

LVLHFrameModel

5.1

Generated by Doxygen 1.8.14

Contents

1	Module Index	1
1.1	Modules	1
2	Namespace Index	3
2.1	Namespace List	3
3	Data Structure Index	5
3.1	Data Structures	5
4	File Index	7
4.1	File List	7
5	Module Documentation	9
5.1	Models	9
5.1.1	Detailed Description	9
5.2	Utils	10
5.2.1	Detailed Description	10
5.3	LvlhFrame	11
5.3.1	Detailed Description	11
5.3.2	Macro Definition Documentation	11
5.3.2.1	PATH	11
6	Namespace Documentation	13
6.1	jeod Namespace Reference	13
6.1.1	Detailed Description	13

7 Data Structure Documentation	15
7.1 jeod::LvlhFrame Class Reference	15
7.1.1 Detailed Description	16
7.1.2 Constructor & Destructor Documentation	16
7.1.2.1 LvlhFrame() [1/2]	16
7.1.2.2 ~LvlhFrame()	16
7.1.2.3 LvlhFrame() [2/2]	17
7.1.3 Member Function Documentation	17
7.1.3.1 compute_lvlh_frame()	17
7.1.3.2 initialize()	17
7.1.3.3 operator=()	18
7.1.3.4 set_planet()	18
7.1.3.5 set_planet_name()	18
7.1.3.6 set_subject_frame()	18
7.1.3.7 set_subject_name()	19
7.1.3.8 update()	19
7.1.4 Friends And Related Function Documentation	19
7.1.4.1 init_attrjeod__LvlhFrame	19
7.1.4.2 InputProcessor	20
7.1.5 Field Documentation	20
7.1.5.1 frame	20
7.1.5.2 local_dm	20
7.1.5.3 planet_centered_inertial	20
7.1.5.4 planet_name	21
7.1.5.5 subject_frame	21
7.1.5.6 subject_name	21
7.2 jeod::LvlhFrameMessages Class Reference	21
7.2.1 Detailed Description	22
7.2.2 Constructor & Destructor Documentation	22
7.2.2.1 LvlhFrameMessages() [1/2]	22

7.2.2.2	LvlhFrameMessages() [2/2]	23
7.2.3	Member Function Documentation	23
7.2.3.1	operator=()	23
7.2.4	Friends And Related Function Documentation	23
7.2.4.1	init_attrjeod__LvlhFrameMessages	23
7.2.4.2	InputProcessor	23
7.2.5	Field Documentation	23
7.2.5.1	divide_by_zero	23
7.2.5.2	fatal_error	24
7.2.5.3	illegal_value	24
7.2.5.4	invalid_configuration	24
7.2.5.5	invalid_name	24
7.2.5.6	invalid_object	25
7.2.5.7	null_pointer	25
7.2.5.8	trace	25
7.3	jeod::LvlhType Class Reference	25
7.3.1	Detailed Description	26
7.3.2	Member Enumeration Documentation	26
7.3.2.1	Type	26
7.3.3	Constructor & Destructor Documentation	26
7.3.3.1	LvlhType()	27
7.3.4	Friends And Related Function Documentation	27
7.3.4.1	init_attrjeod__LvlhType	27
7.3.4.2	InputProcessor	27
7.3.5	Field Documentation	27
7.3.5.1	value	27
8	File Documentation	29
8.1	lvlh_frame.cc File Reference	29
8.1.1	Detailed Description	29
8.2	lvlh_frame.hh File Reference	29
8.2.1	Detailed Description	30
8.3	lvlh_frame_messages.cc File Reference	30
8.3.1	Detailed Description	30
8.4	lvlh_frame_messages.hh File Reference	30
8.4.1	Detailed Description	31
8.5	lvlh_type.hh File Reference	31
8.5.1	Detailed Description	31
	Index	33

Chapter 1

Module Index

1.1 Modules

Here is a list of all modules:

Models	9
Utils	10
LvlhFrame	11

Chapter 2

Namespace Index

2.1 Namespace List

Here is a list of all namespaces with brief descriptions:

jeod	Namespace jeod	13
----------------------	--------------------------	--------------------

