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# Chapter 1

## Hierarchical Index

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artdaq_mfextensions/mfextensions/Binaries/ <b>msgserver.cc</b>	??
artdaq_mfextensions/mfextensions/Binaries/ <b>msgviewer.cc</b>	??
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## Chapter 4

# Class Documentation

### 4.1 mfplugins::ELANSI::Config Struct Reference

Configuration parameters for [ELANSI](#).

#### Public Attributes

- fhicl::TableFragment  
< ELdestination::Config > [elDestConfig](#)  
*ELdestination common config parameters.*
- fhicl::Atom< bool > [bellOnError](#)  
*"bell\_on\_error" (Default: true): Whether to ring the system bell on error messages*
- fhicl::Atom< bool > [blinkOnError](#)  
*"blink\_error\_messages" (Default: false): Whether to print error messages with blinking text*
- fhicl::Atom< std::string > [errorColor](#)  
*"error\_ansi\_color" (Default: "\033[1m\033[91m"): ANSI Color string for Error Messages*
- fhicl::Atom< std::string > [warningColor](#)  
*"warning\_ansi\_color" (Default: "\033[1m\033[93m"): ANSI Color string for Warning Messages*
- fhicl::Atom< std::string > [infoColor](#)  
*"info\_ansi\_color" (Default: "\033[92m"): ANSI Color string for Info Messages*
- fhicl::Atom< std::string > [debugColor](#)  
*"debug\_ansi\_color" (Default: "\033[39m"): ANSI Color string for ErrDebugger Messages*

#### 4.1.1 Detailed Description

Configuration parameters for [ELANSI](#).

Definition at line 26 of file ANSI\_mfPlugin.cc.

#### 4.1.2 Member Data Documentation

##### 4.1.2.1 fhicl::Atom<bool> mfplugins::ELANSI::Config::bellOnError

**Initial value:**

```
= fhicl::Atom<bool>{
    fhicl::Name{"bell_on_error"}, fhicl::Comment{"Whether to ring the system bell on error messages"}, true}
```

"bell\_on\_error" (Default: true): Whether to ring the system bell on error messages

Definition at line 31 of file ANSI\_mfPlugin.cc.

#### 4.1.2.2 fhicl::Atom<bool> mfplugins::ELANSI::Config::blinkOnError

##### Initial value:

```
=
    fhicl::Atom<bool>{fhicl::Name{"blink_error_messages"},
        fhicl::Comment{"Whether to print error messages with blinking text"}, false}
```

"blink\_error\_messages" (Default: false): Whether to print error messages with blinking text

Definition at line 34 of file ANSI\_mfPlugin.cc.

#### 4.1.2.3 fhicl::Atom<std::string> mfplugins::ELANSI::Config::debugColor

##### Initial value:

```
= fhicl::Atom<std::string>{
    fhicl::Name{"debug_ansi_color"}, fhicl::Comment{"ANSI Color string for Debug Messages"}, "\033[39m"}
```

"debug\_ansi\_color" (Default: "\033[39m"): ANSI Color string for ErrDebugger Messages

Definition at line 47 of file ANSI\_mfPlugin.cc.

#### 4.1.2.4 fhicl::Atom<std::string> mfplugins::ELANSI::Config::errorColor

##### Initial value:

```
= fhicl::Atom<std::string>{
    fhicl::Name{"error_ansi_color"}, fhicl::Comment{"ANSI Color string for Error Messages"}, "\033[1m\033[91m"}
```

"error\_ansi\_color" (Default: "\033[1m\033[91m"): ANSI Color string for Error Messages

Definition at line 38 of file ANSI\_mfPlugin.cc.

#### 4.1.2.5 fhicl::Atom<std::string> mfplugins::ELANSI::Config::infoColor

##### Initial value:

```
= fhicl::Atom<std::string>{
    fhicl::Name{"info_ansi_color"}, fhicl::Comment{"ANSI Color string for Info Messages"}, "\033[92m"}
```

"info\_ansi\_color" (Default: "\033[92m"): ANSI Color string for Info Messages

Definition at line 44 of file ANSI\_mfPlugin.cc.

## 4.1.2.6 fhicl::Atom&lt;std::string&gt; mfplugins::ELANSI::Config::warningColor

**Initial value:**

```
= fhicl::Atom<std::string>{
    fhicl::Name{"warning_ansi_color"}, fhicl::Comment{"ANSI Color string for Warning Messages"}, "
    \033[1m\033[93m"}
```

"warning\_ansi\_color" (Default: "\033[1m\033[93m"): ANSI Color string for Warning Messages

Definition at line 41 of file ANSI\_mfPlugin.cc.

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

- artdaq\_mfextensions/mfextensions/Destinations/ANSI\_mfPlugin.cc

## 4.2 mfplugins::ELFriendly::Config Struct Reference

Configuration Parameters for [ELFriendly](#).

**Public Attributes**

- fhicl::TableFragment  
< ELOstreamOutput::Config > [eLOstrConfig](#)  
*Configuration parameters for ELOstreamOutput.*
- fhicl::Atom< std::string > [delimiter](#)  
*"field\_delimiter" (Default: " "): String to print between each message field*

### 4.2.1 Detailed Description

Configuration Parameters for [ELFriendly](#).

Definition at line 30 of file Friendly\_mfPlugin.cc.

### 4.2.2 Member Data Documentation

## 4.2.2.1 fhicl::Atom&lt;std::string&gt; mfplugins::ELFriendly::Config::delimiter

**Initial value:**

```
= fhicl::Atom<std::string>{
    fhicl::Name{"field_delimiter"}, fhicl::Comment{"String to print between each message field"}, "
    "}
```

"field\_delimiter" (Default: " "): String to print between each message field

Definition at line 35 of file Friendly\_mfPlugin.cc.

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

- artdaq\_mfextensions/mfextensions/Destinations/Friendly\_mfPlugin.cc

## 4.3 mfplugins::ELMultiFileOutput::Config Struct Reference

Configuration parameters for [ELMultiFileOutput](#).

### Public Attributes

- fhicl::TableFragment  
< ELdestination::Config > [elDestConfig](#)  
*ELdestination common config parameters.*
- fhicl::Atom< std::string > [baseDir](#)  
*"base\_directory" (Default: "/tmp"): Directory where log files will be created*
- fhicl::Atom< bool > [append](#)  
*"append" (Default: true): Append to existing log files*
- fhicl::Atom< bool > [useHostname](#)  
*"use\_hostname" (Default: true): Use the hostname when generating log file names*
- fhicl::Atom< bool > [useApplication](#)  
*"use\_application" (Default: true): Use the application field when generating log file names*
- fhicl::Atom< bool > [useCategory](#)  
*"use\_category" (Default: false): Use the category field when generating log file names*
- fhicl::Atom< bool > [useModule](#)  
*"use\_module" (Default: false): Use the module field when generating log file names*

### 4.3.1 Detailed Description

Configuration parameters for [ELMultiFileOutput](#).

Definition at line 26 of file MultiFile\_mfPlugin.cc.

### 4.3.2 Member Data Documentation

#### 4.3.2.1 fhicl::Atom<bool> mfplugins::ELMultiFileOutput::Config::append

**Initial value:**

```
=
    fhicl::Atom<bool>{fhicl::Name{"append"}, fhicl::Comment{"Append to existing log files"}, true}
```

"append" (Default: true): Append to existing log files

Definition at line 34 of file MultiFile\_mfPlugin.cc.

#### 4.3.2.2 fhicl::Atom<std::string> mfplugins::ELMultiFileOutput::Config::baseDir

**Initial value:**

```
= fhicl::Atom<std::string>{
    fhicl::Name{"base_directory"}, fhicl::Comment{"Directory where log files will be created"}, "
    /tmp" }
```

"base\_directory" (Default: "/tmp"): Directory where log files will be created

Definition at line 31 of file MultiFile\_mfPlugin.cc.

## 4.3.2.3 fhicl::Atom&lt;bool&gt; mfplugins::ELMultiFileOutput::Config::useApplication

**Initial value:**

```
=
    fhicl::Atom<bool>{fhicl::Name{"use_application"},
                      fhicl::Comment{"Use the application field when generating log file names"},
                      true}
```

"use\_application" (Default: true): Use the application field when generating log file names

Definition at line 40 of file MultiFile\_mfPlugin.cc.

## 4.3.2.4 fhicl::Atom&lt;bool&gt; mfplugins::ELMultiFileOutput::Config::useCategory

**Initial value:**

```
= fhicl::Atom<bool>{
    fhicl::Name{"use_category"}, fhicl::Comment{"Use the category field when generating log file
names"}, false}
```

"use\_category" (Default: false): Use the category field when generating log file names

Definition at line 44 of file MultiFile\_mfPlugin.cc.

## 4.3.2.5 fhicl::Atom&lt;bool&gt; mfplugins::ELMultiFileOutput::Config::useHostname

**Initial value:**

```
= fhicl::Atom<bool>{
    fhicl::Name{"use_hostname"}, fhicl::Comment{"Use the hostname when generating log file names"},
    true}
```

"use\_hostname" (Default: true): Use the hostname when generating log file names

Definition at line 37 of file MultiFile\_mfPlugin.cc.

