

spec_tools

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1 Todo List

Member `_csv<_T>::set_separator` (const std::string &sSep)

Class `_marker<_T>`

`marker(const _marker<_T>&)`

2 Class Documentation

2.1 `_csv<_T>` Class Template Reference

This is the templated `_csv` class, initialized with double by default. STL parallel execution policy does not provide enhancements for simple operations.

```
#include <csv.h>
```

Public Types

- enum `eVerbose` { `QUIET`, `DEBUG` }

Define verbosity values.

Public Member Functions

- `_csv` ()
Default constructor without parameters. These parameters must be set after by methods. It will rise lot of errors if something is missing.
- `_csv` (const std::string &sFilename, const char &cSep)
Constructor with two parameters such as the name of the working file and the separator character as usual with csv.
- `_csv` (const std::string &sFilename, const std::string &sSep)
- `_csv` (const std::vector< std::vector< _T > > &vvData)
Constructor fed with external data.
- `_csv` (const std::vector< std::string > &vsHeader, const std::vector< std::vector< _T > > &vvData)
Constructor fed with external header and data.
- `_csv` (const std::vector< std::string > &vsHeader, const std::vector< std::vector< _T > > &vvData, const char &cSep)
Constructor fed with external header and data.
- bool `read` ()
Read the content of the file given to the constructor using boost. It detects the header and data consistency with digit sequence: {0123456789e+-, tab std::endl} and basic regex and dimension matching between header and data line. It is able to recover basic errors such as 'tab'=='. The method put NaN in the grid if an unrecoverable error appends. Data will be store in private variables.
- bool `show` () const
Show whole data, i.e. the header and data with no restriction on length or terminal size. It uses boost::format in order to correct spacing of number and strings.
- bool `show` (int iLine_stop) const
Show the header and data until "line_stop" line. Print all columns with terminal end-of-line. It uses boost::format in order to correct spacing of number and strings.
- bool `write` ()
Write on disk what data are store.
- const std::vector< _T > `select_line` (int line) const
Select the line "line" in data.
- const std::vector< _T > `select_column` (int iCol) const
Select the column "col" in data.
- const std::vector< std::vector< _T > > `select` (int iLine_min, int iLine_max, int iCol_min, int iCol_max) const
Select a sub grid in data, i.e. trim data to the rectangular $[i_{min}, i_{max}] \times [j_{min}, j_{max}]$.
- bool `set_data` (const std::vector< std::vector< _T > > &vvData)
Set data with a vector of a vector.
- bool `set_column` (const std::vector< _T > &vCol, int iCol)
Set a column with a vector.
- bool `set_row` (const std::vector< _T > &vRow, int iRow)
- bool `set_header` (const std::vector< std::string > &vsHeader)
Set the header: the first line containing column name.
- bool `set_filename` (const std::string &sFilename)
Set the filename for output or input. The fstream do not care about extension...

- bool `set_filename_out` (const std::string &sFilename)
Set the filename for output. The fstream do not care about extension...
- bool `set_separator` (const char &cSep)
Set the csv separator. Usually: '\t', ' ', ';;', ';' ...
- bool `set_separator` (const std::string &sSep)
Set the csv separator. Usually: '\t', ' ', ';;', ';' ...
- void `set_verbose` (eVerbose evV)
Set the verbose mode for debug. It does not deactivate error raising.
- const std::string `get_filename` () const
Get the filename.
- const std::string `get_filename_out` () const
Get the output filename.
- const char `get_separator` () const
Get the separator.
- const size_t `get_header_size` () const
Get size of the header.
- const size_t `get_data_size_i` () const
Get data line size.
- const size_t `get_data_size_j` () const
Get data column size.
- const std::vector< std::vector<_T> > &`get_data` () const
Get data and return it as a vector of vector.
- const std::vector< std::string > &`get_header` () const
Get column names and return it in a vector.
- bool `empty` () const
Check if data are empty, and the emptiness of the first line, i.e. this->data[0].
- bool `check_dim` ()
Check data dimension consistency, i.e. if all line dimensions are all equal.
- bool `genrandspec` (_T TMin, _T TMax, _T TStep)
- bool `transform_lin` (_T TA, _T TB, int iCol)
Do $Y=aX+b$ to the iCol-column.
- bool `shift` (_T TVal)
- bool `shift` (_T TVal, int iCol)
- bool `apply_max_threshold` (_T TVal)
Delete i line from the grid where $data[i][j] > val$.
- bool `apply_min_threshold` (_T TVal)
Delete i line from the grid where $data[i][j] < val$.
- bool `apply_max_threshold` (_T TVal, int iCol)
Delete i line from the grid where $data[i][j \neq list] > val$.
- bool `apply_min_threshold` (_T TVal, int iCol)
Delete i line from the grid where $data[i][j \neq list] < val$.
- void `zeroize` ()
Set to zero data. One should find this useful...
- void `clear` ()
Delete data and header.
- `_csv` & `operator=` (const `_csv` &other) const
- bool `operator==` (const `_csv` &other) const

- `bool operator!= (const _csv &other) const`
- `_csv & operator+ (const _csv &other) const`
Sum with the 2nd column.
- `_csv & operator+ (const _T &other) const`
Add a constant to the 2nd column.
- `_csv & operator- (const _csv &other) const`
Sum with the 2nd column.
- `_csv & operator- (const _T &other) const`
Subtract a constant to the 2nd column.
- `_csv & operator* (const _csv &other) const`
Inner product with the 2nd column.
- `_csv & operator* (const _T &other) const`
Multiply by a constant the 2nd column.
- `_csv & operator/ (const _csv &other) const`
Divide element by element the two columns.
- `_csv & operator/ (const _T &other) const`
Divide by a non zero constant the 2nd column.

