globus gsi openssl error Reference Manual

0.14

Generated by Doxygen 1.3.4

Tue Aug 11 13:49:36 2009

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2.1 Globus OPENSSL Error API

Modules

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2.1.1 Detailed Description

These globus_openssl_error functions provide a wrapper to error types defined by OpenSSL

Any program that uses Globus OpenSSL Error functions must include "globus_error_openssl.h".

2.2 Activation

Defines

- #define GLOBUS_GSI_OPENSSL_ERROR_MODULE

2.2.1 Detailed Description

Globus GSI OpenSSL Error uses standard Globus module activation and deactivation. Before any Globus GSI OpenSSL Error functions are called, the following function must be called:

```
globus_module_activate(GLOBUS_GSI_OPENSSL_ERROR_MODULE)
```

This function returns GLOBUS_SUCCESS if Globus GSI OpenSSL Error was successfully initialized, and you are therefore allowed to subsequently call Globus GSI OpenSSL Error functions. Otherwise, an error code is returned, and Globus GSI OpenSSL Error functions should not be subsequently called. This function may be called multiple times.

To deactivate Globus GSI OpenSSL Error, the following function must be called:

```
globus_module_deactivate(GLOBUS_GSI_OPENSSL_ERROR_MODULE)
```

This function should be called once for each time Globus GSI OpenSSL Error was activated.

2.2.2 Define Documentation

2.2.2.1 #define GLOBUS_GSI_OPENSSL_ERROR_MODULE

Module descriptor.

2.3 Error Construction

Get Error Code

- unsigned long globus_openssl_error_handle_get_error_code (globus_openssl_error_handle_t handle)

Get Error Data

- const char * globus_openssl_error_handle_get_data (globus_openssl_error_handle_t handle)

Get Error Data Flags

- int globus_openssl_error_handle_get_data_flags (globus_openssl_error_handle_t handle)

Get Filename

- const char * globus_openssl_error_handle_get_filename (globus_openssl_error_handle_t handle)

Get Linenumber

- int globus_openssl_error_handle_get_linenumber (globus_openssl_error_handle_t handle)

Get Library

- const char * globus_openssl_error_handle_get_library (globus_openssl_error_handle_t handle)

Get Function

- const char * globus_openssl_error_handle_get_function (globus_openssl_error_handle_t handle)

Get Reason

- const char * globus_openssl_error_handle_get_reason (globus_openssl_error_handle_t handle)

Construct Error

- globus_object_t * globus_error_construct_openssl_error (globus_module_descriptor_t *base_source, globus_object_t *base_cause)

Initialize Error

- globus_object_t * globus_error_initialize_openssl_error (globus_object_t *error, globus_module_descriptor_t *base_source, globus_object_t *base_cause, globus_openssl_error_handle_t openssl_error_handle)

Get OpenSSL Filename

- const char * globus_error_openssl_error_get_filename (globus_object_t *error)

Get OpenSSL Linenumber

- int globus_error_openssl_error_get_linenumber (globus_object_t *error)

Get OpenSSL Library

- const char * globus_error_openssl_error_get_library (globus_object_t *error)

Get OpenSSL Function

- const char * globus_error_openssl_error_get_function (globus_object_t *error)

Get OpenSSL Reason

- const char * globus_error_openssl_error_get_reason (globus_object_t *error)

Get OpenSSL Error Data

- const char * globus_error_openssl_error_get_data (globus_object_t *error)

Get OpenSSL Error Data Flags

- int globus_error_openssl_error_get_data_flags (globus_object_t *error)

Defines

- #define GLOBUS_ERROR_TYPE_OPENSSL

2.3.1 Detailed Description

Create and initialize a Globus OpenSSL Error object.

This section defines operations to create and initialize Globus OpenSSLError objects.

2.3.2 Define Documentation

2.3.2.1 #define GLOBUS_ERROR_TYPE_OPENSSL

Error type definition.

2.3.3 Function Documentation

2.3.3.1 unsigned long globus_openssl_error_handle_get_error_code (globus_openssl_error_handle_t *handle*)

Get the openssl error code which represents the openssl error from the openssl error handle

Parameters:
handle The openssl error handle

Returns:
The error code

2.3.3.2 const char* globus_openssl_error_handle_get_data (globus_openssl_error_handle_t *handle*)

Get the openssl error data which contains additional data about the error from the openssl error handle

Parameters:
handle The openssl error handle

Returns:
The error data

2.3.3.3 int globus_openssl_error_handle_get_data_flags (globus_openssl_error_handle_t *handle*)

Get the openssl error data flags from the openssl error handle

Parameters:
handle The openssl error handle

Returns:
The error data flags

2.3.3.4 const char* globus_openssl_error_handle_get_filename (globus_openssl_error_handle_t *handle*)

Get the filename where the openssl error occurred from the openssl error handle

Parameters:
handle The openssl error handle

Returns:
The filename

2.3.3.5 int globus_openssl_error_handle_get_linenumber (globus_openssl_error_handle_t *handle*)

Get the linenumber on which the openssl error occurred from the openssl error handle

Parameters:
handle The openssl error handle

Returns:
The linenumber

2.3.3.6 const char* globus_openssl_error_handle_get_library (globus_openssl_error_handle_t *handle*)

Get the library name where the openssl error occurred in from the openssl error handle

Parameters:
handle The openssl error handle

Returns:
The library name

2.3.3.7 const char* globus_openssl_error_handle_get_function (globus_openssl_error_handle_t *handle*)

Get the function name where the openssl error occurred from the openssl error handle

Parameters:
handle The openssl error handle

Returns:
The function name

2.3.3.8 const char* globus_openssl_error_handle_get_reason (globus_openssl_error_handle_t *handle*)

Get the reason string which caused the openssl error from the openssl error handle

Parameters:
handle The openssl error handle

Returns:
The reson string

2.3.3.9 globus_object_t* globus_error_construct_openssl_error (globus_module_descriptor_t * *base_source*, globus_object_t * *base_cause*)

Allocate and initialize an error of type GLOBUS_ERROR_TYPE_OPENSSL This function, combined with globus_error_initialize_openssl_error() will recursively generate globus error objects (of type globus_object_t) from the errors on openssl's static error stack. The errors will be chained in a causal fashion to provide a path to the root cause of the actual error.