## 4.3.2.6 fhicl::Atom&lt;bool&gt; mfplugins::ELMultiFileOutput::Config::useModule

**Initial value:**

```
= fhicl::Atom<bool>{
    fhicl::Name{"use_module"}, fhicl::Comment{"Use the module field when generating log file names"},
    false}
```

"use\_module" (Default: false): Use the module field when generating log file names

Definition at line 47 of file MultiFile\_mfPlugin.cc.

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

- artdaq\_mfextensions/mfextensions/Destinations/MultiFile\_mfPlugin.cc

## 4.4 mfplugins::ELOTS::Config Struct Reference

Configuration Parameters for [ELOTS](#).

## Public Attributes

- fhicl::TableFragment  
< ELdestination::Config > [elDestConfig](#)  
*ELDestination common config parameters.*
- fhicl::Atom< std::string > [format\\_string](#)  
*format\_string (Default: "%L:%N:%f [%u] %m"): Format specifier for printing to console. %% => " ...*
- fhicl::Atom< std::string > [filename\\_delimit](#)  
*filename\_delimit (Default: "/"): Grab path after this. "/srcs/" /x/srcs/y/z.cc => y/z.cc*

### 4.4.1 Detailed Description

Configuration Parameters for [ELOTS](#).

Definition at line 42 of file OTS\_mfPlugin.cc.

### 4.4.2 Member Data Documentation

#### 4.4.2.1 fhicl::Atom<std::string> mfplugins::ELOTS::Config::filename\_delimit

**Initial value:**

```
=
    fhicl::Atom<std::string>{fhicl::Name{"filename_delimit"},
                             fhicl::Comment{"Grab path after this. \"/srcs/" /x/srcs/y/z.cc =>
y/z.cc"}, "/"}
```

filename\_delimit (Default: "/"): Grab path after this. "/srcs/" /x/srcs/y/z.cc => y/z.cc

Definition at line 51 of file OTS\_mfPlugin.cc.

#### 4.4.2.2 fhicl::Atom<std::string> mfplugins::ELOTS::Config::format\_string

**Initial value:**

```
= fhicl::Atom<std::string>{
    fhicl::Name{"format_string"}, fhicl::Comment{"Format specifier for printing to console. %% =>
'%' ... "},
    "%L:%N:%f [%u] %m"}
```

format\_string (Default: "%L:%N:%f [%u] %m"): Format specifier for printing to console. %% => " ...

Definition at line 47 of file OTS\_mfPlugin.cc.

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

- artdaq\_mfextensions/mfextensions/Destinations/OTS\_mfPlugin.cc

## 4.5 mfplugins::ELSMTP::Config Struct Reference

Configuration parameters for [ELSMTP](#).

## Public Attributes

- fhicl::TableFragment  
< ELdestination::Config > [elDestConfig](#)  
*ELDestination common config parameters.*
- fhicl::Atom< std::string > [host](#)  
*"host" (Default: "smtp.fnal.gov"): SMTP Server hostname*
- fhicl::Atom< int > [port](#) = fhicl::Atom<int>{fhicl::Name{"port"}, fhicl::Comment{"SMTP Server port"}, 25}  
*"port" (Default: 25): SMTP Server port*
- fhicl::Sequence< std::string > [to](#)  
*"to\_addresses" (Default: {}): The list of email addresses that SMTP mfPlugin should sent to*
- fhicl::Atom< std::string > [from](#)  
*"from\_address" (REQUIRED): Source email address*
- fhicl::Atom< std::string > [subject](#)  
*"subject" (Default: "MessageFacility SMTP Message Digest"): Subject of the email message*
- fhicl::Atom< std::string > [messageHeader](#)  
*"message\_header" (Default: ""): String to preface messages with in email body*
- fhicl::Atom< bool > [useSmtps](#)  
*"use\_smtps" (Default: false): Use SMTPS protocol*
- fhicl::Atom< std::string > [user](#)  
*"smtp\_username" (Default: ""): Username for SMTP server*
- fhicl::Atom< std::string > [pw](#)  
*"smtp\_password" (Default: ""): Password for SMTP server*
- fhicl::Atom< bool > [verifyCert](#)  
*"verify\_host\_ssl\_certificate" (Default: true): Whether to run full SSL verify on SMTP server in SMTPS mode*
- fhicl::Atom< size\_t > [sendInterval](#)  
*"email\_send\_interval\_seconds" (Default: 15): Only send email every N seconds*

### 4.5.1 Detailed Description

Configuration parameters for [ELSMTP](#).

Definition at line 42 of file SMTP\_mfPlugin.cc.

### 4.5.2 Member Data Documentation

#### 4.5.2.1 fhicl::Atom<std::string> mfplugins::ELSMTP::Config::from

**Initial value:**

```
=
    fhicl::Atom<std::string>{fhicl::Name{"from_address"}, fhicl::Comment{"Source email address"}}
```

"from\_address" (REQUIRED): Source email address

Definition at line 56 of file SMTP\_mfPlugin.cc.

#### 4.5.2.2 fhicl::Atom<std::string> mfplugins::ELSMTP::Config::host

##### Initial value:

```
=
    fhicl::Atom<std::string>{fhicl::Name{"host"}, fhicl::Comment{"SMTP Server hostname"}, "
    smtp.fnal.gov"}
```

"host" (Default: "smtp.fnal.gov"): SMTP Server hostname

Definition at line 47 of file SMTP\_mfPlugin.cc.

#### 4.5.2.3 fhicl::Atom<std::string> mfplugins::ELSMTP::Config::messageHeader

##### Initial value:

```
= fhicl::Atom<std::string>{
    fhicl::Name{"message_header"}, fhicl::Comment{"String to preface messages with in email body"},
    ""}
```

"message\_header" (Default: ""): String to preface messages with in email body

Definition at line 62 of file SMTP\_mfPlugin.cc.

#### 4.5.2.4 fhicl::Atom<std::string> mfplugins::ELSMTP::Config::pw

##### Initial value:

```
=
    fhicl::Atom<std::string>{fhicl::Name{"smtp_password"}, fhicl::Comment{"Password for SMTP server
    "}, ""}
```

"smtp\_password" (Default: ""): Password for SMTP server

Definition at line 71 of file SMTP\_mfPlugin.cc.

#### 4.5.2.5 fhicl::Atom<size\_t> mfplugins::ELSMTP::Config::sendInterval

##### Initial value:

```
= fhicl::Atom<size_t>{fhicl::Name{"email_send_interval_seconds"},
    fhicl::Comment{"Only send email every N
    seconds"}, 15}
```

"email\_send\_interval\_seconds" (Default: 15): Only send email every N seconds

Definition at line 78 of file SMTP\_mfPlugin.cc.

#### 4.5.2.6 fhicl::Atom<std::string> mfplugins::ELSMTP::Config::subject

##### Initial value:

```
= fhicl::Atom<std::string>{
    fhicl::Name{"subject"}, fhicl::Comment{"Subject of the email message"}, "MessageFacility SMTP
    Message Digest"}
```

"subject" (Default: "MessageFacility SMTP Message Digest"): Subject of the email message

Definition at line 59 of file SMTP\_mfPlugin.cc.



## 4.5.2.7 fhicl::Sequence&lt;std::string&gt; mfplugins::ELSMTP::Config::to

**Initial value:**

```
= fhicl::Sequence<std::string>{
    fhicl::Name{"to_addresses"}, fhicl::Comment{"The list of email addresses that SMTP mfPlugin
    should sent to"},
    fhicl::Sequence<std::string>::default_type{}}
```

"to\_addresses" (Default: {}): The list of email addresses that SMTP mfPlugin should sent to

Definition at line 52 of file SMTP\_mfPlugin.cc.

## 4.5.2.8 fhicl::Atom&lt;std::string&gt; mfplugins::ELSMTP::Config::user

**Initial value:**

```
=
    fhicl::Atom<std::string>{fhicl::Name{"smtp_username"}, fhicl::Comment{"Username for SMTP server
    "}, ""}
```

"smtp\_username" (Default: ""): Username for SMTP server

Definition at line 68 of file SMTP\_mfPlugin.cc.

## 4.5.2.9 fhicl::Atom&lt;bool&gt; mfplugins::ELSMTP::Config::useSmtps

**Initial value:**

```
=
    fhicl::Atom<bool>{fhicl::Name{"use_smtps"}, fhicl::Comment{"Use SMTPS protocol"}, false}
```

"use\_smtps" (Default: false): Use SMTPS protocol

Definition at line 65 of file SMTP\_mfPlugin.cc.

## 4.5.2.10 fhicl::Atom&lt;bool&gt; mfplugins::ELSMTP::Config::verifyCert

**Initial value:**

```
=
    fhicl::Atom<bool>{fhicl::Name{"verify_host_ssl_certificate"},
    fhicl::Comment{"Whether to run full SSL verify on SMTP server in SMTPS mode"},
    true}
```

"verify\_host\_ssl\_certificate" (Default: true): Whether to run full SSL verify on SMTP server in SMTPS mode

Definition at line 74 of file SMTP\_mfPlugin.cc.

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

- artdaq\_mfextensions/mfextensions/Destinations/SMTP\_mfPlugin.cc

## 4.6 mfplugins::ELTRACE::Config Struct Reference

Configuration Parameters for [ELTRACE](#).

## Public Attributes

- fhicl::TableFragment  
< ELdestination::Config > [elDestConfig](#)  
*ELDestination common parameters.*
- fhicl::Atom< size\_t > [lvls](#)  
*"lvls" (Default: 0): TRACE level mask for Slow output*
- fhicl::Atom< size\_t > [lvlm](#)  
*"lvlm" (Default: 0): TRACE level mask for Memory output*

### 4.6.1 Detailed Description

Configuration Parameters for [ELTRACE](#).