2.1.1 Detailed Description

```
template<typename _T = double>
class _csv< _T >
```

This is the templated `_csv` class, initialized with double by default. STL parallel execution policy does not provide enhancements for simple operations.

2.1.2 Constructor & Destructor Documentation

2.1.2.1 `_csv()` [1/6]

```
template<typename _T = double>
_csv< _T >::_csv ( )
```

Default constructor without parameters. These parameters must be set after by methods. It will rise lot of errors if something is missing.

Default constructor

2.1.2.2 `_csv()` [2/6]

```
template<typename _T = double>
_csv< _T >::_csv (
    const std::string & sFilename,
    const char & cSep ) [explicit]
```

Constructor with two parameters such as the name of the working file and the separator character as usual with csv.

Constructor

Parameters

<i>sFilename</i>	string Name of the input or output file with extension
<i>cSep</i>	char Separator char between column

2.1.2.3 `_csv()` [3/6]

```
template<typename _T = double>
_csv<_T>::_csv (
    const std::string & sFilename,
    const std::string & sSep ) [explicit]
```

Parameters

<i>sFilename</i>	string Name of the input or output file with extension
<i>sSep</i>	string Separator char between column

2.1.2.4 `_csv()` [4/6]

```
template<typename _T = double>
_csv<_T>::_csv (
    const std::vector< std::vector<_T> > & vvData ) [explicit]
```

Constructor fed with external data.

Parameters

<i>vvData</i>	the data
---------------	----------

2.1.2.5 `_csv()` [5/6]

```
template<typename _T = double>
_csv<_T>::_csv (
    const std::vector< std::string > & vsHeader,
    const std::vector< std::vector<_T> > & vvData ) [explicit]
```

Constructor fed with external header and data.

Parameters

<i>vsHeader</i>	The vector of column name
<i>vvData</i>	the data

2.1.2.6 `_csv()` [6/6]

```
template<typename _T = double>
_csv< _T >::_csv (
    const std::vector< std::string > & vsHeader,
    const std::vector< std::vector< _T > > & vvData,
    const char & cSep ) [explicit]
```

Constructor fed with external header and data.

Parameters

<i>vsHeader</i>	the vector of column name
<i>vvData</i>	the data
<i>cSep</i>	char Separator char between column

2.1.3 Member Function Documentation

2.1.3.1 `apply_max_threshold()` [1/2]

```
template<typename _T = double>
bool _csv< _T >::apply_max_threshold (
    _T TVal )
```

Delete i line from the grid where $\mathbf{data}[i][j] > val$.

Parameters

<i>TVal</i>	The max threshold
-------------	-------------------

Returns

true if all seems OK

2.1.3.2 `apply_max_threshold()` [2/2]

```
template<typename _T = double>
bool _csv< _T >::apply_max_threshold (
    _T TVal,
    int iCol )
```

Delete i line from the grid where $\mathbf{data}[i][j \neq list] > val$.

Parameters

<i>TVal</i>	The max threshold
<i>iCol</i>	Select a column

Returns

true if all seems OK

2.1.3.3 `apply_min_threshold()` [1/2]

```
template<typename _T = double>
bool _csv<_T>::apply_min_threshold (
    _T TVal )
```

Delete *i* line from the grid where `data[i][j] < val`.

Parameters

<i>TVal</i>	The min threshold
-------------	-------------------

Returns

true if all seems OK

2.1.3.4 `apply_min_threshold()` [2/2]

```
template<typename _T = double>
bool _csv<_T>::apply_min_threshold (
    _T TVal,
    int iCol )
```

Delete *i* line from the grid where `data[i][j ≠ list] < val`.

Parameters

<i>TVal</i>	The min threshold
<i>iCol</i>	Select a column

Returns

true if all seems OK

2.1.3.5 check_dim()

```
template<typename _T = double>
bool _csv<_T>::check_dim ( )
```

Check data dimension consistency, i.e. if all line dimensions are all equal.

Returns

true if dimensions seem OK

2.1.3.6 empty()

```
template<typename _T = double>
bool _csv<_T>::empty ( ) const
```

Check if data are empty, and the emptiness of the first line, i.e. this->data[0].

Returns

true if data are empty

2.1.3.7 get_data()

```
template<typename _T = double>
const std::vector< std::vector<_T> > & _csv<_T>::get_data ( ) const
```

Get data and return it as a vector of vector.

Returns

std::vector<std::vector<_T> >

2.1.3.8 get_data_size_i()

```
template<typename _T = double>
const size_t _csv<_T>::get_data_size_i ( ) const
```

Get data line size.

