globus common Reference Manual

10.2

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5.1 Globus Callback

Modules

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Module Specific

#define GLOBUS_CALLBACK_MODULE
#define GLOBUS_POLL_MODULE
typedef int globus_callback_handle_t
typedef int globus_callback_space_t
typedef globus_callback_space_attr_s globus_callback_space_attr_t

enum globus_callback_error_type_t { GLOBUS_CALLBACK_ERROR_INVALID_CALLBACK_HANDLE = 1024, GLOBUS_CALLBACK_ERROR_INVALID_SPACE, GLOBUS_CALLBACK_ERROR_MEMORY_ALLOC, GLOBUS_CALLBACK_ERROR_INVALID_ARGUMENT, GLOBUS_CALLBACK_ERROR_ALREADY_CANCELED, GLOBUS_CALLBACK_ERROR_NO_ACTIVE_CALLBACK }

5.1.1 Detailed Description

5.1.2 Define Documentation

5.1.2.1 #define GLOBUS_CALLBACK_MODULE

Module descriptor for for globus_callback module.

Must be activated before any of the following api is called.

Note: You would not normally activate this module directly. Activating the GLOBUS_COMMON_MODULE will in turn activate this also.

5.1.2.2 #define GLOBUS_POLL_MODULE

Deprecated:

Backward compatible name

5.1.3 Typedef Documentation

5.1.3.1 typedef int globus_callback_handle_t

Handle for a periodic callback.

This handle can be copied or compared, and represented as NULL with GLOBUS_NULL_HANDLE

5.1.3.2 typedef int globus_callback_space_t

Handle for a callback space.

This handle can be copied or compared and represented as NULL with GLOBUS_NULL_HANDLE

5.1.3.3 typedef struct globus_i_callback_space_attr_s globus_callback_space_attr_t

Handle for a space attr.

This handle can be copied and represented as NULL with GLOBUS_NULL

5.1.4 Enumeration Type Documentation

5.1.4.1 enum globus_callback_error_type_t

Possible error types returned by the api in this module.

You can use the error API to check results against these types.

See also:
Error Handling Helpers

Enumeration values:

GLOBUS_CALLBACK_ERROR_INVALID_CALLBACK_HANDLE The callback handle is not valid or it has already been destroyed.

GLOBUS_CALLBACK_ERROR_INVALID_SPACE The space handle is not valid or it has already been destroyed.

GLOBUS_CALLBACK_ERROR_MEMORY_ALLOC Could not allocate memory for an internal structure.

GLOBUS_CALLBACK_ERROR_INVALID_ARGUMENT One of the arguments is NULL or out of range.

GLOBUS_CALLBACK_ERROR_ALREADY_CANCELED Attempt to unregister callback again.

GLOBUS_CALLBACK_ERROR_NO_ACTIVE_CALLBACK Attempt to retrieve info about a callback not in callers's stack.

5.2 Globus Callback API

Convenience Macros

```
#define globus_callback_poll(a)
#define globus_poll_blocking()
#define globus_poll_nonblocking()
#define globus_poll()
#define globus_signal_poll()
#define globus_callback_register_oneshot(callback_handle,delay_time,callback_func,callback_user_arg)
#define globus_callback_register_periodic(callback_handle,delay_time,period,callback_func,callback_user_arg)
#define globus_callback_register_signal_handler(signum,persist,callback_func,callback_user_arg)
```

Callback Prototypes

```
typedef void( globus_callback_func_t )(void user_arg)
```

Oneshot Callbacks

globus_result_t globus_callback_space_register_oneshot (globus_callback_handle_t callback_handle, const globus_reltime_t delay_time, globus_callback_func_t callback_func, void callback_user_arg, globus_callback_space_t space)