Definition at line 38 of file TRACE\_mfPlugin.cc.

### 4.6.2 Member Data Documentation

#### 4.6.2.1 fhicl::Atom<size\_t> mfplugins::ELTRACE::Config::lvlm

##### Initial value:

```
=
    fhicl::Atom<size_t>{fhicl::Name{"lvlm"}, fhicl::Comment{"TRACE level mask for Memory output"},
    0}
```

"lvlm" (Default: 0): TRACE level mask for Memory output

Definition at line 46 of file TRACE\_mfPlugin.cc.

#### 4.6.2.2 fhicl::Atom<size\_t> mfplugins::ELTRACE::Config::lvls

##### Initial value:

```
=
    fhicl::Atom<size_t>{fhicl::Name{"lvls"}, fhicl::Comment{"TRACE level mask for Slow output"}, 0}
```

"lvls" (Default: 0): TRACE level mask for Slow output

Definition at line 43 of file TRACE\_mfPlugin.cc.

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

- artdaq\_mfextensions/mfextensions/Destinations/TRACE\_mfPlugin.cc

## 4.7 mfplugins::ELUDP::Config Struct Reference

Configuration Parameters for [ELUDP](#).

## Public Attributes

- fhicl::TableFragment  
 < ELdestination::Config > [elDestConfig](#)  
*ELDestination common config parameters.*
- fhicl::Atom< int > [error\\_max](#)
- fhicl::Atom< int > [error\\_report](#)  
*"error\_report\_backoff\_factor" (Default: 100): Print an error message every N errors*
- fhicl::Atom< std::string > [host](#)  
*"host" (Default: "227.128.12.27"): Address to send messages to*
- fhicl::Atom< int > [port](#) = fhicl::Atom<int>{fhicl::Name{"port"}, fhicl::Comment{"Port to send messages to"}, 5140}  
*"port" (Default: 5140): Port to send messages to*
- fhicl::Atom< bool > [multicast\\_enabled](#)  
*"multicast\_enabled" (Default: false): Whether messages should be sent via multicast*
- fhicl::Atom< std::string > [output\\_address](#)
- fhicl::Atom< std::string > [filename\\_delimit](#)  
*filename\_delimit (Default: "/"): Grab path after this. "/srcs/" /x/srcs/y/z.cc => y/z.cc*

### 4.7.1 Detailed Description

Configuration Parameters for [ELUDP](#).

Definition at line 43 of file UDP\_mfPlugin.cc.

### 4.7.2 Member Data Documentation

#### 4.7.2.1 fhicl::Atom<int> mfplugins::ELUDP::Config::error\_max

##### Initial value:

```
= fhicl::Atom<int>{
    fhicl::Name{"error_turnoff_threshold"},
    fhicl::Comment{"Number of errors before turning off destination (default: 0, don't turn off)"},
    0}
```

"error\_turnoff\_threshold" (Default: 0): Number of errors before turning off destination (default: 0, don't turn off)"

Definition at line 49 of file UDP\_mfPlugin.cc.

#### 4.7.2.2 fhicl::Atom<int> mfplugins::ELUDP::Config::error\_report

##### Initial value:

```
= fhicl::Atom<int>{fhicl::Name{"error_report_backoff_factor"},
    fhicl::Comment{"Print an error message every N
    errors"}, 100}
```

"error\_report\_backoff\_factor" (Default: 100): Print an error message every N errors

Definition at line 53 of file UDP\_mfPlugin.cc.

#### 4.7.2.3 fhicl::Atom<std::string> mfplugins::ELUDP::Config::filename\_delimit

##### Initial value:

```
=
    fhicl::Atom<std::string>{fhicl::Name{"filename_delimit"},
                             fhicl::Comment{"Grab path after this. \"/srcs/" /x/srcs/y/z.cc =>
y/z.cc. NOTE: only works if full filename is given to this plugin (based on which mf::<method> is used)."}, "/"
}
```

filename\_delimit (Default: "/"): Grab path after this. "/srcs/" /x/srcs/y/z.cc => y/z.cc

Definition at line 69 of file UDP\_mfPlugin.cc.

#### 4.7.2.4 fhicl::Atom<std::string> mfplugins::ELUDP::Config::host

##### Initial value:

```
=
    fhicl::Atom<std::string>{fhicl::Name{"host"}, fhicl::Comment{"Address to send messages to"}, "
227.128.12.27"}
```

"host" (Default: "227.128.12.27"): Address to send messages to

Definition at line 56 of file UDP\_mfPlugin.cc.

#### 4.7.2.5 fhicl::Atom<bool> mfplugins::ELUDP::Config::multicast\_enabled

##### Initial value:

```
= fhicl::Atom<bool>{
    fhicl::Name{"multicast_enabled"}, fhicl::Comment{"Whether messages should be sent via multicast
"}, false}
```

"multicast\_enabled" (Default: false): Whether messages should be sent via multicast

Definition at line 61 of file UDP\_mfPlugin.cc.

#### 4.7.2.6 fhicl::Atom<std::string> mfplugins::ELUDP::Config::output\_address

##### Initial value:

```
= fhicl::Atom<std::string>{
    fhicl::Name{"multicast_interface_ip"},
    fhicl::Comment{"Use this hostname for multicast output(to assign to the proper NIC)"}, "0.0.0.0
"}
}
```

"multicast\_interface\_ip" (Default: "0.0.0.0"): Use this hostname for multicast output (to assign to the proper NIC)

Definition at line 65 of file UDP\_mfPlugin.cc.

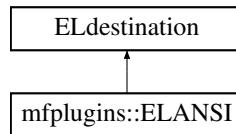
The documentation for this struct was generated from the following file:

- artdaq\_mfextensions/mfextensions/Destinations/UDP\_mfPlugin.cc

## 4.8 mfplugins::ELANSI Class Reference

Message Facility destination which colorizes the console output

Inheritance diagram for mfplugins::ELANSI:



### Classes

- struct [Config](#)  
Configuration parameters for [ELANSI](#).

### Public Types

- using [Parameters](#) = fhicl::WrappedTable< [Config](#) >  
Used for *ParameterSet* validation.

### Public Member Functions

- [ELANSI](#) ([Parameters](#) const &pset)  
[ELANSI](#) Constructor
- void [routePayload](#) (const std::ostream &o, const ErrorObj &msg) override  
Serialize a *MessageFacility* message to the output.

#### 4.8.1 Detailed Description

Message Facility destination which colorizes the console output

Definition at line 20 of file ANSI\_mfPlugin.cc.

#### 4.8.2 Constructor & Destructor Documentation

##### 4.8.2.1 mfplugins::ELANSI::ELANSI ( [Parameters](#) const & *pset* )

[ELANSI](#) Constructor

Parameters

<i>pset</i>	ParameterSet used to configure <a href="#">ELANSI</a>
-------------	---

Definition at line 84 of file ANSI\_mfPlugin.cc.

### 4.8.3 Member Function Documentation

4.8.3.1 `void mfplugins::ELANSI::routePayload ( const std::ostream & o, const ErrorObj & msg )` [override]

Serialize a MessageFacility message to the output.

## Parameters

<i>o</i>	Stringstream object containing message data
<i>msg</i>	MessageFacility object containing header information

Definition at line 93 of file ANSI\_mfPlugin.cc.

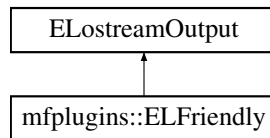
The documentation for this class was generated from the following file:

- artdaq\_mfextensions/mfextensions/Destinations/ANSI\_mfPlugin.cc

## 4.9 mfplugins::ELFriendly Class Reference

Parser-Friendly Message Facility destination plugin

Inheritance diagram for mfplugins::ELFriendly:



### Classes

- struct [Config](#)  
Configuration Parameters for [ELFriendly](#).

### Public Types

- using [Parameters](#) = fhicl::WrappedTable< [Config](#) >  
Used for *ParameterSet* validation.

### Public Member Functions

- [ELFriendly](#) ([Parameters](#) const &pset)  
*ELFriendly* Constructor
- void [fillPrefix](#) (std::ostream &o, const ErrorObj &msg) override  
Fill the "Prefix" portion of the message.
- void [fillUsrMsg](#) (std::ostream &o, const ErrorObj &msg) override  
Fill the "User Message" portion of the message.
- void [fillSuffix](#) (std::ostream &o, const ErrorObj &msg) override  
Fill the "Suffix" portion of the message.

#### 4.9.1 Detailed Description

Parser-Friendly Message Facility destination plugin

Definition at line 24 of file Friendly\_mfPlugin.cc.

## 4.9.2 Constructor & Destructor Documentation

4.9.2.1 `mfplugins::ELFriendly::ELFriendly ( Parameters const & pset ) [explicit]`

[ELFriendly](#) Constructor

Parameters

<i>pset</i>	ParameterSet used to configure <a href="#">ELFriendly</a>
-------------	---

Definition at line 79 of file Friendly\_mfPlugin.cc.

## 4.9.3 Member Function Documentation

4.9.3.1 `void mfplugins::ELFriendly::fillPrefix ( std::ostream & o, const ErrorObj & msg ) [override]`

Fill the "Prefix" portion of the message.