Returns

size_t

2.1.3.9 `get_data_size_j()`

```
template<typename _T = double>
const size_t _csv<_T>::get_data_size_j ( ) const
```

Get data column size.

Returns

`size_t`

2.1.3.10 `get_filename()`

```
template<typename _T = double>
const std::string _csv<_T>::get_filename ( ) const
```

Get the filename.

Returns

`std::string`

2.1.3.11 `get_filename_out()`

```
template<typename _T = double>
const std::string _csv<_T>::get_filename_out ( ) const
```

Get the output filename.

Returns

`std::string`

2.1.3.12 `get_header()`

```
template<typename _T = double>
const std::vector<_T> & _csv<_T>::get_header ( ) const
```

Get column names and return it in a vector.

Returns

`std::vector<_T>`

2.1.3.13 get_header_size()

```
template<typename _T = double>
const size_t _csv< _T >::get_header_size ( ) const
```

Get size of the header.

Returns

size_t

2.1.3.14 get_separator()

```
template<typename _T = double>
const char _csv< _T >::get_separator ( ) const
```

Get the separator.

Returns

char

2.1.3.15 read()

```
template<typename _T = double>
bool _csv< _T >::read ( )
```

Read the content of the file given to the constructor using boost. It detects the header and data consistency with digit sequence: {0123456789e+-, tab std::endl} and basic regex and dimension matching between header and data line. It is able to recover basic errors such as 'tab'==' '. The method put NaN in the grid if an unrecoverable error appends. Data will be store in private variables.

Returns

true if all seems OK

2.1.3.16 select()

```
template<typename _T = double>
const std::vector< std::vector< _T > > & _csv< _T >::select (
    int iLine_min,
    int iLine_max,
    int iCol_min,
    int iCol_max ) const
```

Select a sub grid in data, i.e. trim data to the rectangular $[i_{min}, i_{max}] \times [j_{min}, j_{max}]$.

Parameters

<i>iLine_min</i>	upper line i_{min}
<i>iLine_max</i>	lower line i_{max}
<i>iCol_min</i>	left column j_{min}
<i>iCol_max</i>	right column j_{max}

Returns

`std::vector<std::vector<_T>>`

2.1.3.17 `select_column()`

```
template<typename _T = double>
const std::vector<_T> & _csv<_T>::select_column (
    int iCol ) const
```

Select the column "col" in data.

Parameters

<i>iCol</i>	The column to select
-------------	----------------------

Returns

`std::vector<_T>`

2.1.3.18 `select_line()`

```
template<typename _T = double>
const std::vector<_T> & _csv<_T>::select_line (
    int iLine ) const
```

Select the line "line" in data.

Parameters

<i>iLine</i>	The line to select
--------------	--------------------

Returns

`std::vector<_T>`

2.1.3.19 set_column()

```
template<typename _T = double>
bool _csv< _T >::set_column (
    const std::vector< _T > & vRow,
    int iRow )
```

Set a column with a vector.

Set a row with a vector.

Parameters

<i>vCol</i>	std::vector<_T> vCol
<i>iCol</i>	Select a column

Returns

true if all seems OK

Parameters

<i>vRow</i>	std::vector<_T> vRow
<i>iRow</i>	Select a row

Returns

true if all seems OK

2.1.3.20 set_data()

```
template<typename _T = double>
void _csv< _T >::set_data (
    const std::vector< std::vector< _T > > & vvData )
```

Set data with a vector of a vector.

Parameters

<i>vvData</i>	std::vector<std::vector<_T> > grid
---------------	------------------------------------

Returns

true if all seems OK

2.1.3.21 `set_filename()`

```
template<typename _T = double>
bool _csv<_T>::set_filename (
    const std::string & sFilename )
```

Set the filename for output or input. The fstream do not care about extension...

Parameters

<i>sFilename</i>	The filename with extension or not.
------------------	-------------------------------------

Returns

true if all seems OK

2.1.3.22 `set_filename_out()`

```
template<typename _T = double>
bool _csv<_T>::set_filename_out (
    const std::string & sFilename )
```

Set the filename for output. The fstream do not care about extension...

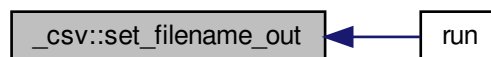
Parameters

<i>sFilename</i>	The filename with extension or not.
------------------	-------------------------------------

Returns

true if all seems OK

Here is the caller graph for this function:



2.1.3.23 set_header()

```
template<typename _T = double>
bool _csv< _T >::set_header (
    const std::vector< std::string > & vsHeader )
```

Set the header: the first line containing column name.

Parameters

<i>vsHeader</i>	string vector
-----------------	---------------

Returns

true if all seems OK

2.1.3.24 set_separator() [1/2]

```
template<typename _T = double>
bool _csv< _T >::set_separator (
    const char & cSep )
```

Set the csv separator. Usually: '\t', ',', ';;', ';' ...