Periodic Callbacks

globus_result_t globus_callback_space_register_periodic (globus_callback_handle_t callback_handle, const globus_reltime_t delay_time, const globus_reltime_t period, globus_callback_func_t callback_func, void callback_user_arg, globus_callback_space_t space)

globus_result_t globus_callback_unregister(globus_callback_handle_t callback_handle, globus_callback_func_t unregister_callback, void unreg_arg, globus_bool_t active)

globus_result_t globus_callback_adjust_oneshot (globus_callback_handle_t callback_handle, const globus_reltime_t new_delay)

globus_result_t globus_callback_adjust_period(globus_callback_handle_t callback_handle, const globus_reltime_t new_period)

Callback Polling

void globus_callback_space_poll (const globus_abstime_t timestop, globus_callback_space_t space)

void globus_callback_signal_poll ()

Miscellaneous

globus_bool_t globus_callback_get_timeout(globus_reltime_t time_left)
globus_bool_t globus_callback_has_time_expired()
globus_bool_t globus_callback_was_restarted()

5.2.1 Detailed Description

5.2.2 De ne Documentation

5.2.2.1 #de ne globus_callback_poll(a)

Speci es the global space for globus_callback_space_poll().

argument is the timeout

See also:
globus_callback_space_poll()

5.2.2.2 #de ne globus_poll_blocking()

Speci es that globus_callback_space_poll() should poll on the global space with an in nite timeout.

See also:
globus_callback_space_poll()

5.2.2.3 #de ne globus_poll_nonblocking()

Speci es that globus_callback_space_poll() should poll on the global space with an immediate timeout.

See also:
globus_callback_space_poll()

5.2.2.4 #de ne globus_poll()

Speci es that globus_callback_space_poll() should poll on the global space with an immediate timeout.

See also:
globus_callback_space_poll()

5.2.2.5 #de ne globus_signal_poll()

Counterpart to globus_poll().

See also:
globus_callback_signal_poll()

5.2.2.6 #define globus_callback_register_oneshot(callback_handle, delay_time, callback_func, callback_user_arg)

Specifies the global space for globus_callback_space_register_oneshot() all other arguments are the same as specified there.

See also:
globus_callback_space_register_oneshot()

5.2.2.7 #define globus_callback_register_periodic(callback_handle, delay_time, period, callback_func, callback_user_arg)

Specifies the global space for globus_callback_space_register_periodic() all other arguments are the same as specified there.

See also:
globus_callback_space_register_periodic()

5.2.2.8 #define globus_callback_register_signal_handler(signum, persist, callback_func, callback_user_arg)

Specifies the global space for globus_callback_space_register_signal_handler() all other arguments are the same as specified there.

See also:
globus_callback_space_register_signal_handler()

5.2.3 Typedef Documentation

5.2.3.1 typedef void(globus_callback_func_t)(void user_arg)

Globus callback prototype.

This is the signature of the function registered with the globus_callback_register_ calls.

If this is a periodic callback, it is guaranteed that the call canNOT be reentered unless globus_thread_blocking_space_will_block() is called (explicitly, or implicitly via globus_cond_wait()). Also, if globus_callback_unregister() is called to cancel this periodic from within this callback, it is guaranteed that the callback will NOT be requeued again

If the function will block at all, the user should call globus_callback_get_timeout() to see how long this function can safely block or call globus_thread_blocking_space_will_block()

Parameters:
user_arg The user argument registered with this callback

Returns:
void

See also:
globus_callback_space_register_oneshot(), globus_callback_space_register_periodic(), globus_thread_blocking_space_will_block(), globus_callback_get_timeout()

5.2.4 Function Documentation

5.2.4.1 globus_result_t globus_callback_space_register_oneshot (globus_callback_handle_t * callback_handle, const globus_reltime_t * delay_time, globus_callback_func_t callback_func, void * callback_user_arg, globus_callback_space_t space)

Register a oneshot some delay from now.

This function registers the callback_func to start some delay_time from now.