Chapter 3

Data Structure Index

3.1 Data Structures

Here are the data structures with brief descriptions:

jeod::LvlhFrame	The class used to represent an LVLH reference frame associated with a subject DynBody . . .	15
jeod::LvlhFrameMessages	The class that specifies the message IDs used in the LvlhFrame model	21
jeod::LvlhType	The class used to identify the type of LVLH desired	25

Chapter 4

File Index

4.1 File List

Here is a list of all files with brief descriptions:

lvlh_frame.cc	Define methods for the LVLH reference frame class	29
lvlh_frame.hh	Define the class LvlhFrame, the class used to represent a local-vertical, local-horizontal reference frame associated with a subject DynBody	29
lvlh_frame_messages.cc	Implement the class LvlhFrameMessages	30
lvlh_frame_messages.hh	Define the class LvlhFrameMessages, the class that specifies the message IDs used in the LvlhFrame model	30
lvlh_type.hh	Define the class LvlhType, which identifies the type of LVLH desired to be calculated	31

Chapter 5

Module Documentation

5.1 Models

Modules

- [Utils](#)

5.1.1 Detailed Description

5.2 Utils

Modules

- [Lv1hFrame](#)

5.2.1 Detailed Description

5.3 LvlhFrame

Files

- file [lvlh_frame.hh](#)
Define the class LvlhFrame, the class used to represent a local-vertical, local-horizontal reference frame associated with a subject DynBody.
- file [lvlh_frame_messages.hh](#)
Define the class LvlhFrameMessages, the class that specifies the message IDs used in the LvlhFrame model.
- file [lvlh_type.hh](#)
Define the class LvlhType, which identifies the type of LVLH desired to be calculated.
- file [lvlh_frame.cc](#)
Define methods for the LVLH reference frame class.
- file [lvlh_frame_messages.cc](#)
Implement the class LvlhFrameMessages.

Namespaces

- [jeod](#)
Namespace jeod.

Macros

- `#define` [PATH](#) "utils/lvlh_frame/"

5.3.1 Detailed Description

5.3.2 Macro Definition Documentation

5.3.2.1 PATH

```
#define PATH "utils/lvlh_frame/"
```

Definition at line 30 of file `lvlh_frame_messages.cc`.

Chapter 6

Namespace Documentation

6.1 jeod Namespace Reference

Namespace jeod.

Data Structures

- class [LvlhFrame](#)
The class used to represent an LVLH reference frame associated with a subject DynBody.
- class [LvlhFrameMessages](#)
The class that specifies the message IDs used in the [LvlhFrame](#) model.
- class [LvlhType](#)
The class used to identify the type of LVLH desired.

6.1.1 Detailed Description

Namespace jeod.

Chapter 7

Data Structure Documentation

7.1 jeod::LvlhFrame Class Reference

The class used to represent an LVLH reference frame associated with a subject DynBody.

```
#include <lvlh_frame.hh>
```

Public Member Functions

- [LvlhFrame](#) ()=default
- [~LvlhFrame](#) ()
Destruct an [LvlhFrame](#) object.
- [LvlhFrame](#) (const [LvlhFrame](#) &)=delete
- [LvlhFrame](#) & [operator=](#) (const [LvlhFrame](#) &)=delete
- void [initialize](#) (DynManager &dyn_manager)
Begin initialization of an [LvlhFrame](#).
- void [update](#) ()
Update the state.
- void [set_subject_name](#) (const std::string &new_name)
Set the `subject_name` to the supplied value.
- void [set_planet_name](#) (const std::string &new_name)
Set the `planet_name` to the supplied value.
- void [set_subject_frame](#) (RefFrame &new_frame)
Set the `subject_frame` to the supplied value.
- void [set_planet](#) (BasePlanet &new_planet)
Set the planet whose PCI frame will be the reference for LVLH.

Data Fields

- RefFrame [frame](#)
The LVLH frame defined by the subject frame's motion with respect to the reference planet.
- std::string [subject_name](#) {""}
The frame whose motion defines LVLH.
- std::string [planet_name](#) {""}
The planet used as reference for the LVLH frame.

Protected Member Functions

- void [compute_lvlh_frame](#) (const RefFrameTrans &rel_trans)
Update the state of the LVLH frame wrt its parent.