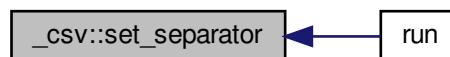
Parameters

<i>cSep</i>	The sep character: '\t' for tabulation
-------------	--

Returns

true if all seems OK

Here is the caller graph for this function:



2.1.3.25 `set_separator()` [2/2]

```
template<typename _T = double>
bool _csv<_T>::set_separator (
    const std::string & sSep )
```

Set the csv separator. Usually: `'\t', ' ', ',', ';' ...`

Todo

Parameters

<code>sSep</code>	The sep character: <code>'\t'</code> for tabulation
-------------------	---

Returns

true if all seems OK

2.1.3.26 `set_verbose()`

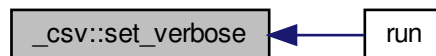
```
template<typename _T = double>
bool _csv<_T>::set_verbose (
    eVerbose evV )
```

Set the verbose mode for debug. It does not deactivate error raising.

Parameters

<code>evV</code>	<code>eVerbose::DEBUG</code> for verbose mode and <code>eVerbose::QUIET</code> to keep quiet
------------------	--

Here is the caller graph for this function:



2.1.3.27 show() [1/2]

```
template<typename _T = double>
void _csv< _T >::show ( ) const
```

Show whole data, i.e. the header and data with no restriction on length or terminal size. It uses boost::format in order to correct spacing of number and strings.

Returns

true if all seems OK

2.1.3.28 show() [2/2]

```
template<typename _T = double>
bool _csv< _T >::show (
    int iLine_stop ) const
```

Show the header and data until "line_stop" line. Print all columns with terminal end-of-line. It uses boost::format in order to correct spacing of number and strings.

Parameters

<i>iLine_stop</i>	The number of lines where stop the display
-------------------	--

Returns

true if all seems OK

2.1.3.29 transform_lin()

```
template<typename _T = double>
bool _csv< _T >::transform_lin (
    _T TA,
    _T TB,
    int iCol )
```

Do $Y=aX+b$ to the iCol-column.

Returns

true if all seems OK

2.1.3.30 write()

```
template<typename _T = double>
bool _csv< _T >::write ( )
```

Write on disk what data are store.

Returns

true if all seems OK

Here is the caller graph for this function:



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

- [csv.h](#)

2.2 _log Class Reference

Public Member Functions

- [_log](#) (char **argv, const std::string &sFilename)
Initialize with the first argument of the command line, and the log name.
- const std::string **get_execname** () const
- const std::string **get_logname** () const
- const std::string **get_historyname** () const
- bool **set_execname** (char **argv)
- bool **set_logname** (const std::string &sFilename)
- bool **set_historyname** (const std::string &sFilename)
- bool [write](#) (const std::string &sS)
Write a string in the log file.
- bool **write** (const std::stringstream &ssS)
- bool [write_history](#) (const boost::program_options::variables_map &vm)
Write history file with information from boost::program_options.
- bool [remove_duplicate](#) ()
Remove duplicates in history file.

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

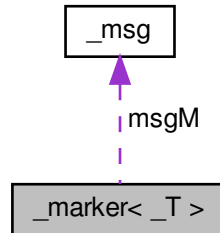
- [log.h](#)
- [log.cpp](#)

2.3 `_marker<_T>` Class Template Reference

A class to plot spectra with line markers using py matplotlib.

```
#include <marker.h>
```

Collaboration diagram for `_marker<_T>`:



Classes

- struct [Line](#)
Define a line.

Public Types

- typedef std::vector< [Line](#) > **vList**

Public Member Functions

- void **set_verbose** (const bool bVerbose)
- bool **set_data** (const std::vector<_T> &vTX, const std::vector<_T> &vTY)
- bool **set_title** (const std::string &sTitle)
- bool **set_label** (const std::string &sLabel)
- bool **set_xlabel** (const std::string &sXlabel)
- bool **set_ylabel** (const std::string &sYlabel)
- bool **set_xunit** (const std::string &sXunit)
- bool **set_yunit** (const std::string &sYunit)
- bool **set_output** (const std::string &sFilename)
- bool **set_output** (const std::string &sFilename, const int iDpi)
Set the picture filename with the extension (png, pdf, jpeg...) and the density (iDpi>50)
- bool **set_continuum** (const _T TContinuum)
Set the continuum position and therefore ymax. Default is y=1.
- bool **set_supp** (const _T TXmin, const _T TXmax)

Set the support of the first spectrum.

- bool **set_xmin** (const _T TXmin)
- bool **set_xmax** (const _T TXmax)
- bool **set_ymin** (const _T TYmin)
- bool **set_ymax** (const _T TYmax)
- bool **set_figsize** (int iHeight, int iWidth)
- void **set_colorline** (const std::string &sColor)

Set the color of the first curve.

- bool **set_linewidth** (float fWidth)
- bool **set_title** (int iSize)
- bool **set_label** (int iSize)
- bool **set_ticklabel** (int iSize)
- bool **set_annotatesize** (int iSize)

Set the font size of markers.

- bool **set_legendsize** (int iSize)
- void **set_legend** (bool bLegend)

Enable or disable the legend.

- void **set_halfbox** (bool bHalfbox)

Show only left and bottom axis.

- bool **set_continuumsize** (float fWidth)
- void **set_showgrid** (bool bShowgrid)
- void **set_dotted** (bool bDotted)

Set secondary curves with dotted-style.

- void **set_dotdashed** (bool bDotdashed)

Set secondary curves with dot-dashed-style.