Parameters:

- callback_handle Storage for a handle. This may be NULL. If it is NOT NULL, you must unregister the callback to reclaim resources.
- delay_time The relative time from now to fire this callback. If NULL, will fire as soon as possible
- callback_func the user func to call
- callback_user_arg user arg that will be passed to callback
- space The space with which to register this callback

Returns:

GLOBUS_CALLBACK_ERROR_INVALID_ARGUMENT
GLOBUS_CALLBACK_ERROR_MEMORY_ALLOC
GLOBUS_SUCCESS

See also:
globus_callback_func_t , Globus Callback Spaces

5.2.4.2 globus_result_t globus_callback_space_register_periodic (globus_callback_handle_t * callback_handle, const globus_reltime_t * delay_time, const globus_reltime_t * period, globus_callback_func_t callback_func, void * callback_user_arg, globus_callback_space_t space)

Register a periodic callback.

This function registers a periodic callback_func to start some delay_time and run every period from then.

Parameters:

- callback_handle Storage for a handle. This may be NULL. If it is NOT NULL, you must cancel the periodic to reclaim resources.
- delay_time The relative time from now to fire this callback. If NULL, will fire the first callback as soon as possible
- period The relative period of this callback
- callback_func the user func to call
- callback_user_arg user arg that will be passed to callback
- space The space with which to register this callback

Returns:

GLOBUS_CALLBACK_ERROR_INVALID_ARGUMENT
GLOBUS_CALLBACK_ERROR_MEMORY_ALLOC
GLOBUS_SUCCESS

See also:
globus_callback_unregister(), globus_callback_func_t , Globus Callback Spaces

5.2.4.3 globus_result_t globus_callback_unregister (globus_callback_handle_t callback_handle, globus_callback_func_t unregister_callback, void * unreg_arg, globus_bool_t * active)

Unregister a callback.

This function will cancel a callback and free the resources associcated with the callback handle. If the callback was able to be canceled immediately (or if it has already run), GLOBUS_SUCCESS is returned and it is guaranteed that there are no running instances of the callback.

If the callback is currently running (or unstoppably about to be run), then the callback is prevented from being re-queued, but, the 'official' cancel is deferred until the last running instance of the callback returns. If you need to know when the callback is guaranteed to have been canceled, pass an unregister callback.

If you would like to know if you unregistered a callback before it ran, pass storage for a boolean 'active'. This will be GLOBUS_TRUE if callback was running. GLOBUS_FALSE otherwise.

Parameters:

callback_handle the handle received from a globus_callback_space_register_*() call

unregister_callback the function to call when the callback has been canceled and there are no running instances of it. This will be delivered to the same space used in the register call.

unreg_arg user arg that will be passed to the unregister callback

active storage for an indication of whether the callback was running when this call was made

Returns:

GLOBUS_CALLBACK_ERROR_INVALID_CALLBACK_HANDLE
GLOBUS_CALLBACK_ERROR_ALREADY_CANCELED
GLOBUS_SUCCESS

See also:

globus_callback_space_register_periodic(), globus_callback_func_t

5.2.4.4 globus_result_t globus_callback_adjust_oneshot (globus_callback_handle_t callback_handle, const globus_reltime_t * new_delay)

Adjust the delay of a oneshot callback.

This function allows a user to adjust the delay of a previously registered callback. It is safe to call this within or outside of the callback that is being modified.

Note if the oneshot has already been fired, this function will still return GLOBUS_SUCCESS, but won't affect anything.

Parameters:

callback_handle the handle received from a globus_callback_space_register_oneshot() call

new_delay The new delay from now. If NULL, then callback will be fired as soon as possible.

Returns:

GLOBUS_CALLBACK_ERROR_INVALID_CALLBACK_HANDLE
GLOBUS_CALLBACK_ERROR_ALREADY_CANCELED
GLOBUS_SUCCESS

See also:

globus_callback_space_register_periodic()

5.2.4.5 globus_result_t globus_callback_adjust_period (globus_callback_handle_t callback_handle, const globus_reltime_t new_period)

Adjust the period of a periodic callback.

This function allows a user to adjust the period of a previously registered callback. It is safe to call this within or outside of the callback that is being modified.

This func also allows a user to effectively 'suspend' a periodic callback until another time by passing a period of NULL. The callback can later be resumed by passing in a new period.

