.
- Continuously requests the master for current set of parameters.
- If parameters have changed, then call set functions to set new parameters.
- Only runs on slave PC.

```
static size_t split(const std::string &txt, std::vector<std::string> &strs,
char ch)
```

- Location: core->StelLGConnect.hpp
- Split string by '|' when it arrives from master.
- Done on slave PC.

```
UDP_connect(StelCore *_core, StelMovementMgr *_mmgr)
```

- Location: core->StelLGConnect.hpp.
- Constructor function.
- Called when initializing StelMovementMgr.
- Reads parameters from config.ini file and calls either slave or Master related functions.

```
void lookAtJ2000(const Vec3d& pos, const Vec3d& up, QSettings* conf=
StelApp::getInstance().getSettings());
```

- Location: core-> StelCore.cpp and StelCore.hpp
- Used for rotating view matrix by certain offset both vertically and horizontally

Updated/Added Files

core-> StelLGConnect.hpp and StelLGConnect.cpp (added)

- Contains LGConnect class to communicate with master and slave.
- Contains functions to establish UDP connection and transfer data continuously.

src-> CMake (updated)

- Added StelLGConnect.hpp and StelLGConnect.cpp to list of files to build under core.

core-> StelMovementMgr.cpp (updated)

- It makes new object of LGConnect while initializing.

core->StelCore.cpp (updated)

- Updated lookAtJ2000() function to incorporate horizontal and vertical FOV offset.

Getter and Setter function for different parameters

View Direction

getViewDirectionJ2000()

setViewDirectionJ2000()

FOV

getCurrentFov()

setCurrentFov()

Time

getPresetSkyTime()

setPresetSkyTime()

Time rate

getTimeRate()

setTimeRate()

JDay (not used)

getMJDay()

setMJDay()

Atmosphere flag

getFlagAtmosphere()

setFlagAtmosphere()

Landscape flag

getFlagLandscape()

setFlagLandscape()

Cardinal Points flag

getFlagCardinalsPoints()

setFlagCardinalsPoints()

Constellation art flag

getFlagArt()
setFlagArt()

Constellation lines flag

getFlagLines()
setFlagLines()

Constellation label flag

getFlagLabels()
setFlagLabels()

Location

getObserverLocation()
setObserverLocation()

Date

getDate()
setDate()

Plugins/ Data/ Use Cases

- *Artificial Satellites*
 - <https://sites.google.com/site/stellariumuserguide/plugins#TOC-Satellites>
- *Pulsars*
 - <https://sites.google.com/site/stellariumuserguide/plugins#TOC-Pulsars>
- *Quasars*
 - <https://sites.google.com/site/stellariumuserguide/plugins#TOC-Quasars>
 - <https://sites.google.com/site/stellariumuserguide/quasars-list>
- *Novae and supernovae*
- *Exoplanets*

Note: These plugins are auto enabled via desktop application which updates the user's config file.