Protected Attributes

- RefFrame * [subject_frame](#) {}
The (moving) frame specified with subject_name.
- RefFrame * [planet_centered_inertial](#) {}
The inertial frame with origin at the center of the specified planet.

Private Attributes

- DynManager * [local_dm](#) {}
A local pointer to the dynamics manager needed for clean-up.

Friends

- class [InputProcessor](#)
- void [init_attrjeod__LvlhFrame](#) ()

7.1.1 Detailed Description

The class used to represent an LVLH reference frame associated with a subject DynBody.

Definition at line 82 of file [lvlh_frame.hh](#).

7.1.2 Constructor & Destructor Documentation

7.1.2.1 LvlhFrame() [1/2]

```
jeod::LvlhFrame::LvlhFrame ( ) [default]
```

7.1.2.2 ~LvlhFrame()

```
jeod::LvlhFrame::~~LvlhFrame ( )
```

Destruct an [LvlhFrame](#) object.

Definition at line 49 of file [lvlh_frame.cc](#).

References [frame](#), [local_dm](#), [planet_centered_inertial](#), and [subject_frame](#).

7.1.2.3 LvlhFrame() [2/2]

```
jeod::LvlhFrame::LvlhFrame (
    const LvlhFrame & ) [delete]
```

7.1.3 Member Function Documentation

7.1.3.1 compute_lvlh_frame()

```
void jeod::LvlhFrame::compute_lvlh_frame (
    const RefFrameTrans & rel_trans ) [protected]
```

Update the state of the LVLH frame wrt its parent.

Parameters

in	<i>rel_trans</i>	Planet relative state
----	------------------	-----------------------

Definition at line 240 of file `lvlh_frame.cc`.

References `frame`.

Referenced by `update()`.

7.1.3.2 initialize()

```
void jeod::LvlhFrame::initialize (
    DynManager & dyn_manager )
```

Begin initialization of an [LvlhFrame](#).

Parameters

in, out	<i>dyn_manager</i>	Dynamics manager
---------	--------------------	------------------

Definition at line 75 of file `lvlh_frame.cc`.

References `frame`, `jeod::LvlhFrameMessages::invalid_configuration`, `jeod::LvlhFrameMessages::invalid_name`, `local_dm`, `planet_centered_inertial`, `planet_name`, `subject_frame`, and `subject_name`.

7.1.3.3 operator=()

```
LvlhFrame& jeod::LvlhFrame::operator= (
    const LvlhFrame & ) [delete]
```

7.1.3.4 set_planet()

```
void jeod::LvlhFrame::set_planet (
    BasePlanet & new_planet )
```

Set the planet whose PCI frame will be the reference for LVLH.

Parameters

in	<i>new_planet</i>	new planet.
----	-------------------	-------------

Definition at line 231 of file lvlh_frame.cc.

References planet_centered_inertial.

7.1.3.5 set_planet_name()

```
void jeod::LvlhFrame::set_planet_name (
    const std::string & new_name )
```

Set the planet_name to the supplied value.

Parameters

in	<i>new_name</i>	new name.
----	-----------------	-----------

Definition at line 222 of file lvlh_frame.cc.

References planet_name.

7.1.3.6 set_subject_frame()

```
void jeod::LvlhFrame::set_subject_frame (
    RefFrame & new_frame )
```

Set the subject_frame to the supplied value.

Parameters

in	<i>new_frame</i>	new frame.
----	------------------	------------

Definition at line 213 of file lvlh_frame.cc.

References `subject_frame`.

7.1.3.7 set_subject_name()

```
void jeod::LvlhFrame::set_subject_name (
    const std::string & new_name )
```

Set the `subject_name` to the supplied value.

Parameters

in	<i>new_name</i>	new name.
----	-----------------	-----------

Definition at line 204 of file lvlh_frame.cc.

References `subject_name`.

7.1.3.8 update()

```
void jeod::LvlhFrame::update ( )
```

Update the state.

Definition at line 177 of file lvlh_frame.cc.

References `compute_lvlh_frame()`, `frame`, `planet_centered_inertial`, and `subject_frame`.

7.1.4 Friends And Related Function Documentation**7.1.4.1 init_attrjeod__LvlhFrame**

```
void init_attrjeod__LvlhFrame ( ) [friend]
```

7.1.4.2 InputProcessor

```
friend class InputProcessor [friend]
```

Definition at line 84 of file `lvh_frame.hh`.