Note that the callback will not be fired sooner than 'new_period' from now. A 'suspended' callback must still be unregistered to free its resources.

Parameters:

callback_handle the handle received from a globus_callback_space_register_periodic() call

new_period The new period. If NULL or globus_i_reltime_infinity, then callback will be 'suspended' as soon as the last running instance of it returns.

Returns:

GLOBUS_CALLBACK_ERROR_INVALID_CALLBACK_HANDLE
GLOBUS_CALLBACK_ERROR_ALREADY_CANCELED
GLOBUS_SUCCESS

See also:

globus_callback_space_register_periodic()

5.2.4.6 void globus_callback_space_poll (const globus_abstime_t timestop, globus_callback_space_t space)

Poll for ready callbacks.

This function is used to poll for registered callbacks.

For non-threaded builds, callbacks are not/can not be delivered unless this is called. Any call to this can cause callbacks registered with the 'global' space to be fired. Whereas callbacks registered with a user's space will only be delivered when this is called with that space.

For threaded builds, this only needs to be called to poll user spaces with behavior == GLOBUS_CALLBACK_SPACE_BEHAVIOR_SINGLE. The 'global' space and other user spaces are constantly polled in a separate thread. (If it is called in a threaded build for these spaces, it will just yield its thread)

In general, you never need to call this function directly. It is called (when necessary) by globus_cond_wait(). The only case in which a user may wish to call this explicitly is if the application has no aspirations of ever being built threaded.

This function (when not yielding) will block up to timestop or until globus_callback_signal_poll() is called by one of the fired callbacks. It will always try and kick out ready callbacks, regardless of the timestop.

Parameters:

timestop The time to block until. If this is NULL or less than the cuurent time, an attempt to fire only ready callbacks is made (no blocking).

space The callback space to poll. Note: regardless of what space is passed here, the 'global' space is also always polled.

Returns:

void

See also:

Globus Callback Spaces, globus_condattr_setspace()

5.2.4.7 void globus_callback_signal_poll ()

Signal the poll.

This function signals globus_callback_space_poll() that something has changed and it should return to its caller as soon as possible.

In general, you never need to call this function directly. It is called (when necessary) by globus_cond_signal() or globus_cond_broadcast. The only case in which a user may wish to call this explicitly is if the application has no aspirations of ever being built threaded.

Returns:
void

See also:
globus_callback_space_poll()

5.2.4.8 globus_bool_t globus_callback_get_timeout (globus_reltime_t time_left)

Get the amount of time left in a callback.

This function retrieves the remaining time a callback is allowed to run. If a callback has already timed out, time_left will be set to zero and GLOBUS_TRUE returned. This function is intended to be called within a callback's stack, but is harmless to call anywhere (will return GLOBUS_FALSE and an in nite time left)

Parameters:
time_left storage for the remaining time.

Returns:
GLOBUS_FALSE if time remaining
GLOBUS_TRUE if already timed out

5.2.4.9 globus_bool_t globus_callback_has_time_expired ()

See if there is remaining time in a callback.

This function returns GLOBUS_TRUE if the running time of a callback has already expired. This function is intended to be called within a callback's stack, but is harmless to call anywhere (will return GLOBUS_FALSE)

Returns:
GLOBUS_FALSE if time remaining
GLOBUS_TRUE if already timed out

5.2.4.10 globus_bool_t globus_callback_was_restarted ()

See if a callback has been restarted.

If the callback is a oneshot, this merely means the callback called globus_thread_blocking_space_will_block (or globus_cond_wait() at some point.