Parameters

<i>o</i>	Output stringstream
<i>msg</i>	MessageFacility object containing header information

Definition at line 85 of file Friendly\_mfPlugin.cc.

4.9.3.2 `void mfplugins::ELFriendly::fillSuffix ( std::ostream & o, const ErrorObj & msg ) [override]`

Fill the "Suffix" portion of the message.

Parameters

<i>o</i>	Output stringstream
<i>msg</i>	MessageFacility object containing header information

Definition at line 235 of file Friendly\_mfPlugin.cc.

4.9.3.3 `void mfplugins::ELFriendly::fillUsrMsg ( std::ostream & o, const ErrorObj & msg ) [override]`

Fill the "User Message" portion of the message.

Parameters

<i>o</i>	Output stringstream
<i>msg</i>	MessageFacility object containing header information

Definition at line 189 of file Friendly\_mfPlugin.cc.

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

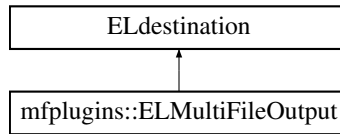
- `artdaq_mfextensions/mfextensions/Destinations/Friendly_mfPlugin.cc`

## 4.10 mfplugins::ELMultiFileOutput Class Reference

Message Facility Destination which automatically opens files and sorts messages into them based on given criteria



Inheritance diagram for mfplugins::ELMultiFileOutput:



## Classes

- struct [Config](#)  
*Configuration parameters for [ELMultiFileOutput](#).*

## Public Types

- using [Parameters](#) = fhicl::WrappedTable< [Config](#) >  
*Used for ParameterSet validation.*

## Public Member Functions

- [ELMultiFileOutput](#) ([Parameters](#) const &pset)  
*[ELMultiFileOutput](#) Constructor*
- [~ELMultiFileOutput](#) () override=default  
*Default virtual Destructor*
- void [routePayload](#) (const std::ostream &oss, const ErrorObj &msg) override  
*Serialize a MessageFacility message to the output.*
- void [flush](#) () override  
*Flush any text in the ostream buffer to disk.*

### 4.10.1 Detailed Description

Message Facility Destination which automatically opens files and sorts messages into them based on given criteria  
Definition at line 20 of file MultiFile\_mfPlugin.cc.

### 4.10.2 Constructor & Destructor Documentation

#### 4.10.2.1 mfplugins::ELMultiFileOutput::ELMultiFileOutput ( [Parameters](#) const & *pset* ) `[explicit]`

[ELMultiFileOutput](#) Constructor

Parameters

<i>pset</i>	ParameterSet used to configure <a href="#">ELMultiFileOutput</a>
-------------	--

Definition at line 100 of file MultiFile\_mfPlugin.cc.

#### 4.10.2.2 mfplugins::ELMultiFileOutput::~~ELMultiFileOutput ( ) [override],[default]

Default virtual Destructor

### 4.10.3 Member Function Documentation

#### 4.10.3.1 void mfplugins::ELMultiFileOutput::routePayload ( const std::ostringstream & oss, const ErrorObj & msg ) [override]

Serialize a MessageFacility message to the output.

##### Parameters

<i>oss</i>	Stringstream object containing message data
<i>msg</i>	MessageFacility object containing header information

Definition at line 106 of file MultiFile\_mfPlugin.cc.

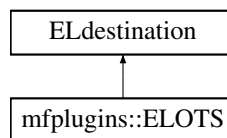
The documentation for this class was generated from the following file:

- artdaq\_mfextensions/mfextensions/Destinations/MultiFile\_mfPlugin.cc

## 4.11 mfplugins::ELOTS Class Reference

Message Facility OTS Console Destination Formats messages into Ryan's favorite format for OTS

Inheritance diagram for mfplugins::ELOTS:



### Classes

- struct [Config](#)  
*Configuration Parameters for [ELOTS](#).*

### Public Types

- using [Parameters](#) = fhicl::WrappedTable< [Config](#) >  
*Used for ParameterSet validation.*

### Public Member Functions

- [ELOTS](#) ([Parameters](#) const &pset)  
*[ELOTS](#) Constructor*
- void [fillPrefix](#) (std::ostringstream &o, const ErrorObj &msg) override

Fill the "Prefix" portion of the message.

- void [fillUsrMsg](#) (std::ostream &o, const ErrorObj &msg) override

Fill the "User Message" portion of the message.

- void [fillSuffix](#) (std::ostream &, const ErrorObj &) override

Fill the "Suffix" portion of the message (Unused)

- void [routePayload](#) (const std::ostream &o, const ErrorObj &e) override

Serialize a MessageFacility message to the output.

### 4.11.1 Detailed Description

Message Facility OTS Console Destination Formats messages into Ryan's favorite format for OTS

Definition at line 36 of file OTS\_mfPlugin.cc.

### 4.11.2 Constructor & Destructor Documentation

#### 4.11.2.1 mfplugins::ELOTS::ELOTS ( Parameters const & pset )

[ELOTS](#) Constructor

Parameters

<i>pset</i>	ParameterSet used to configure <a href="#">ELOTS</a>
-------------	--

Definition at line 109 of file OTS\_mfPlugin.cc.

### 4.11.3 Member Function Documentation

#### 4.11.3.1 void mfplugins::ELOTS::fillPrefix ( std::ostream &o, const ErrorObj &msg ) [override]

Fill the "Prefix" portion of the message.

Parameters

<i>o</i>	Output stringstream
<i>msg</i>	MessageFacility object containing header information

Definition at line 197 of file OTS\_mfPlugin.cc.

#### 4.11.3.2 void mfplugins::ELOTS::fillUsrMsg ( std::ostream &o, const ErrorObj &msg ) [override]

Fill the "User Message" portion of the message.

Parameters

<i>o</i>	Output stringstream
<i>msg</i>	MessageFacility object containing header information

Definition at line 334 of file OTS\_mfPlugin.cc.

#### 4.11.3.3 void mfplugins::ELOTS::routePayload ( const std::ostream &o, const ErrorObj &e ) [override]

Serialize a MessageFacility message to the output.

## Parameters

<i>o</i>	Stringstream object containing message data
<i>e</i>	MessageFacility object containing header information

Definition at line 343 of file OTS\_mfPlugin.cc.

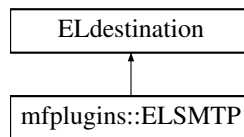
The documentation for this class was generated from the following file:

- `artdaq_mfextensions/mfextensions/Destinations/OTS_mfPlugin.cc`

## 4.12 mfplugins::ELSMTP Class Reference

SMTP Message Facility destination plugin (Using libcurl)

Inheritance diagram for mfplugins::ELSMTP:



## Classes

- struct [Config](#)  
Configuration parameters for [ELSMTP](#).

## Public Types

- using [Parameters](#) = fhicl::WrappedTable< [Config](#) >  
Used for *ParameterSet* validation.

## Public Member Functions

- [ELSMTP](#) ([Parameters](#) const &pset)  
*ELSMTP* Constructor
- virtual void [routePayload](#) (const std::ostream &o, const ErrorObj &msg) override  
Serialize a *MessageFacility* message to the output.

### 4.12.1 Detailed Description

SMTP Message Facility destination plugin (Using libcurl)

Definition at line 36 of file SMTP\_mfPlugin.cc.

## 4.12.2 Constructor & Destructor Documentation

### 4.12.2.1 mfplugins::ELSMTP::ELSMTP ( Parameters const & *pset* )

[ELSMTP](#) Constructor

## Parameters

<i>pset</i>	ParameterSet used to configure <a href="#">ELSMTP</a>
-------------	---

Definition at line 142 of file SMTP\_mfPlugin.cc.

### 4.12.3 Member Function Documentation

4.12.3.1 `void mfplugins::ELSMTP::routePayload ( const std::ostream & o, const ErrorObj & msg )` [override],  
[virtual]

Serialize a MessageFacility message to the output.

## Parameters

<i>o</i>	Stringstream object containing message data
<i>msg</i>	MessageFacility object containing header information

Definition at line 258 of file SMTP\_mfPlugin.cc.

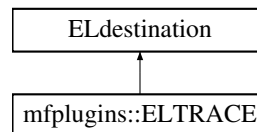
The documentation for this class was generated from the following file:

- `artdaq_mfextensions/mfextensions/Destinations/SMTP_mfPlugin.cc`

## 4.13 mfplugins::ELTRACE Class Reference

Message Facility destination which logs messages to a TRACE buffer

Inheritance diagram for mfplugins::ELTRACE:



## Classes

- struct [Config](#)  
*Configuration Parameters for [ELTRACE](#).*

## Public Types

- using [Parameters](#) = fhicl::WrappedTable< [Config](#) >  
*Used for ParameterSet validation.*

## Public Member Functions

- [ELTRACE](#) ([Parameters](#) const &pset)  
*[ELTRACE](#) Constructor*

- void [fillPrefix](#) (std::ostream &o, const ErrorObj &msg) override  
*Fill the "Prefix" portion of the message.*
- void [fillUsrMsg](#) (std::ostream &o, const ErrorObj &msg) override  
*Fill the "User Message" portion of the message.*
- void [fillSuffix](#) (std::ostream &, const ErrorObj &) override  
*Fill the "Suffix" portion of the message (Unused)*
- void [routePayload](#) (const std::ostream &o, const ErrorObj &msg) override  
*Serialize a MessageFacility message to the output.*

### 4.13.1 Detailed Description

Message Facility destination which logs messages to a TRACE buffer

Definition at line 32 of file TRACE\_mfPlugin.cc.