- void **set_wide** (bool bWide)

Define if the spectrum range is wide in order to reduce marker size with no overlaps.

- bool **set_scriptname** (const std::string &sScriptname)

Set the name of the py script. Default is .plot.py.

- bool **set_log** (const std::string &sLog)

Enable or disable log file. Default is .marker.log.

- bool **add_line** (_T TWI, const std::string &sName)

Add a marker with a name on the figure.

- bool **add_line** (_T TWI, const std::string &sName, bool bBold)

Add a marker with a name on the figure. bBold determines if the line must be highlighted.

- bool **add_data** (const std::vector<_T> &vTX, const std::vector<_T> &vTY)

Add an additionnal spectrum which has to be plot.

- bool **add_data** (const std::vector<_T> &vTX, const std::vector<_T> &vTY, const std::string &sLabel)

Add an additionnal spectrum which has to be plot.

- _T **get_continuum** () const
- const std::pair<_T, _T> **get_supp** ()

Get the support of the first spectrum.

- const std::string &**get_scriptname** ()
- const std::string &**get_output** ()
- const std::string &**get_title** () const
- const std::string &**get_label** () const
- const std::string &**get_xlabel** () const
- const std::string &**get_xunit** () const

- const std::string & **get_ylabel** () const
- const std::string & **get_yunit** () const
- const std::pair< int, int > **get_figsize** () const
Get the defined figsize, if defined. First: Height and Second: Width.
- int **get_dpi** () const
- bool **make** ()
Write spectra, write script with markers.
- int **plot** ()
Run the py script?

Static Public Member Functions

- static bool **sort_elemlist** (const std::string &sElemlist)
Sort the elemlist.

Protected Attributes

- **_msg msgM**

2.3.1 Detailed Description

```
template<typename _T = float>
class _marker< _T >
```

A class to plot spectra with line markers using py matplotlib.

Todo marker(const _marker<_T>&)

2.3.2 Member Function Documentation

2.3.2.1 get_figsize()

```
template<typename _T = float>
const std::pair< int, int > _marker< _T >::get_figsize ( ) const
```

Get the defined figsize, if defined. First: Height and Second: Width.

Returns

std::pair of 2 int

2.3.2.2 `get_supp()`

```
template<typename _T = float>
const std::pair<_T, _T> _marker<_T>::get_supp ( )
```

Get the support of the first spectrum.

Returns

`std::pair of 2 _T: [x_{min} x_{max}]`

2.3.2.3 `set_colorline()`

```
template<typename _T = float>
void _marker<_T>::set_colorline (
    const std::string & sColor )
```

Set the color of the first curve.

Parameters

<i>sColor</i>	A string like "red", "green", "blue" or and a rgba hex string like "#rrggbbaa"
---------------	--

2.3.2.4 `set_output()`

```
template<typename _T = float>
bool _marker<_T>::set_output (
    const std::string & sFilename,
    const int iDpi )
```

Set the picture filename with the extension (png, pdf, jpeg...) and the density (iDpi>50)

Parameters

<i>sFilename</i>	Picture name
<i>iDpi</i>	Density

2.3.2.5 `set_supp()`

```
template<typename _T = float>
bool _marker<_T>::set_supp (
```

```
const _T TXmin,
const _T TXmax )
```

Set the support of the first spectrum.

Parameters

<i>TXmin</i>	x_{min}
<i>TXmax</i>	x_{max}

2.3.3 Member Data Documentation

2.3.3.1 msgM

```
template<typename _T = float>
_msg _marker< _T >::msgM [protected]
```

Interface to print message to std output

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

- marker.h

2.4 _msg Class Reference

A class that sends string to std output and in a file...

```
#include <msg.h>
```

Public Types

- enum `eMsg` {
START, MID, END, ERROR,
THREADS }

enum for method in order to define whether the message is at the begin, at the end or an error,

Public Member Functions

- `_msg` (const `_msg` &other)
- bool `msg` (const std::string &sMsg)
Send a message with eMsg::MID as default.
- bool `msg` (eMsg emType, const std::string &sMsg)
Send a message...
- bool `error` (const std::string &sMsg)
Send an error message...
- template<typename ... Args>
bool `msg` (const Args &...args)
A variadic formatter method that indeed sends arbitrary number of variable to the std output... with eMsg::MID as default.
- template<typename ... Args>
bool `msg` (eMsg emType, const Args &...args)
A variadic formatter method that indeed sends arbitrary number of variable to the std output... The first parameter is always the enum eMsg.
- template<typename ... Args>
bool `error` (const Args &...args)
A variadic formatter method that indeed sends arbitrary number of variable to the std error output... with eMsg::ERROR as default.
- bool `set_name` (const std::string sName)
Set the name of the main instance.
- bool `set_threadname` (const std::string sName)
Set the name of threads.
- bool `set_log` (const std::string sLog)
Enable or disable log file.
- void `enable_log` (bool bLog)
Enable or disable the log file.

2.4.1 Detailed Description

A class that sends string to std output and in a file...

2.4.2 Member Function Documentation

2.4.2.1 `msg()`

```
bool _msg::msg (
    eMsg emType,
    const std::string & sMsg )
```

Send a message...