For a periodic, it signi es the same and also that the periodic has been requeued. This means that the callback function may be reentered if the period is short enough (on a threaded build)

Returns:
GLOBUS_FALSE if not restarted
GLOBUS_TRUE if restarted

5.3 Globus Callback Spaces

De nes

#de ne GLOBUS_CALLBACK _GLOBAL _SPACE

Enumerations

enum globus_callback_space_behavior_t f GLOBUS_CALLBACK _SPACE_BEHAVIOR_SINGLE, GLOBUS_CALLBACK _SPACE_BEHAVIOR_SERIALIZED, GLOBUS_CALLBACK _SPACE_BEHAVIOR_-THREADED g

Functions

globus_result_t globus_callback_space_init (globus_callback_space_t space, globus_callback_space_attr_t attr)
globus_result_t globus_callback_space_reference(globus_callback_space_t space)
globus_result_t globus_callback_space_destroy(globus_callback_space_t space)
globus_result_t globus_callback_space_attr_init (globus_callback_space_attr_t attr)
globus_result_t globus_callback_space_attr_destroy(globus_callback_space_attr_t attr)
globus_result_t globus_callback_space_attr_set_behavior (globus_callback_space_attr_t attr, globus_callback_-space_behavior_t behavior)
globus_result_t globus_callback_space_attr_get_behavior (globus_callback_space_attr_t attr, globus_callback_-space_behavior_t behavior)
globus_result_t globus_callback_space_get(globus_callback_space_t space)
int globus_callback_space_get_depth(globus_callback_space_t space)
globus_bool_t globus_callback_space_is_single(globus_callback_space_t space)

5.3.1 Detailed Description

5.3.2 De ne Documentation

5.3.2.1 #de ne GLOBUS_CALLBACK _GLOBAL _SPACE

The 'global' space handle.

This is the default space handle implied if no spaces are explicitly created.

5.3.3 Enumeration Type Documentation

5.3.3.1 enum globus_callback_space_behavior_t

Callback space behaviors describe how a space behaves.

In a non-threaded build all spaces exhibit a behavior of BEHAVIOR_SINGLE. Setting a speci c behavior in this case is ignored.

In a threaded build, BEHAVIOR_SINGLE retains all the rules and behaviors of a non-threaded build while BEHAVIOR_THREADED makes the space act as the global space.

Setting a space's behavior to BEHAVIOR_SINGLE guarantees that the poll protection will always be there and all callbacks are serialized and only kicked out when polled for. In a threaded build, it is still necessary to poll for callbacks in a BEHAVIOR_SINGLE space. (globus_cond_wait() will take care of this for you also)

Setting a space's behavior to BEHAVIOR_SERIALIZED guarantees that the poll protection will always be there and all callbacks are serialized. In a threaded build, it is NOT necessary to poll for callbacks in a BEHAVIOR_SERIALIZED space. Callbacks in this space will be delivered as soon as possible, but only one outstanding (and unblocked) callback will be allowed at any time.

Setting a space's behavior to BEHAVIOR_THREADED allows the user to have the poll protection provided by spaces when built non-threaded, yet, be fully threaded when built threaded (where poll protection is not needed)

Enumeration values:

GLOBUS_CALLBACK_SPACE_BEHAVIOR_SINGLE The default behavior.

Indicates that you always want poll protection and single threaded behavior (callbacks need to be explicitly polled for

GLOBUS_CALLBACK_SPACE_BEHAVIOR_SERIALIZED Indicates that you want poll protection and all callbacks to be serialized (but they do not need to be polled for in a threaded build).

GLOBUS_CALLBACK_SPACE_BEHAVIOR_THREADED Indicates that you only want poll protection.

5.3.4 Function Documentation

5.3.4.1 globus_result_t globus_callback_space_init (globus_callback_space_t space, globus_callback_space_attr_t attr)

Initialize a user space.

This creates a user space.

Parameters:

space storage for the initialized space handle. This must be destroyed with globus_callback_space_destroy()

attr a space attr descibing desired behaviors. If GLOBUS_NULL, the default behavior of GLOBUS_CALLBACK_SPACE_BEHAVIOR_SINGLE is assumed. This attr is copied into the space, so it is acceptable to destroy the attr as soon as it is no longer needed

Returns:

GLOBUS_CALLBACK_ERROR_INVALID_ARGUMENT on NULL space
GLOBUS_CALLBACK_ERROR_MEMORY_ALLOC
GLOBUS_SUCCESS

See also:

globus_condattr_setspace(),

5.3.4.2 globus_result_t globus_callback_space_reference (globus_callback_space_t space)

Take a reference to a space.