### 4.13.2 Constructor & Destructor Documentation

#### 4.13.2.1 mfplugins::ELTRACE::ELTRACE ( Parameters const & pset )

[ELTRACE](#) Constructor

Parameters

<i>pset</i>	ParameterSet used to configure <a href="#">ELTRACE</a>
-------------	--

Definition at line 93 of file TRACE\_mfPlugin.cc.

### 4.13.3 Member Function Documentation

#### 4.13.3.1 void mfplugins::ELTRACE::fillPrefix ( std::ostream & o, const ErrorObj & msg ) [override]

Fill the "Prefix" portion of the message.

Parameters

<i>o</i>	Output stringstream
<i>msg</i>	MessageFacility object containing header information

Definition at line 115 of file TRACE\_mfPlugin.cc.

#### 4.13.3.2 void mfplugins::ELTRACE::fillUsrMsg ( std::ostream & o, const ErrorObj & msg ) [override]

Fill the "User Message" portion of the message.

Parameters

<i>o</i>	Output stringstream
<i>msg</i>	MessageFacility object containing header information

Definition at line 128 of file TRACE\_mfPlugin.cc.

4.13.3.3 `void mfplugins::ELTRACE::routePayload ( const std::ostream & o, const ErrorObj & msg )` `[override]`

Serialize a MessageFacility message to the output.



## Parameters

<i>o</i>	Stringstream object containing message data
<i>msg</i>	MessageFacility object containing header information

Definition at line 142 of file TRACE\_mfPlugin.cc.

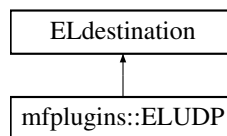
The documentation for this class was generated from the following file:

- artdaq\_mfextensions/mfextensions/Destinations/TRACE\_mfPlugin.cc

## 4.14 mfplugins::ELUDP Class Reference

Message Facility UDP Streamer Destination Formats messages into a delimited string and sends via UDP

Inheritance diagram for mfplugins::ELUDP:



### Classes

- struct [Config](#)

*Configuration Parameters for [ELUDP](#).*

### Public Types

- using [Parameters](#) = fhicl::WrappedTable< [Config](#) >

*Used for ParameterSet validation.*

### Public Member Functions

- [ELUDP](#) ([Parameters](#) const &pset)  
*[ELUDP](#) Constructor*
- void [fillPrefix](#) (std::ostream &o, const ErrorObj &msg) override  
*Fill the "Prefix" portion of the message.*
- void [fillUsrMsg](#) (std::ostream &o, const ErrorObj &msg) override  
*Fill the "User Message" portion of the message.*
- void [fillSuffix](#) (std::ostream &, const ErrorObj &) override  
*Fill the "Suffix" portion of the message (Unused)*
- void [routePayload](#) (const std::ostream &o, const ErrorObj &e) override  
*Serialize a MessageFacility message to the output.*

#### 4.14.1 Detailed Description

Message Facility UDP Streamer Destination Formats messages into a delimited string and sends via UDP

Definition at line 37 of file UDP\_mfPlugin.cc.

#### 4.14.2 Constructor & Destructor Documentation

##### 4.14.2.1 mfplugins::ELUDP::ELUDP ( Parameters const & *pset* )

[ELUDP](#) Constructor

Parameters

<i>pset</i>	ParameterSet used to configure <a href="#">ELUDP</a>
-------------	--

Definition at line 144 of file UDP\_mfPlugin.cc.

#### 4.14.3 Member Function Documentation

##### 4.14.3.1 void mfplugins::ELUDP::fillPrefix ( std::ostream & *o*, const ErrorObj & *msg* ) [override]

Fill the "Prefix" portion of the message.

Parameters

<i>o</i>	Output stringstream
<i>msg</i>	MessageFacility object containing header information

Definition at line 311 of file UDP\_mfPlugin.cc.

##### 4.14.3.2 void mfplugins::ELUDP::fillUsrMsg ( std::ostream & *o*, const ErrorObj & *msg* ) [override]

Fill the "User Message" portion of the message.

Parameters

<i>o</i>	Output stringstream
<i>msg</i>	MessageFacility object containing header information

Definition at line 363 of file UDP\_mfPlugin.cc.

##### 4.14.3.3 void mfplugins::ELUDP::routePayload ( const std::ostream & *o*, const ErrorObj & *e* ) [override]

Serialize a MessageFacility message to the output.

Parameters

<i>o</i>	Stringstream object containing message data
<i>e</i>	MessageFacility object containing header information

Definition at line 381 of file UDP\_mfPlugin.cc.

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

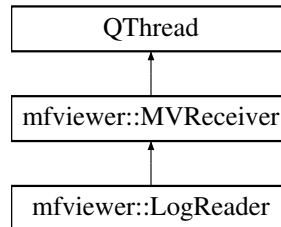
- artdaq\_mfextensions/mfextensions/Destinations/UDP\_mfPlugin.cc

## 4.15 mfviewer::LogReader Class Reference

MessageFacility Log Reader Read messagefacility log archive and reemit as messagefacility messages

```
#include <mfextensions/Receivers/LogReader_receiver.hh>
```

Inheritance diagram for mfviewer::LogReader:



### Public Member Functions

- [LogReader](#) (const fhicl::ParameterSet &pset)  
*LogReader Constructor*
- virtual [~LogReader](#) ()  
*LogReader Destructor*
- void [run](#) ()  
*Receiver loop method. Reads messages from file and emits newMessage signal*
- msg\_ptr\_t [read\\_next](#) ()  
*Read the next message from the input stream*
- bool [iseof](#) ()  
*Determine if the LogReader has reached the end of file.*

### Additional Inherited Members

#### 4.15.1 Detailed Description

MessageFacility Log Reader Read messagefacility log archive and reemit as messagefacility messages

Definition at line 20 of file LogReader\_receiver.hh.

#### 4.15.2 Constructor & Destructor Documentation

4.15.2.1 mfviewer::LogReader::LogReader ( const fhicl::ParameterSet &pset ) [explicit]

[LogReader](#) Constructor

Parameters

<i>pset</i>	ParameterSet used to configure the <a href="#">LogReader</a>
-------------	--

Definition at line 5 of file LogReader\_receiver.cc.

#### 4.15.2.2 `mfviewer::LogReader::~~LogReader ( )` [virtual]

[LogReader](#) Destructor

Definition at line 14 of file `LogReader_receiver.cc`.

### 4.15.3 Member Function Documentation

#### 4.15.3.1 `bool mfviewer::LogReader::iseof ( )` [inline]

Determine if the [LogReader](#) has reached the end of file.

##### Returns

Whether the reader is at the end of the file

Definition at line 50 of file `LogReader_receiver.hh`.

#### 4.15.3.2 `msg_ptr_t mfviewer::LogReader::read_next ( )`

Read the next message from the input stream

##### Returns

[qt\\_mf\\_msg](#) from log file

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

#### 4.15.3.3 `void mfviewer::LogReader::run ( )`

Receiver loop method. Reads messages from file and emits `newMessage` signal

Definition at line 26 of file `LogReader_receiver.cc`.

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

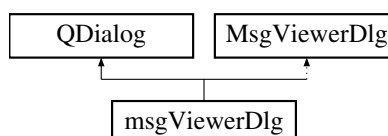
- `artdaq_mfextensions/mfextensions/Receivers/LogReader_receiver.hh`
- `artdaq_mfextensions/mfextensions/Receivers/LogReader_receiver.cc`

## 4.16 `msgViewerDlg` Class Reference

Message Viewer Dialog Window

```
#include <mfextensions/Binaries/mvdlg.hh>
```

Inheritance diagram for `msgViewerDlg`:



## Public Member Functions

- `template<typename T >`  
`void qt_check_for_QOBJECT_macro (const T &_q_argument) const`
- `virtual const QMetaObject * metaObject () const`
- `virtual void * qt_metacast (const char *)`
- `virtual int qt_metacall (QMetaObject::Call, int, void **)`
- `msgViewerDlg (std::string const &conf, QDialog *parent=nullptr)`  
*Message Viewer Dialog Constructor.*
- `void pause ()`  
*Pause message receiving.*
- `void exit ()`  
*Exit the program.*
- `void clear ()`  
*Clear the message buffer.*
- `void shortMode ()`  
*Switch to/from Short message mode.*
- `void changeSeverity (int sev)`  
*Change the severity threshold.*

## Static Public Member Functions

- `static QString tr (const char *s, const char *c=0)`
- `static QString trUtf8 (const char *s, const char *c=0)`
- `static QString tr (const char *s, const char *c, int n)`
- `static QString trUtf8 (const char *s, const char *c, int n)`

## Static Public Attributes

- `static const QMetaObject staticMetaObject`

## Protected Member Functions

- `void closeEvent (QCloseEvent *event)`  
*Perform actions on window close.*

### 4.16.1 Detailed Description

Message Viewer Dialog Window

Definition at line 27 of file mvdg.hh.

### 4.16.2 Constructor & Destructor Documentation

#### 4.16.2.1 `msgViewerDlg::msgViewerDlg ( std::string const & conf, QDialog * parent = nullptr )`

Message Viewer Dialog Constructor.