Parameters

<i>emType</i>	See enum eMsg::
---------------	--------------------

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

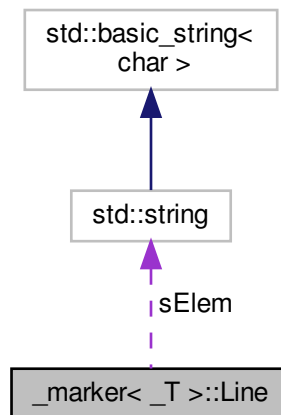
- [msg.h](#)
- [msg.cpp](#)

2.5 `_marker<_T>::Line` Struct Reference

Define a line.

```
#include <marker.h>
```

Collaboration diagram for `_marker<_T>::Line`:



Public Attributes

- `_T` **TWI**
- `std::string` **sElem**
- `bool` **bBold**

2.5.1 Detailed Description

```
template<typename _T = float>
struct _marker<_T>::Line
```

Define a line.

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

- marker.h

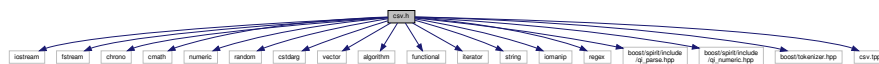
3 File Documentation

3.1 csv.h File Reference

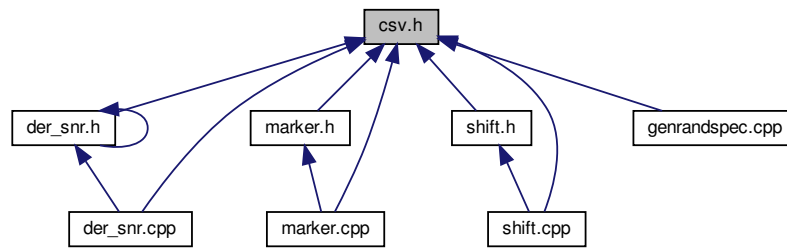
A basic class for csv manipulation.

```
#include <iostream>
#include <fstream>
#include <chrono>
#include <cmath>
#include <numeric>
#include <random>
#include <cstdint>
#include <vector>
#include <algorithm>
#include <functional>
#include <iterator>
#include <string>
#include <iomanip>
#include <regex>
#include <boost/spirit/include/qi_parse.hpp>
#include <boost/spirit/include/qi_numeric.hpp>
#include <boost/tokenizer.hpp>
#include "csv.hpp"
```

Include dependency graph for csv.h:



This graph shows which files directly or indirectly include this file:



Classes

- class `_csv<_T>`

This is the templated `_csv` class, initialized with double by default. STL parallel execution policy does not provide enhancements for simple operations.

3.1.1 Detailed Description

A basic class for csv manipulation.

Author

Audric Lemonnier

Version

0.9

Date

07/04/2020

3.2 `der_snr.cpp` File Reference

An C++ implementation of the `der_snr` fortran code from: F. Stoehr et al: DER_SNR: A Simple & General Spectroscopic Signal-to-Noise Measurement Algorithm, 394, Astronomical Data Analysis Software and Systems (ADASS) XVII 2008ASPC..394..505S.

```

#include <iostream>
#include <cstdlib>
#include <cstdio>

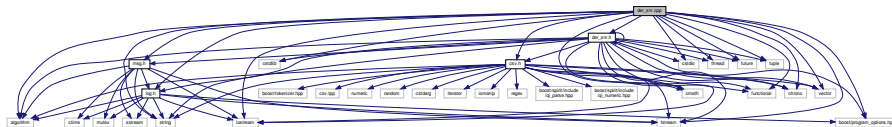
```

```

#include <fstream>
#include <vector>
#include <algorithm>
#include <string>
#include <cmath>
#include <functional>
#include <thread>
#include <future>
#include <tuple>
#include <chrono>
#include <boost/program_options.hpp>
#include <csv.h>
#include <msg.h>
#include <log.h>
#include <der_snr.h>

```

Include dependency graph for der_snr.cpp:



Functions

- int **main** (int argc, char **argv)

3.2.1 Detailed Description

An C++ implementation of the der_snr fortran code from: F. Stoehr et al: DER_SNR: A Simple & General Spectroscopic Signal-to-Noise Measurement Algorithm, 394, Astronomical Data Analysis Software and Systems (ADASS) XVII 2008ASPC..394..505S.

Remove value under a threshold in a folder or in a file. This code is multi-threaded or not if not available.

Author

Audric Lemonnier

Version

0.2

Date

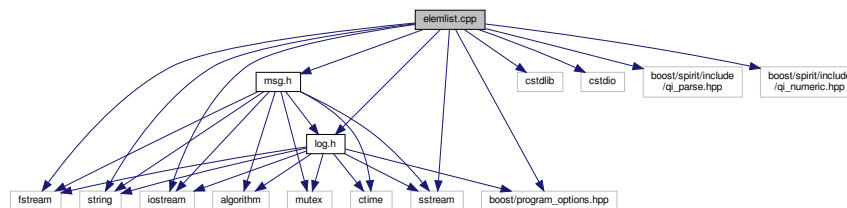
18/04/2020

3.3 elemlist.cpp File Reference

Add a line to the elemlist.

```
#include <iostream>
#include <cstdlib>
#include <cstdio>
#include <fstream>
#include <string>
#include <sstream>
#include <boost/program_options.hpp>
#include <boost/spirit/include/qi_parse.hpp>
#include <boost/spirit/include/qi_numeric.hpp>
#include <msg.h>
#include <log.h>
```