A library which has been 'given' a space to provide callbacks on would use this to take a reference on the user's space. This prevents mayhem should a user destroy a space before the library is done with it. This reference should be destroyed with globus_callback_space_destroy() (think dup())

Parameters:

space space to reference

Returns:

GLOBUS_CALLBACK_ERROR_INVALID_SPACE
GLOBUS_SUCCESS

5.3.4.3 globus_result_t globus_callback_space_destroy (globus_callback_space_t space)

Destroy a reference to a user space.

This will destroy a reference to a previously initialized space. Space will not actually be destroyed until all callbacks registered with this space have been run and unregistered (if the user has a handle to that callback) AND all references (from globus_callback_space_reference()) have been destroyed.

Parameters:
space space to destroy, previously initialized by globus_callback_space_init() or referenced with globus_callback_space_reference()

Returns:
GLOBUS_CALLBACK_ERROR_INVALID_SPACE
GLOBUS_SUCCESS

See also:
globus_callback_space_init() , globus_callback_space_reference()

5.3.4.4 globus_result_t globus_callback_space_attr_init (globus_callback_space_attr_t attr)

Initialize a space attr.

Currently, the only attr to set is the behavior. The default behavior associated with this attr is GLOBUS_CALLBACK_SPACE_BEHAVIOR_SINGLE

Parameters:
attr storage for the intialized attr. Must be destroyed with globus_callback_space_attr_destroy()

Returns:
GLOBUS_CALLBACK_ERROR_INVALID_ARGUMENT on NULL attr
GLOBUS_CALLBACK_ERROR_MEMORY_ALLOC
GLOBUS_SUCCESS

5.3.4.5 globus_result_t globus_callback_space_attr_destroy (globus_callback_space_attr_t attr)

Destroy a space attr.

Parameters:
attr attr to destroy, previously initialized with globus_callback_space_attr_init()

Returns:
GLOBUS_CALLBACK_ERROR_INVALID_ARGUMENT on NULL attr
GLOBUS_SUCCESS

See also:
globus_callback_space_attr_init()

5.3.4.6 globus_result_t globus_callback_space_attr_set_behavior (globus_callback_space_attr_t attr, globus_callback_space_behavior_t behavior)

Set the behavior of a space.

Parameters:
attr attr to associate behavior with
behavior desired behavior

Returns:
GLOBUS_CALLBACK_ERROR_INVALID_ARGUMENT
GLOBUS_SUCCESS

See also:
globus_callback_space_behavior_t

5.3.4.7 globus_result_t globus_callback_space_attr_get_behavior (globus_callback_space_attr_t attr, globus_callback_space_behavior_t behavior)

Get the behavior associated with an attr.

Note: for a non-threaded build, this will always pass back a behavior == GLOBUS_CALLBACK_SPACE_BEHAVIOR_SINGLE.

Parameters:
attr attr on which to query behavior
behavior storage for the behavior

Returns:
GLOBUS_CALLBACK_ERROR_INVALID_ARGUMENT
GLOBUS_SUCCESS

5.3.4.8 globus_result_t globus_callback_space_get (globus_callback_space_t space)

Retrieve the space of a currently running callback.

Parameters:
space storage for the handle to the space currently running

Returns:
GLOBUS_CALLBACK_ERROR_INVALID_ARGUMENT on NULL space
GLOBUS_CALLBACK_ERROR_NO_ACTIVE_CALLBACK
GLOBUS_SUCCESS

5.3.4.9 int globus_callback_space_get_depth (globus_callback_space_t space)

Retrieve the current nesting level of a space.

Parameters:
space The space to query.

Returns:
the current nesting level
-1 on invalid space

5.3.4.10 globus_bool_t globus_callback_space_is_single (globus_callback_space_t space)

See if the specified space is a single threaded behavior space.