## Parameters

<i>conf</i>	Configuration filename (fhicl document)
<i>parent</i>	Parent Qt window

Definition at line 83 of file mvdlg.cc.

### 4.16.3 Member Function Documentation

#### 4.16.3.1 void msgViewerDlg::closeEvent ( QCloseEvent \* *event* ) [protected]

Perform actions on window close.

## Parameters

<i>event</i>	QCloseEvent data
--------------	------------------

Definition at line 1102 of file mvdlg.cc.

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

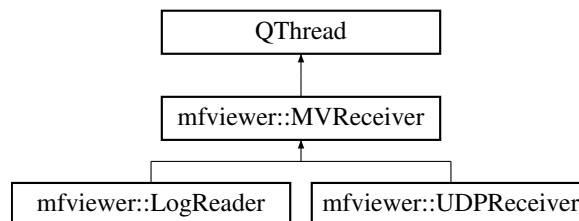
- artdaq\_mfextensions/mfextensions/Binaries/mvdlg.hh
- artdaq\_mfextensions/mfextensions/Binaries/mvdlg.cc

## 4.17 mfviewer::MVReceiver Class Reference

A [MVReceiver](#) class listens for messages and raises a signal when one arrives

```
#include <mfextensions/Receivers/MVReceiver.hh>
```

Inheritance diagram for mfviewer::MVReceiver:



### Public Member Functions

- template<typename T >  
void **qt\_check\_for\_QOBJECT\_macro** (const T &\_q\_argument) const
- virtual const QMetaObject \* **metaObject** () const
- virtual void \* **qt\_metacast** (const char \*)
- virtual int **qt\_metacall** (QMetaObject::Call, int, void \*\*)
- [MVReceiver](#) (fhicl::ParameterSet const &pset)  
*Construct a [MVReceiver](#) using the given ParameterSet*
- virtual [~MVReceiver](#) ()  
*[MVReceiver](#) destructor*
- void **stop** ()  
*Stop the [MVReceiver](#) thread*

## Static Public Member Functions

- static QString **tr** (const char \*s, const char \*c=0)
- static QString **trUtf8** (const char \*s, const char \*c=0)
- static QString **tr** (const char \*s, const char \*c, int n)
- static QString **trUtf8** (const char \*s, const char \*c, int n)

## Static Public Attributes

- static const QMetaObject **staticMetaObject**

## Protected Member Functions

- void [NewMessage](#) (msg\_ptr\_t const &msg)

*When a message is received by the [MVReceiver](#), this signal should be raised so that the connected listener can process it.*

## Protected Attributes

- std::atomic< bool > [stopRequested\\_](#)

*Whether the MVRecevier should stop*

### 4.17.1 Detailed Description

A [MVReceiver](#) class listens for messages and raises a signal when one arrives

Definition at line 17 of file MVReceiver.hh.

### 4.17.2 Constructor & Destructor Documentation

#### 4.17.2.1 mfviewer::MVReceiver::MVReceiver ( fhicl::ParameterSet const & pset ) [explicit]

Construct a [MVReceiver](#) using the given ParameterSet

Parameters

<i>pset</i>	ParameterSet used to construct <a href="#">MVReceiver</a>
-------------	---

Definition at line 3 of file MVReceiver.cc.

#### 4.17.2.2 virtual mfviewer::MVReceiver::~~MVReceiver ( ) [inline],[virtual]

[MVReceiver](#) destructor

Definition at line 31 of file MVReceiver.hh.

### 4.17.3 Member Function Documentation

4.17.3.1 `void mfviewer::MVReceiver::NewMessage ( msg_ptr_t const & msg )` `[protected]`

When a message is received by the [MVReceiver](#), this signal should be raised so that the connected listener can process it.



## Parameters

<i>msg</i>	Received message
------------	------------------

## 4.17.3.2 void mfviewer::MVReceiver::stop ( ) [inline]

Stop the [MVReceiver](#) thread

Definition at line 36 of file MVReceiver.hh.

## 4.17.4 Member Data Documentation

## 4.17.4.1 std::atomic&lt;bool&gt; mfviewer::MVReceiver::stopRequested\_ [protected]

Whether the MVRecevier should stop

Definition at line 42 of file MVReceiver.hh.

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

- artdaq\_mfextensions/mfextensions/Receivers/MVReceiver.hh
- artdaq\_mfextensions/mfextensions/Receivers/MVReceiver.cc

## 4.18 qt\_mf\_msg Class Reference

Qt wrapper around MessageFacility message

```
#include <mfextensions/Receivers/qt_mf_msg.hh>
```

## Public Member Functions

- [qt\\_mf\\_msg](#) (const std::string &hostname, const std::string &category, const std::string &application, pid\_t pid, timeval time)  
*Construct a [qt\\_mf\\_msg](#)*
- [qt\\_mf\\_msg](#) ()  
*Default message constructor.*
- [qt\\_mf\\_msg](#) (const [qt\\_mf\\_msg](#) &)=default  
*Default copy constructor.*
- [qt\\_mf\\_msg](#) ([qt\\_mf\\_msg](#) &&)=default  
*Default Move Constructor.*
- [qt\\_mf\\_msg](#) & operator= ([qt\\_mf\\_msg](#) const &)=default  
*Default Copy Assignment Operator.*
- [qt\\_mf\\_msg](#) & operator= ([qt\\_mf\\_msg](#) &&)=default  
*Default Move Assignment Operator.*
- virtual ~[qt\\_mf\\_msg](#) ()=default  
*Default Destructor.*
- QString const & [text](#) (bool mode) const  
*Get the text of the message*
- QColor const & [color](#) () const

- Get the severity-based color of the message*
  - `sev_code_t sev () const`
- Get the severity of the message*
  - `QString const & host () const`
- Get the host from which the message came*
  - `QString const & cat () const`
- Get the category of the message*
  - `QString const & app () const`
- Get the application of the message*
  - `timeval time () const`
- Get the message timestamp*
  - `size_t seq () const`
- Get the sequence number of the message*
  - `void setSeverity (mf::ELseverityLevel sev)`
- Set the Severity of the message (MF levels)*
  - `void setSeverityLevel (sev_code_t sev)`
- Set the severity code of the message (Viewer levels)*
  - `void setMessage (const std::string &prefix, int iteration, const std::string &msg)`
- Set the message*
  - `void setHostAddr (std::string const &hostaddr)`
- Set the hostaddr field*
  - `void setFileName (std::string const &file)`
- Set the file name field*
  - `void setLineNumber (std::string const &line)`
- Set the line number field*
  - `void setModule (std::string const &module)`
- Set the module name*
  - `void setEventID (std::string const &eventID)`
- Set the Event ID of the message*
  - `void updateText ()`
- Parse fields and create HTML string representing message*

#### 4.18.1 Detailed Description

Qt wrapper around MessageFacility message

Definition at line 37 of file `qt_mf_msg.hh`.

#### 4.18.2 Constructor & Destructor Documentation

- 4.18.2.1 `qt_mf_msg::qt_mf_msg ( const std::string & hostname, const std::string & category, const std::string & application, pid_t pid, timeval time )`

Construct a `qt_mf_msg`

## Parameters

<i>hostname</i>	Hostname of the message source
<i>category</i>	Category of the message
<i>application</i>	Application of the message
<i>pid</i>	PID of the message
<i>time</i>	Timestamp of the message

Definition at line 10 of file qt\_mf\_msg.cc.

### 4.18.3 Member Function Documentation

#### 4.18.3.1 QString const& qt\_mf\_msg::app ( ) const [inline]

Get the application of the message

## Returns

Message application

Definition at line 91 of file qt\_mf\_msg.hh.

#### 4.18.3.2 QString const& qt\_mf\_msg::cat ( ) const [inline]

Get the category of the message

## Returns

Message category

Definition at line 86 of file qt\_mf\_msg.hh.

#### 4.18.3.3 QColor const& qt\_mf\_msg::color ( ) const [inline]

Get the severity-based color of the message

## Returns

Color of the message

Definition at line 71 of file qt\_mf\_msg.hh.

#### 4.18.3.4 QString const& qt\_mf\_msg::host ( ) const [inline]

Get the host from which the message came

## Returns

Hostname of message

Definition at line 81 of file qt\_mf\_msg.hh.

4.18.3.5 `size_t qt_mf_msg::seq ( ) const` `[inline]`

Get the sequence number of the message

Returns

Message sequence number

Definition at line 101 of file `qt_mf_msg.hh`.

4.18.3.6 `void qt_mf_msg::setEventID ( std::string const & eventID )` `[inline]`

Set the Event ID of the message

Parameters

<i>eventID</i>	Event ID to set
----------------	-----------------

Definition at line 144 of file `qt_mf_msg.hh`.

4.18.3.7 `void qt_mf_msg::setFileName ( std::string const & file )` `[inline]`

Set the file name field

Parameters

<i>file</i>	File generating message
-------------	-------------------------

Definition at line 129 of file `qt_mf_msg.hh`.

4.18.3.8 `void qt_mf_msg::setHostAddr ( std::string const & hostaddr )` `[inline]`

Set the hostaddr field

Parameters

<i>hostaddr</i>	Host address of message source
-----------------	--------------------------------

Definition at line 124 of file `qt_mf_msg.hh`.

4.18.3.9 `void qt_mf_msg::setLineNumber ( std::string const & line )` `[inline]`

Set the line number field

Parameters

<i>line</i>	Line number in file
-------------	---------------------

Definition at line 134 of file `qt_mf_msg.hh`.