Include dependency graph for elemlist.cpp:



Macros

- `#define LOGFILE ".elemlist.log"`
- `#define HISTFILE ".history"`

Functions

- `template<typename _T = std::string>`
`bool add_elem (const std::string &sElem, _T TWI, const std::string &sFilename)`
Add a line to a file.
- `template<typename _T = std::string>`
`bool add_elem (const std::string &sSymbol, const std::string &sElem, _T TWI, const std::string &sFilename)`
Add a line to a file, with the indicator symbol.
- `bool is_float (const std::string &sVal)`
Determine if a string is a number.
- `int main (int argc, char **argv)`

3.3.1 Detailed Description

Add a line to the elemelist.

Author

Audric Lemonnier

Version

0.1

Date

30/03/2020

3.3.2 Macro Definition Documentation

3.3.2.1 HISTFILE

```
#define HISTFILE ".history"
```

Define the default histfile (shared)

3.3.2.2 LOGFILE

```
#define LOGFILE ".elemlist.log"
```

Define the default logfile

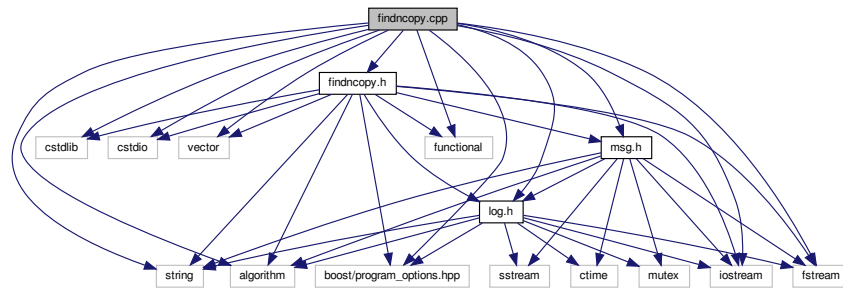
3.4 findncopy.cpp File Reference

Copy files from a list in a new folder.

```
#include <iostream>
#include <cstdlib>
#include <cstdio>
#include <fstream>
#include <vector>
#include <string>
#include <algorithm>
#include <functional>
#include <boost/program_options.hpp>
#include <msg.h>
#include <log.h>
```

```
#include <findncopy.h>
```

Include dependency graph for findncopy.cpp:



Macros

- `#define LOGFILE ".findncopy.log"`
- `#define HISTFILE ".history"`

Functions

- `int main (int argc, char **argv)`

3.4.1 Detailed Description

Copy files from a list in a new folder.

Author

Audric Lemonnier

Version

0.1

Date

09/03/2020

3.4.2 Macro Definition Documentation

3.4.2.1 HISTFILE

```
#define HISTFILE ".history"
```

Define the default histfile (shared)

3.4.2.2 LOGFILE

```
#define LOGFILE ".findncopy.log"
```

Define the default logfile

3.5 genrandspec.cpp File Reference

Generate a set of randomized-flux spectra between two wavelengths for test purposes.

```
#include <iostream>
#include <cstdlib>
#include <cstdio>
#include <fstream>
#include <vector>
#include <algorithm>
#include <numeric>
#include <string>
#include <cmath>
#include <random>
#include <thread>
#include <future>
#include <ctime>
#include <tuple>
#include <chrono>
#include <boost/program_options.hpp>
#include <csv.h>
#include <msg.h>
#include <log.h>
```

Include dependency graph for genrandspec.cpp:



Macros

- #define LOGFILE ".genrandspec.log"
- #define HISTFILE ".history"
- #define MaxFilepDir 10

Set the maximum number of files to create in a folder.

Functions

- void **run** (const std::string &sOutput, char cSep, float fMinw, float fMaxw, float fStep)
Write random spectra on disk.
- double long **CPU_utilization** ()
- std::tuple< double long, double long > **get_stat** ()
- int **main** (int argc, char **argv)

3.5.1 Detailed Description

Generate a set of randomized-flux spectra between two wavelengths for test purposes.

Author

Audric Lemonnier

Version

0.4

Date

18/04/2020

3.5.2 Macro Definition Documentation

3.5.2.1 HISTFILE

```
#define HISTFILE ".history"
```

Define the default histfile (shared)

3.5.2.2 LOGFILE

```
#define LOGFILE ".genrandspec.log"
```

Define the default logfile

3.5.2.3 MaxFilepDir

```
#define MaxFilepDir 10
```

Set the maximum number of files to create in a folder.