7.1.5 Field Documentation

7.1.5.1 frame

```
RefFrame jeod::LvlhFrame::frame
```

The LVLH frame defined by the subject frame's motion with respect to the reference planet.

`trick_units(-)`

Definition at line 90 of file `lvh_frame.hh`.

Referenced by `compute_lvh_frame()`, `initialize()`, `update()`, and `~LvlhFrame()`.

7.1.5.2 local_dm

```
DynManager* jeod::LvlhFrame::local_dm {} [private]
```

A local pointer to the dynamics manager needed for clean-up.

`trick_units(-)`

Definition at line 117 of file `lvh_frame.hh`.

Referenced by `initialize()`, and `~LvlhFrame()`.

7.1.5.3 planet_centered_inertial

```
RefFrame* jeod::LvlhFrame::planet_centered_inertial {} [protected]
```

The inertial frame with origin at the center of the specified planet.

`trick_units(-)`

Definition at line 111 of file `lvh_frame.hh`.

Referenced by `initialize()`, `set_planet()`, `update()`, and `~LvlhFrame()`.

7.1.5.4 planet_name

```
std::string jeod::LvlhFrame::planet_name {""}
```

The planet used as reference for the LVLH frame.

trick_units(–)

Definition at line 100 of file lvlh_frame.hh.

Referenced by initialize(), and set_planet_name().

7.1.5.5 subject_frame

```
RefFrame* jeod::LvlhFrame::subject_frame {} [protected]
```

The (moving) frame specified with subject_name.

trick_units(–)

Definition at line 106 of file lvlh_frame.hh.

Referenced by initialize(), set_subject_frame(), update(), and ~LvlhFrame().

7.1.5.6 subject_name

```
std::string jeod::LvlhFrame::subject_name {""}
```

The frame whose motion defines LVLH.

Can be on a vehicle or not.trick_units(–)

Definition at line 95 of file lvlh_frame.hh.

Referenced by initialize(), and set_subject_name().

The documentation for this class was generated from the following files:

- [lvlh_frame.hh](#)
- [lvlh_frame.cc](#)

7.2 jeod::LvlhFrameMessages Class Reference

The class that specifies the message IDs used in the [LvlhFrame](#) model.

```
#include <lvlh_frame_messages.hh>
```

Public Member Functions

- [LvIhFrameMessages](#) ()=delete
- [LvIhFrameMessages](#) (const [LvIhFrameMessages](#) &)=delete
- [LvIhFrameMessages](#) & operator= (const [LvIhFrameMessages](#) &)=delete

Static Public Attributes

- static const char * [fatal_error](#) = "utils/lvlh_frame/" "fatal_error"
Issued when performing an action results in an error return from the method performing the action.
- static const char * [illegal_value](#) = "utils/lvlh_frame/" "illegal_value"
Issued when a simple type (e.g.
- static const char * [invalid_name](#) = "utils/lvlh_frame/" "invalid_name"
Issued when a name is invalid (NULL, empty, or does not name an object of the specified type).
- static const char * [invalid_configuration](#) = "utils/lvlh_frame/" "invalid_configuration"
Issued when insufficient information has been specified prior to initialization.
- static const char * [invalid_object](#) = "utils/lvlh_frame/" "invalid_object"
Issued when a pointer points to an object of the wrong type.
- static const char * [null_pointer](#) = "utils/lvlh_frame/" "null_pointer"
Error issued when a pointer is required but was not provided.
- static const char * [trace](#) = "utils/lvlh_frame/" "trace"
Debug message issued to trace [LvIhFrame](#) actions.
- static const char * [divide_by_zero](#) = "utils/lvlh_frame/" "divide_by_zero"
Fatal message when a divide by zero is encountered.

Friends

- class [InputProcessor](#)
- void [init_attrjeod__LvIhFrameMessages](#) ()

7.2.1 Detailed Description

The class that specifies the message IDs used in the [LvIhFrame](#) model.

Definition at line 81 of file [lvlh_frame_messages.hh](#).