4.18.3.10 `void qt_mf_msg::setMessage ( const std::string & prefix, int iteration, const std::string & msg )`

Set the message

## Parameters

<i>prefix</i>	Message prefix
<i>iteration</i>	Message iteration (run/event no)
<i>msg</i>	Message text

Definition at line 55 of file qt\_mf\_msg.cc.

4.18.3.11 `void qt_mf_msg::setModule ( std::string const & module ) [inline]`

Set the module name

## Parameters

<i>module</i>	Module generating message
---------------	---------------------------

Definition at line 139 of file qt\_mf\_msg.hh.

4.18.3.12 `void qt_mf_msg::setSeverity ( mf::ELseverityLevel sev )`

Set the Severity of the message (MF levels)

## Parameters

<i>sev</i>	Severity level of the message
------------	-------------------------------

Definition at line 24 of file qt\_mf\_msg.cc.

4.18.3.13 `void qt_mf_msg::setSeverityLevel ( sev_code_t sev ) [inline]`

Set the severity code of the message (Viewer levels)

## Parameters

<i>sev</i>	Severity code of the message
------------	------------------------------

Definition at line 112 of file qt\_mf\_msg.hh.

4.18.3.14 `sev_code_t qt_mf_msg::sev ( ) const [inline]`

Get the severity of the message

## Returns

Message severity

Definition at line 76 of file qt\_mf\_msg.hh.

4.18.3.15 `QString const& qt_mf_msg::text ( bool mode ) const [inline]`

Get the text of the message

## Parameters

<i>mode</i>	Whether to return the short-form text
-------------	---------------------------------------

## Returns

Text of the message

Definition at line 66 of file qt\_mf\_msg.hh.

4.18.3.16 `timeval qt_mf_msg::time ( ) const` `[inline]`

Get the message timestamp

## Returns

Timestamp of the message

Definition at line 96 of file qt\_mf\_msg.hh.

4.18.3.17 `void qt_mf_msg::updateText ( )`

Parse fields and create HTML string representing message

Definition at line 62 of file qt\_mf\_msg.cc.

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

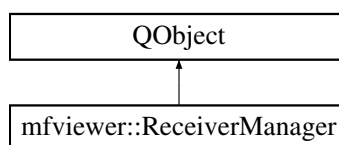
- artdaq\_mfextensions/mfextensions/Receivers/qt\_mf\_msg.hh
- artdaq\_mfextensions/mfextensions/Receivers/qt\_mf\_msg.cc

## 4.19 mfviewer::ReceiverManager Class Reference

The [ReceiverManager](#) loads one or more receiver plugins and displays messages received by those plugins on the Message Viewer dialog

```
#include <mfextensions/Receivers/ReceiverManager.hh>
```

Inheritance diagram for mfviewer::ReceiverManager:



## Signals

- void [newMessage](#) (msg\_ptr\_t const &msg)

*Signal raised on new message*

## Public Member Functions

- [ReceiverManager](#) (fhicl::ParameterSet const &pset)  
*ReceiverManager Constructor*
- virtual [~ReceiverManager](#) ()  
*ReceiverManager Destructor*
- void [start](#) ()  
*Start all receivers*
- void [stop](#) ()  
*Stop all receivers*

### 4.19.1 Detailed Description

The [ReceiverManager](#) loads one or more receiver plugins and displays messages received by those plugins on the Message Viewer dialog

Definition at line 13 of file ReceiverManager.hh.

### 4.19.2 Constructor & Destructor Documentation

4.19.2.1 mfviewer::ReceiverManager::ReceiverManager ( fhicl::ParameterSet const & pset ) [explicit]

[ReceiverManager](#) Constructor

Parameters

<i>pset</i>	ParameterSet used to configure <a href="#">ReceiverManager</a>
-------------	--

Definition at line 7 of file ReceiverManager.cc.

4.19.2.2 mfviewer::ReceiverManager::~~ReceiverManager ( ) [virtual]

[ReceiverManager](#) Destructor

Definition at line 31 of file ReceiverManager.cc.

### 4.19.3 Member Function Documentation

4.19.3.1 void mfviewer::ReceiverManager::newMessage ( msg\_ptr\_t const & msg ) [signal]

Signal raised on new message

Parameters

<i>msg</i>	Message just received
------------	-----------------------

4.19.3.2 void mfviewer::ReceiverManager::start ( )

Start all receivers

Definition at line 52 of file ReceiverManager.cc.

#### 4.19.3.3 void mfviewer::ReceiverManager::stop ( )

Stop all receivers

Definition at line 40 of file ReceiverManager.cc.

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

- artdaq\_mfextensions/mfextensions/Receivers/ReceiverManager.hh
- artdaq\_mfextensions/mfextensions/Receivers/ReceiverManager.cc

## 4.20 suppress Class Reference

Suppress messages based on a regular expression

```
#include <mfextensions/Extensions/suppress.hh>
```

### Public Member Functions

- [suppress](#) (std::string const &name)  
*Construct a suppression using the given name for regex matching*
- bool [match](#) (std::string const &name)  
*Check if the name matches this suppression*
- void [use](#) (bool flag)  
*Set whether the suppression is active*

#### 4.20.1 Detailed Description

Suppress messages based on a regular expression

Definition at line 13 of file suppress.hh.

#### 4.20.2 Constructor & Destructor Documentation

##### 4.20.2.1 suppress::suppress ( std::string const & name ) [explicit]

Construct a suppression using the given name for regex matching

Parameters

<i>name</i>	Name to suppress
-------------	------------------

Definition at line 3 of file suppress.cc.

#### 4.20.3 Member Function Documentation

##### 4.20.3.1 bool suppress::match ( std::string const & name )

Check if the name matches this suppression



## Parameters

<i>name</i>	Name to check
-------------	---------------

## Returns

True if name should be suppressed

Definition at line 6 of file suppress.cc.

4.20.3.2 void suppress::use ( bool *flag* ) [inline]

Set whether the suppression is active

## Parameters

<i>flag</i>	Whether the suppression should be active
-------------	--

Definition at line 33 of file suppress.hh.

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

- artdaq\_mfextensions/mfextensions/Extensions/suppress.hh
- artdaq\_mfextensions/mfextensions/Extensions/suppress.cc

## 4.21 throttle Class Reference

Throttle messages based on name and time limits. Separate from MessageFacility limiting.

```
#include <mfextensions/Extensions/throttle.hh>
```

### Public Member Functions

- [throttle](#) (std::string const &name, int limit, int64\_t timespan)  
*Throttle messages using a regular expression if they occur above a certain frequency*
- bool [reach\\_limit](#) (std::string const &name, timeval tm)  
*Determine whether the name has reached the throttling limit*
- void [use](#) (bool flag)  
*Enable or disable this throttle*

#### 4.21.1 Detailed Description

Throttle messages based on name and time limits. Separate from MessageFacility limiting.

Definition at line 17 of file throttle.hh.

#### 4.21.2 Constructor & Destructor Documentation

4.21.2.1 throttle::throttle ( std::string const & *name*, int *limit*, int64\_t *timespan* )

Throttle messages using a regular expression if they occur above a certain frequency

## Parameters

<i>name</i>	Regular expression to match messages
<i>limit</i>	Number of messages before throttling is enabled
<i>timespan</i>	Time limit for throttling

Definition at line 3 of file throttle.cc.

### 4.21.3 Member Function Documentation

#### 4.21.3.1 `bool throttle::reach_limit ( std::string const & name, timeval tm )`

Determine whether the name has reached the throttling limit

## Parameters

<i>name</i>	Name to check against regular expression
<i>tm</i>	Time of message

## Returns

Whether the message should be throttled

Definition at line 6 of file throttle.cc.

#### 4.21.3.2 `void throttle::use ( bool flag ) [inline]`

Enable or disable this throttle

## Parameters

<i>flag</i>	Whether the throttle should be enabled
-------------	--

Definition at line 40 of file throttle.hh.

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

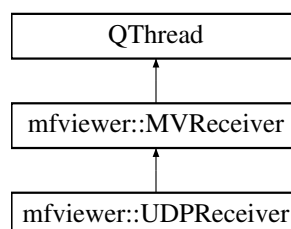
- artdaq\_mfextensions/mfextensions/Extensions/throttle.hh
- artdaq\_mfextensions/mfextensions/Extensions/throttle.cc

## 4.22 mfviewer::UDPReceiver Class Reference

Receive messages through a UDP socket. Expects the syslog format provided by UDP\_mfPlugin (ELUDP)

```
#include <mfextensions/Receivers/UDP_receiver.hh>
```

Inheritance diagram for mfviewer::UDPReceiver:



## Public Member Functions

- [UDPReceiver](#) (fhicl::ParameterSet const &pset)  
*UDPReceiver Constructor*
- virtual [~UDPReceiver](#) ()  
*Destructor – Close socket*
- void [run](#) () override  
*Receiver method. Receive messages and emit NewMessage signal*
- msg\_ptr\_t [read\\_msg](#) (std::string const &input)  
*Parse incoming message*

## Static Public Member Functions

- static bool [validate\\_packet](#) (std::string const &input)  
*Run simple validation tests on message*

## Additional Inherited Members

### 4.22.1 Detailed Description

Receive messages through a UDP socket. Expects the syslog format provided by UDP\_mfPlugin (ELUDP)  
Definition at line 12 of file UDP\_receiver.hh.