Parameters:
space the space to query

Returns:
GLOBUS_TRUE if space's behavior is BEHAVIOR_SINGLE
GLOBUS_FALSE otherwise

5.4 Globus Callback Signal Handling

Defines

#define GLOBUS_SIGNAL_INTERRUPT

Functions

globus_result_t globus_callback_space_register_signal_handler (int signum, globus_bool_t persist, globus_callback_func_t callback_func, void * callback_user_arg, globus_callback_space_t space)
globus_result_t globus_callback_unregister_signal_handler (int signum, globus_callback_func_t unregister_callback, void * unreg_arg)
void globus_callback_add_wakeup_handler (void(* wakeup)(void *), void * user_arg)

5.4.1 Detailed Description

5.4.2 Define Documentation

5.4.2.1 #define GLOBUS_SIGNAL_INTERRUPT

Use this to trap interrupts (SIGINT on unix).

In the future, this will also map to handle ctrl-C on win32.

5.4.3 Function Documentation

5.4.3.1 globus_result_t globus_callback_space_register_signal_handler (int signum, globus_bool_t persist, globus_callback_func_t callback_func, void * callback_user_arg, globus_callback_space_t space)

Fire a callback when the specified signal is received.

Note that there is a tiny delay between the time this call returns and the signal is actually handled by this library. It is likely that, if the signal was received the instant the call returned, it will be lost (this is normally not an issue, since you would call this in your startup code anyway)

Parameters:
signum The signal to receive. The following signals are not allowed: SIGKILL, SIGSEGV, SIGABRT, SIGBUS, SIGFPE, SIGILL, SIGIOT, SIGPIPE, SIGEMT, SIGSYS, SIGTRAP, SIGSTOP, SIGCONT, and SIGWAITING
persist If GLOBUS_TRUE, keep this callback registered for multiple signals. If GLOBUS_FALSE, the signal handler will automatically be unregistered once the signal has been received.
callback_func the user func to call when a signal is received

callback_user_arg user arg that will be passed to callback

space the space to deliver callbacks to.

Returns:
GLOBUS_CALLBACK_ERROR_INVALID_SPACE
GLOBUS_CALLBACK_ERROR_INVALID_ARGUMENT
GLOBUS_SUCCESS otherwise

5.4.3.2 globus_result_t globus_callback_unregister_signal_handler (int signum, globus_callback_func_t unregister_callback, void unreg_arg)

Unregister a signal handling callback.

Parameters:
signum The signal to unregister.

unregister_callback the function to call when the callback has been canceled and there are no running instances of it (may be NULL). This will be delivered to the same space used in the register call.

unreg_arg user arg that will be passed to callback

Returns:
GLOBUS_CALLBACK_ERROR_INVALID_ARGUMENT if this signal was registered with persist == false, then there is a race between a signal actually being caught and therefor automatically unregistered and the attempt to manually unregister it. If that race occurs, you will receive this error just as you would for any signal not registered.
GLOBUS_SUCCESS otherwise

5.4.3.3 void globus_callback_add_wakeup_handler (void(* wakeup)(void *), void * user_arg)

Register a wakeup handler with callback library.

This is really only needed in non-threaded builds, but for cross builds should be used everywhere that a callback may sleep for an extended period of time.

An example use is for an io poller that sleeps indefinitely on select(). If the callback library receives a signal that it needs to deliver asap, it will call the wakeup handler(s), These wakeup handlers must run as though they were called from a signal handler (dont use any thread utilities). The io poll example will likely write a single byte to a pipe that select() is monitoring.

This handler will not be unregistered until the callback library is deactivated (via common).

Parameters:
wakeup function to call when callback library needs you to return asap from any blocked callbacks.

user_arg user data that will be passed along in the wakeup handler

5.5 Globus Errno Error API

Modules

Error Construction
Error Data Accessors and Modifiers
Error Handling Helpers

5.5.1 Detailed Description

These globus_error functions are motivated by the desire to provide a easier way of generating new error types, while at the same time preserving all features (e.g. memory management, chaining) of the current error handling framework. The functions in this API are auxiliary to the function in the Globus Generic Error API in the sense that they provide a wraper for representing system errors in terms of a globus_error_t.