7.2.2 Constructor & Destructor Documentation

7.2.2.1 [LvIhFrameMessages](#)() [1/2]

```
jeod::LvIhFrameMessages::LvIhFrameMessages ( ) [delete]
```

7.2.2.2 LvlhFrameMessages() [2/2]

```
jeod::LvlhFrameMessages::LvlhFrameMessages (
    const LvlhFrameMessages & ) [delete]
```

7.2.3 Member Function Documentation

7.2.3.1 operator=()

```
LvlhFrameMessages& jeod::LvlhFrameMessages::operator= (
    const LvlhFrameMessages & ) [delete]
```

7.2.4 Friends And Related Function Documentation

7.2.4.1 init_attrjeod__LvlhFrameMessages

```
void init_attrjeod__LvlhFrameMessages ( ) [friend]
```

7.2.4.2 InputProcessor

```
friend class InputProcessor [friend]
```

Definition at line 83 of file lvlh_frame_messages.hh.

7.2.5 Field Documentation

7.2.5.1 divide_by_zero

```
const char * jeod::LvlhFrameMessages::divide_by_zero = "utils/lvlh_frame/" "divide_by_zero"
[static]
```

Fatal message when a divide by zero is encountered.

trick_units(-)

Definition at line 126 of file lvlh_frame_messages.hh.

7.2.5.2 fatal_error

```
const char * jeod::LvlhFrameMessages::fatal_error = "utils/lvlh_frame/" "fatal_error" [static]
```

Issued when performing an action results in an error return from the method performing the action.

trick_units(-)

Definition at line 89 of file lvlh_frame_messages.hh.

7.2.5.3 illegal_value

```
const char * jeod::LvlhFrameMessages::illegal_value = "utils/lvlh_frame/" "illegal_value" [static]
```

Issued when a simple type (e.g.

an enum) has an illegal value.trick_units(-)

Definition at line 94 of file lvlh_frame_messages.hh.

7.2.5.4 invalid_configuration

```
const char * jeod::LvlhFrameMessages::invalid_configuration = "utils/lvlh_frame/" "invalid_↵  
configuration" [static]
```

Issued when insufficient information has been specified prior to initialization.

trick_units(-)

Definition at line 106 of file lvlh_frame_messages.hh.

Referenced by jeod::LvlhFrame::initialize().

7.2.5.5 invalid_name

```
const char * jeod::LvlhFrameMessages::invalid_name = "utils/lvlh_frame/" "invalid_name" [static]
```

Issued when a name is invalid (NULL, empty, or does not name an object of the specified type).

trick_units(-)

Definition at line 100 of file lvlh_frame_messages.hh.

Referenced by jeod::LvlhFrame::initialize().

7.2.5.6 invalid_object

```
const char * jeod::LvlhFrameMessages::invalid_object = "utils/lvlh_frame/" "invalid_object"
[static]
```

Issued when a pointer points to an object of the wrong type.

trick_units(–)

Definition at line 111 of file lvlh_frame_messages.hh.

7.2.5.7 null_pointer

```
const char * jeod::LvlhFrameMessages::null_pointer = "utils/lvlh_frame/" "null_pointer" [static]
```

Error issued when a pointer is required but was not provided.

trick_units(–)

Definition at line 116 of file lvlh_frame_messages.hh.

7.2.5.8 trace

```
const char * jeod::LvlhFrameMessages::trace = "utils/lvlh_frame/" "trace" [static]
```

Debug message issued to trace [LvlhFrame](#) actions.

trick_units(–)

Definition at line 121 of file lvlh_frame_messages.hh.

The documentation for this class was generated from the following files:

- [lvlh_frame_messages.hh](#)
- [lvlh_frame_messages.cc](#)

7.3 jeod::LvlhType Class Reference

The class used to identify the type of LVLH desired.

```
#include <lvlh_type.hh>
```

Public Types

- enum [Type](#) { [Rectilinear](#) = 0, [CircularCurvilinear](#) = 1, [EllipticalCurvilinear](#) = 2 }

An enumeration to specify the type of LVLH coordinates to use, whether rectilinear, circular curvilinear, or elliptical curvilinear.

Public Member Functions

- [LvlhType](#) ()
Default constructor.

Data Fields

- [Type](#) value
Indicates type of LVLH coordinates desired.

Friends

- class [InputProcessor](#)
- void [init_attrjeod__LvlhType](#) ()

7.3.1 Detailed Description

The class used to identify the type of LVLH desired.