NOTE: the static stack openssl implements for its errors currently only supports at most 16 errors, so if more are added, the errors that were added first will be wiped out. If 16 errors are counted in the chain of openssl errors, its possible that some errors (including the original error) are missing.

Parameters:

base_source Pointer to the originating globus module.

base_cause The error object causing the error. This parameter should be NULL in nearly all cases, as the root cause of an error will most likely be in the openssl code itself. The actual cause of the error is determined from the static stack of openssl errors.

Returns:

The resulting error object. It is the user's responsibility to eventually free this object using globus_object_-free(). A globus_result_t may be obtained by calling globus_error_put() on this object.

2.3.3.10 globus_object_t* globus_error_initialize_openssl_error (globus_object_t * *error*, globus_-module_descriptor_t * *base_source*, globus_object_t * *base_cause*, globus_openssl_error_handle_t *openssl_error_handle*)

Initialize a previously allocated error of type GLOBUS_ERROR_TYPE_OPENSSL.

Parameters:

error The previously allocated error object.

base_source Pointer to the originating module.

base_cause The error object causing the error. If this is the original error this paramater may be NULL.

openssl_error_handle The openssl error handle associated with this error, this parameter should already be initialized to contain the openssl error code associated with the error.

Returns:

The resulting error object. You may have to call globus_error_put() on this object before passing it on.

2.3.3.11 const char* globus_error_openssl_error_get_filename (globus_object_t * *error*)

Get the OpenSSL filename where the error occurred.

Parameters:

error The globus object that represents the error

Returns:

The filename where the openssl error occurred

2.3.3.12 int globus_error_openssl_error_get_linenumber (globus_object_t * *error*)

Get the OpenSSL linenumber where the error occurred.

Parameters:

error The globus object that represents the error

Returns:

The linenumber where the openssl error occurred

2.3.3.13 const char* globus_error_openssl_error_get_library (globus_object_t * *error*)

Get the OpenSSL libraray the error occurred in.

Parameters:

error The globus object that represents the error

Returns:

The library name where the openssl error occurred

2.3.3.14 const char* globus_error_openssl_error_get_function (globus_object_t * *error*)

Get the OpenSSL filename where the error occurred.

Parameters:
error The globus object that represents the error

Returns:
The function name where the openssl error occurred

2.3.3.15 const char* globus_error_openssl_error_get_reason (globus_object_t * *error*)

Get the OpenSSL reason for the error.

Parameters:
error The globus object that represents the error

Returns:
The reason for the openssl error

2.3.3.16 const char* globus_error_openssl_error_get_data (globus_object_t * *error*)

Get the OpenSSL Error Data.

Parameters:
error The globus object that represents the error

Returns:
The error data for the openssl error

2.3.3.17 int globus_error_openssl_error_get_data_flags (globus_object_t * *error*)

Get the OpenSSL Error Data Flags.

Parameters:
error The globus object that represents the error

Returns:
The error data flags for the openssl error

2.4 Error Helper Functions

OpenSSL Error Match

- globus_bool_t globus_error_match_openssl_error (globus_object_t *error, unsigned long library, unsigned long function, unsigned long reason)

Wrap OpenSSL Error

- globus_object_t * globus_error_wrap_openssl_error (globus_module_descriptor_t *base_source, int error_type, const char *source_file, const char *source_func, int source_line, const char *format,...)

2.4.1 Detailed Description

Utility functions that deal with Globus OpenSSL Error objects

This section defines utility function for Globus OpenSSL Error objects.

2.4.2 Function Documentation

2.4.2.1 globus_bool_t globus_error_match_openssl_error (globus_object_t * *error*, unsigned long *library*, unsigned long *function*, unsigned long *reason*)

Check whether the error originated from a specific library, from a specific function and is of a specific type.

This function checks whether the error or any of it's causative errors originated from a specific library, specific function and is of a specific type.

Parameters:

error The error object for which to perform the check

library The library to check for

function The function to check for

reason The type to check for

Returns:

GLOBUS_TRUE - the error matched GLOBUS_FALSE - the error failed to match

2.4.2.2 globus_object_t* globus_error_wrap_openssl_error (globus_module_descriptor_t * *base_source*, int *error_type*, const char * *source_file*, const char * *source_func*, int *source_line*, const char * *format*, ...)

Wrap the OpenSSL error and create a wrapped globus error object from the error.

This function gets all the openssl errors from the error list, and chains them using the globus error string object. The resulting globus error object is a wrapper to the openssl error at the end of the chain.

Parameters:

base_source The module that the error was generated from

error_type The type of error encapsulating the openssl error

source_file Name of file. Use __FILE__

source_func Name of function. Use _globus_func_name and declare your func with GlobusFuncName(<name>)

source_line Line number. Use __LINE__

format format string for the description of the error entry point where the openssl error occurred, should be followed by parameters to fill the format string (like in printf).

Returns:

The globus error object. A globus_result_t object can be created using the globus_error_put function

See also:

globus_error_put()

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