### 4.22.2 Constructor & Destructor Documentation

4.22.2.1 mfviewer::UDPReceiver::UDPReceiver ( fhicl::ParameterSet const & pset ) [explicit]

[UDPReceiver](#) Constructor

Parameters

<i>pset</i>	ParameterSet to use to configure the receiver
-------------	---

Definition at line 10 of file UDP\_receiver.cc.

4.22.2.2 mfviewer::UDPReceiver::~~UDPReceiver ( ) [virtual]

Destructor – Close socket

Definition at line 74 of file UDP\_receiver.cc.

### 4.22.3 Member Function Documentation

4.22.3.1 msg\_ptr\_t mfviewer::UDPReceiver::read\_msg ( std::string const & input )

Parse incoming message

## Parameters

<i>input</i>	String to parse
--------------	-----------------

## Returns

[qt\\_mf\\_msg](#) object containing message data

Definition at line 152 of file UDP\_receiver.cc.

#### 4.22.3.2 void mfviewer::UDPReceiver::run ( ) [override]

Receiver method. Receive messages and emit NewMessage signal

Definition at line 81 of file UDP\_receiver.cc.

#### 4.22.3.3 bool mfviewer::UDPReceiver::validate\_packet ( std::string const & *input* ) [static]

Run simple validation tests on message

## Parameters

<i>input</i>	String to validate
--------------	--------------------

## Returns

True if message contains "MF" marker and at least one "|" delimiter

Definition at line 290 of file UDP\_receiver.cc.

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

- artdaq\_mfextensions/mfextensions/Receivers/UDP\_receiver.hh
- artdaq\_mfextensions/mfextensions/Receivers/UDP\_receiver.cc

## 4.23 upload\_status Struct Reference

Structure to track progress of upload in cURL send function.

```
#include <mfextensions/Destinations/detail/curl_send_message.h>
```

## Public Attributes

- size\_t [pos](#)  
*Current position within payload.*
- size\_t [size](#)  
*Size of payload.*
- const char \* [payload](#)  
*payload string*

#### 4.23.1 Detailed Description

Structure to track progress of upload in cURL send function.

Definition at line 21 of file curl\_send\_message.h.

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

- [artdaq\\_mfextensions/mfextensions/Destinations/detail/curl\\_send\\_message.h](#)



## Chapter 5

# File Documentation

### 5.1 artdaq\_mfextensions/mfextensions/Destinations/detail/curl\_send\_message.h File Reference

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
```

#### Classes

- struct [upload\\_status](#)  
*Structure to track progress of upload in cURL send function.*

#### Functions

- void [send\\_message](#) (const char \*dest, const char \*to[], size\_t to\_size, const char \*from, const char \*payload, size\_t payload\_size)  
*Sends a message to the given SMTP server.*
- void [send\\_message\\_ssl](#) (const char \*dest, const char \*to[], size\_t to\_size, const char \*from, const char \*payload, size\_t payload\_size, const char \*username, const char \*pw, int disableVerify)  
*Sends a message to the given SMTP server, using SSL encryption.*

#### 5.1.1 Detailed Description

This file wraps the C-language cURL SMTP functions Code is from <https://curl.haxx.se/libcurl/c/example.-html>

Definition in file [curl\\_send\\_message.h](#).

#### 5.1.2 Function Documentation

5.1.2.1 `void send_message ( const char * dest, const char * to[], size_t to_size, const char * from, const char * payload, size_t payload_size )`

Sends a message to the given SMTP server.



## Parameters

<i>dest</i>	URL of SMTP server, in form smtp://[HOST]:[PORT]
<i>to</i>	Array of strings containing destination addresses
<i>to_size</i>	Size of the to array (must be >0!)
<i>from</i>	Address that the email is originating from
<i>payload</i>	Message payload, including RFC5322 headers
<i>payload_size</i>	Size of the message payload, in bytes

Definition at line 26 of file curl\_send\_message.c.

5.1.2.2 void send\_message\_ssl ( const char \* *dest*, const char \* *to*[], size\_t *to\_size*, const char \* *from*, const char \* *payload*, size\_t *payload\_size*, const char \* *username*, const char \* *pw*, int *disableVerify* )

Sends a message to the given SMTP server, using SSL encryption.

## Parameters

<i>dest</i>	URL of SMTP server, in form smtps://[HOST]:[PORT]
<i>to</i>	Array of strings containing destination addresses
<i>to_size</i>	Size of the to array (must be >0!)
<i>from</i>	Address that the email is originating from
<i>payload</i>	Message payload, including RFC5322 headers
<i>payload_size</i>	Size of the message payload, in bytes
<i>username</i>	Credentials for logging in to SMTPS server
<i>pw</i>	Credentials for logging in to SMTPS server (Recommend empty string)
<i>disableVerify</i>	Disable verification of host certificate (Recommend 0)

Definition at line 71 of file curl\_send\_message.c.

## 5.2 artdaq\_mfextensions/mfextensions/Receivers/detail/TCP\_listen\_fd.hh File Reference

```
#include <arpa/inet.h>
#include <errno.h>
#include <netdb.h>
#include <netinet/in.h>
#include <stdio.h>
#include <stdlib.h>
#include <strings.h>
#include <sys/socket.h>
#include "trace.h"
```

### Functions

- int [TCP\\_listen\\_fd](#) (int port, int rcvbuf)  
Create a TCP listening socket on the given port and INADDR\_ANY, with the given receive buffer.

### 5.2.1 Detailed Description

Defines a generator function for a TCP listen socket

Definition in file [TCP\\_listen\\_fd.hh](#).

## 5.2.2 Function Documentation

### 5.2.2.1 int TCP\_listen\_fd ( int *port*, int *rcvbuf* )

Create a TCP listening socket on the given port and INADDR\_ANY, with the given receive buffer.

#### Parameters

<i>port</i>	Port to listen on
<i>rcvbuf</i>	Receive buffer for socket. Set to 0 for TCP automatic buffer size

#### Returns

fd of new socket

Definition at line 32 of file [TCP\\_listen\\_fd.hh](#).

## 5.3 artdaq\_mfextensions/mfextensions/Receivers/detail/TCPConnect.hh File Reference

```
#include <arpa/inet.h>
#include <netdb.h>
#include <netinet/in.h>
#include <sys/socket.h>
#include <sys/types.h>
#include <unistd.h>
#include <cstdio>
#include <cstdlib>
#include <cstring>
#include <ifaddrs.h>
#include <linux/if_link.h>
#include <regex>
#include <string>
#include "TRACE/trace.h"
```

## Functions

- int [ResolveHost](#) (char const \*host\_in, in\_addr &addr)  
*Convert a string hostname to a in\_addr suitable for socket communication.*
- int [GetInterfaceForNetwork](#) (char const \*host\_in, in\_addr &addr)  
*Convert an IP address to the network address of the interface sharing the subnet mask.*
- int [ResolveHost](#) (char const \*host\_in, int dflt\_port, sockaddr\_in &sin)  
*Convert a string hostname and port to a sockaddr\_in suitable for socket communication.*
- int [TCPConnect](#) (char const \*host\_in, int dflt\_port, int64\_t flags=0, int sndbufsiz=0)  
*Connect to a host on a given port.*

### 5.3.1 Detailed Description

Provides utility functions for connecting TCP sockets

Definition in file [TCPConnect.hh](#).

### 5.3.2 Function Documentation

#### 5.3.2.1 `int GetInterfaceForNetwork ( char const * host_in, in_addr & addr ) [inline]`

Convert an IP address to the network address of the interface sharing the subnet mask.

Parameters

	<i>host_in</i>	IP to resolve
out	<i>addr</i>	in_addr object populated with resolved host

Returns

0 if success, -1 if gethostbyname fails, 2 if defaulted to 0.0.0.0 (No matching interfaces)

Definition at line 90 of file TCPConnect.hh.

#### 5.3.2.2 `int ResolveHost ( char const * host_in, in_addr & addr ) [inline]`

Convert a string hostname to a in\_addr suitable for socket communication.

Parameters

	<i>host_in</i>	Name or IP of host to resolve
out	<i>addr</i>	in_addr object populated with resolved host

Returns

0 if success, -1 if gethostbyname fails

Definition at line 42 of file TCPConnect.hh.

#### 5.3.2.3 `int ResolveHost ( char const * host_in, int dflt_port, sockaddr_in & sin ) [inline]`

Convert a string hostname and port to a sockaddr\_in suitable for socket communication.

Parameters

	<i>host_in</i>	Name or IP of host to resolve
	<i>dflt_port</i>	Port to populate in output
out	<i>sin</i>	sockaddr_in object populated with resolved host and port

Returns

0 if success, -1 if gethostbyname fails

Definition at line 184 of file TCPConnect.hh.

5.3.2.4 `int TCPConnect ( char const * host_in, int dflt_port, int64_t flags = 0, int sndbufsiz = 0 )` `[inline]`

Connect to a host on a given port.

#### Parameters

<i>host_in</i>	Name or IP of the host to connect to
<i>dflt_port</i>	Port to connect to
<i>flags</i>	TCP flags to use for the socket
<i>sndbufsiz</i>	Size of the send buffer. Set to 0 for automatic send buffer management

#### Returns

File descriptor of connected socket.

Definition at line 243 of file TCPConnect.hh.

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