Definition at line 76 of file `lvlh_type.hh`.

7.3.2 Member Enumeration Documentation

7.3.2.1 Type

```
enum jeod::LvlhType::Type
```

An enumeration to specify the type of LVLH coordinates to use, whether rectilinear, circular curvilinear, or elliptical curvilinear.

As of March 2015, elliptical is not implemented.

Enumerator

Rectilinear	
CircularCurvilinear	
EllipticalCurvilinear	

Definition at line 85 of file `lvlh_type.hh`.

7.3.3 Constructor & Destructor Documentation

7.3.3.1 LvlhType()

```
jeod::LvlhType::LvlhType ( ) [inline]
```

Default constructor.

Definition at line 110 of file lvlh_type.hh.

7.3.4 Friends And Related Function Documentation

7.3.4.1 init_attrjeod__LvlhType

```
void init_attrjeod__LvlhType ( ) [friend]
```

7.3.4.2 InputProcessor

```
friend class InputProcessor [friend]
```

Definition at line 78 of file lvlh_type.hh.

7.3.5 Field Documentation

7.3.5.1 value

Type jeod::LvlhType::value

Indicates type of LVLH coordinates desired.

Default is rectilinear.trick_units(-)

Definition at line 103 of file lvlh_type.hh.

The documentation for this class was generated from the following file:

- [lvlh_type.hh](#)

Chapter 8

File Documentation

8.1 `lvlh_frame.cc` File Reference

Define methods for the LVLH reference frame class.

```
#include <cstdint>
#include "dynamics/dyn_manager/include/dyn_manager.hh"
#include "environment/planet/include/base_planet.hh"
#include "utils/math/include/vector3.hh"
#include "utils/message/include/message_handler.hh"
#include "utils/named_item/include/named_item.hh"
#include "../include/lvlh_frame.hh"
#include "../include/lvlh_frame_messages.hh"
```

Namespaces

- [jeod](#)
Namespace jeod.

8.1.1 Detailed Description

Define methods for the LVLH reference frame class.

8.2 `lvlh_frame.hh` File Reference

Define the class `LvlhFrame`, the class used to represent a local-vertical, local-horizontal reference frame associated with a subject `DynBody`.

```
#include <string>
#include "dynamics/dyn_manager/include/class_declarations.hh"
#include "environment/planet/include/class_declarations.hh"
#include "utils/ref_frames/include/ref_frame.hh"
#include "utils/sim_interface/include/jeod_class.hh"
```

Data Structures

- class [jeod::LvHFrame](#)

The class used to represent an LVLH reference frame associated with a subject DynBody.

Namespaces

- [jeod](#)

Namespace jeod.

8.2.1 Detailed Description

Define the class LvHFrame, the class used to represent a local-vertical, local-horizontal reference frame associated with a subject DynBody.

8.3 lvh_frame_messages.cc File Reference

Implement the class LvHFrameMessages.

```
#include "../include/lvlh_frame_messages.hh"
```

Namespaces

- [jeod](#)

Namespace jeod.

Macros

- #define [PATH](#) "utils/lvh_frame/"

8.3.1 Detailed Description

Implement the class LvHFrameMessages.

8.4 lvh_frame_messages.hh File Reference

Define the class LvHFrameMessages, the class that specifies the message IDs used in the LvHFrame model.

```
#include "utils/sim_interface/include/jeod_class.hh"
```

Data Structures

- class [jeod::LvlhFrameMessages](#)

The class that specifies the message IDs used in the [LvlhFrame](#) model.

Namespaces

- [jeod](#)

Namespace jeod.

8.4.1 Detailed Description

Define the class `LvlhFrameMessages`, the class that specifies the message IDs used in the `LvlhFrame` model.

8.5 lvlh_type.hh File Reference

Define the class `LvlhType`, which identifies the type of LVLH desired to be calculated.

```
#include "utils/sim_interface/include/jeod_class.hh"
```

Data Structures

- class [jeod::LvlhType](#)

The class used to identify the type of LVLH desired.

Namespaces

- [jeod](#)

Namespace jeod.

8.5.1 Detailed Description

Define the class `LvlhType`, which identifies the type of LVLH desired to be calculated.