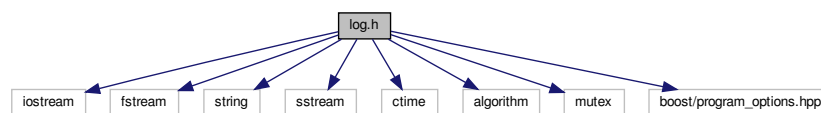
MaxFilepDir

3.6 log.h File Reference

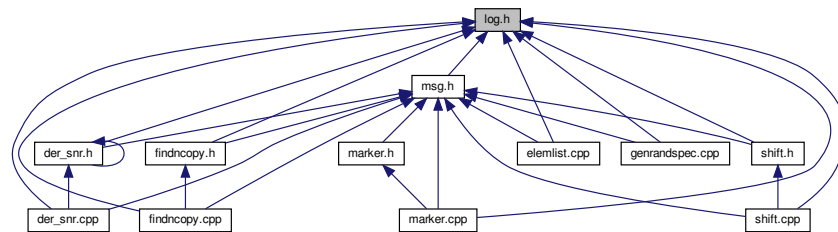
A class to write log file.

```
#include <iostream>
#include <fstream>
#include <string>
#include <sstream>
#include <ctime>
#include <algorithm>
#include <mutex>
#include <boost/program_options.hpp>
```

Include dependency graph for log.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [_log](#)

3.6.1 Detailed Description

A class to write log file.

Author

Audric Lemonnier

Version

0.1

Date

03/05/2020

3.7 marker.cpp File Reference

Highlight lines on spectrum.

```
#include <iostream>
#include <cstdlib>
#include <cstdio>
#include <fstream>
#include <vector>
#include <tuple>
#include <string>
#include <algorithm>
#include <iterator>
#include <limits>
#include <boost/program_options.hpp>
#include <boost/spirit/include/qi_parse.hpp>
#include <boost/spirit/include/qi_numeric.hpp>
#include <marker.h>
#include <msg.h>
#include <log.h>
#include <csv.h>
```

Include dependency graph for marker.cpp:



Macros

- #define **LOGFILE** ".marker.log"
- #define **HISTFILE** ".history"

Functions

- int **main** (int argc, char **argv)

3.7.1 Detailed Description

Highlight lines on spectrum.

Author

Audric Lemonnier

Version

0.6

Date

29/04/2020

3.7.2 Macro Definition Documentation

3.7.2.1 HISTFILE

```
#define HISTFILE ".history"
```

Define the default histfile (shared)

3.7.2.2 LOGFILE

```
#define LOGFILE ".marker.log"
```

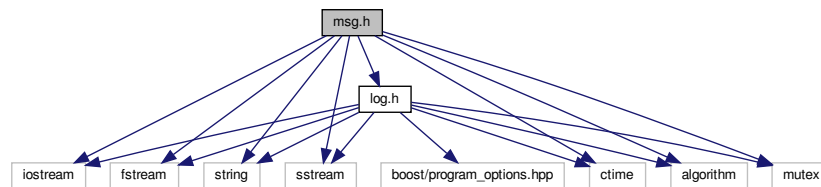
Define the default logfile

3.8 msg.h File Reference

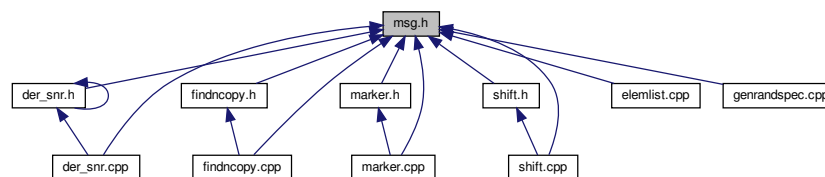
A class to print and write message.

```
#include <iostream>
#include <fstream>
#include <string>
#include <sstream>
#include <ctime>
#include <algorithm>
#include <mutex>
#include <log.h>
```

Include dependency graph for msg.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [_msg](#)

A class that sends string to std output and in a file...

3.8.1 Detailed Description

A class to print and write message.

Author

Audric Lemonnier

Version

0.2

Date

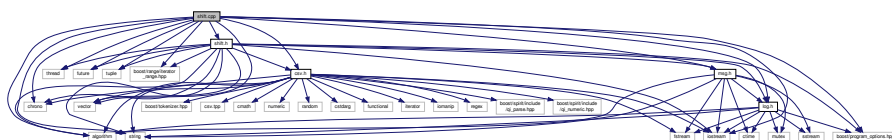
18/04/2020

3.9 shift.cpp File Reference

Shift whole spectrum by a given wavelength. This code is multi-threaded or not if not available.

```
#include <iostream>
#include <vector>
#include <algorithm>
#include <thread>
#include <future>
#include <string>
#include <tuple>
#include <chrono>
#include <boost/program_options.hpp>
#include <boost/range/iterator_range.hpp>
#include <csv.h>
#include <msg.h>
#include <log.h>
#include <shift.h>
```

Include dependency graph for shift.cpp:



Macros

- `#define CLIGHT 299792.458`
- `#define LOGFILE ".shift.log"`
- `#define HISTFILE ".history"`

Functions

- `int main (int argc, char **argv)`

3.9.1 Detailed Description

Shift whole spectrum by a given wavelength. This code is multi-threaded or not if not available.

Author

Audric Lemonnier

Version

0.3

Date

18/04/2020

3.9.2 Macro Definition Documentation

3.9.2.1 HISTFILE

```
#define HISTFILE ".history"
```

Define the default histfile (shared)

3.9.2.2 LOGFILE

```
#define LOGFILE ".shift.log"
```

Define the default logfile

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