Index

- ~LvlhFrame
 - jeod::LvlhFrame, [16](#)
- compute_lvlh_frame
 - jeod::LvlhFrame, [17](#)
- divide_by_zero
 - jeod::LvlhFrameMessages, [23](#)
- fatal_error
 - jeod::LvlhFrameMessages, [23](#)
- frame
 - jeod::LvlhFrame, [20](#)
- illegal_value
 - jeod::LvlhFrameMessages, [24](#)
- init_attrjeod__LvlhFrame
 - jeod::LvlhFrame, [19](#)
- init_attrjeod__LvlhFrameMessages
 - jeod::LvlhFrameMessages, [23](#)
- init_attrjeod__LvlhType
 - jeod::LvlhType, [27](#)
- initialize
 - jeod::LvlhFrame, [17](#)
- InputProcessor
 - jeod::LvlhFrame, [19](#)
 - jeod::LvlhFrameMessages, [23](#)
 - jeod::LvlhType, [27](#)
- invalid_configuration
 - jeod::LvlhFrameMessages, [24](#)
- invalid_name
 - jeod::LvlhFrameMessages, [24](#)
- invalid_object
 - jeod::LvlhFrameMessages, [24](#)
- jeod, [13](#)
- jeod::LvlhFrame, [15](#)
 - ~LvlhFrame, [16](#)
 - compute_lvlh_frame, [17](#)
 - frame, [20](#)
 - init_attrjeod__LvlhFrame, [19](#)
 - initialize, [17](#)
 - InputProcessor, [19](#)
 - local_dm, [20](#)
 - LvlhFrame, [16](#)
 - operator=, [17](#)
 - planet_centered_inertial, [20](#)
 - planet_name, [20](#)
 - set_planet, [18](#)
 - set_planet_name, [18](#)
 - set_subject_frame, [18](#)
 - set_subject_name, [19](#)
 - subject_frame, [21](#)
 - subject_name, [21](#)
 - update, [19](#)
- jeod::LvlhFrameMessages, [21](#)
 - divide_by_zero, [23](#)
 - fatal_error, [23](#)
 - illegal_value, [24](#)
 - init_attrjeod__LvlhFrameMessages, [23](#)
 - InputProcessor, [23](#)
 - invalid_configuration, [24](#)
 - invalid_name, [24](#)
 - invalid_object, [24](#)
 - LvlhFrameMessages, [22](#)
 - null_pointer, [25](#)
 - operator=, [23](#)
 - trace, [25](#)
- jeod::LvlhType, [25](#)
 - init_attrjeod__LvlhType, [27](#)
 - InputProcessor, [27](#)
 - LvlhType, [26](#)
 - Type, [26](#)
 - value, [27](#)
- local_dm
 - jeod::LvlhFrame, [20](#)
- lvlh_frame.cc, [29](#)
- lvlh_frame.hh, [29](#)
- lvlh_frame_messages.cc, [30](#)
- lvlh_frame_messages.hh, [30](#)
- lvlh_type.hh, [31](#)
- LvlhFrame, [11](#)
 - jeod::LvlhFrame, [16](#)
 - PATH, [11](#)
- LvlhFrameMessages
 - jeod::LvlhFrameMessages, [22](#)
- LvlhType
 - jeod::LvlhType, [26](#)
- Models, [9](#)
- null_pointer
 - jeod::LvlhFrameMessages, [25](#)
- operator=
 - jeod::LvlhFrame, [17](#)
 - jeod::LvlhFrameMessages, [23](#)
- PATH
 - LvlhFrame, [11](#)
- planet_centered_inertial

jeod::LvlhFrame, [20](#)
planet_name
jeod::LvlhFrame, [20](#)

set_planet
jeod::LvlhFrame, [18](#)
set_planet_name
jeod::LvlhFrame, [18](#)
set_subject_frame
jeod::LvlhFrame, [18](#)
set_subject_name
jeod::LvlhFrame, [19](#)
subject_frame
jeod::LvlhFrame, [21](#)
subject_name
jeod::LvlhFrame, [21](#)

trace
jeod::LvlhFrameMessages, [25](#)
Type
jeod::LvlhType, [26](#)

update
jeod::LvlhFrame, [19](#)
Utils, [10](#)

value
jeod::LvlhType, [27](#)