Any program that uses Globus Errno Error functions must include "globus_common.h".

5.6 Error Construction

Construct Error

globus_object_t globus_error_construct_errno_error(globus_module_descriptor_t base_source, globus_object_t base_cause, const int system_errno)

Initialize Error

globus_object_t globus_error_initialize_errno_error(globus_object_t error, globus_module_descriptor_t base_source, globus_object_t base_cause, const int system_errno)

De nes

#de ne GLOBUS_ERROR_TYPE_ERRNO

5.6.1 Detailed Description

Create and initialize a Globus Errno Error object.

This section de nes operations to create and initialize Globus Errno Error objects.

5.6.2 De ne Documentation

5.6.2.1 #de ne GLOBUS_ERROR_TYPE_ERRNO

Error type de nition.

5.6.3 Function Documentation

5.6.3.1 globus_object_t globus_error_construct_errno_error (globus_module_descriptor_t base_source, globus_object_t base_cause, const int system_errno)

Allocate and initialize an error of type GLOBUS_ERROR_TYPE_ERRNO.

Parameters:

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.

system_errno The system errno.

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.

5.6.3.2 globusobject_t globus_error_initialize_errno_error (globus_object_t error, globus_module_descriptor_t basesource, globus_object_t basecause, const int systemerrno)

Initialize a previously allocated error of type GLOBUSERRORTYPE_ERRNO.

Parameters:
error The previously allocated error object.
basesource Pointer to the originating module.
basecause The error object causing the error. If this is the original error this paramater may be NULL.
systemerrno The system errno.

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

5.7 Error Data Accessors and Modi ers

Get Errno

int globus_error_errno_get_errno(globus_object_t error)

Set Errno

void globus_error_errno_set_errno(globus_object_t error, const int systemerrno)

5.7.1 Detailed Description

Get and set data in a Globus Errno Error object.

This section de nes operations for accessing and modifying data in a Globus Errno Error object.

5.7.2 Function Documentation

5.7.2.1 int globuserror_errno_get_errno (globus_object_t error)

Retrieve the system errno from a errno error object.

Parameters:
error The error from which to retrieve the errno

Returns:
The errno stored in the object

5.7.2.2 void globuserror_errno_set_errno (globus_object_t error, const int systemerrno)

Set the errno in a errno error object.

Parameters:
error The error object for which to set the errno
systemerrno The system errno

Returns:
void

5.8 Error Handling Helpers

Error Match

globus_bool_t globus_error_errno_match(globus_object_t error, globus_module_descriptor_t module, int system_errno)

Wrap Errno Error

globus_object_t globus_error_wrap_errno_error (globus_module_descriptor_t base_source, int system_errno, int type, const char *source_file, const char source_func, int source_line, const char short_desc_format,...)

5.8.1 Detailed Description

Helper functions for dealing with Globus Errno Error objects.

This section defines utility functions for dealing with Globus Errno Error objects.

5.8.2 Function Documentation

5.8.2.1 globus_bool_t globus_error_errno_match (globus_object_t error, globus_module_descriptor_t module, int system_errno)

Check whether the error originated from a specific module and matches a specific errno.

This function checks whether the error or any of it's causative errors originated from a specific module and contains a specific errno. If the module descriptor is left unspecified this function will check for any error of the specified errno and vice versa.

Parameters:

error The error object for which to perform the check

module The module descriptor to check for

system_errno The errno to check for

Returns:

GLOBUS_TRUE - the error matched the module and errno GLOBUS_FALSE - the error failed to match the module and errno

5.8.2.2 globus_object_t globus_error_wrap_errno_error (globus_module_descriptor_t base_source, int system_errno, int type, const char *source_file, const char source_func, int source_line, const char short_desc_format, ...)

Allocate and initialize an error of type GLOBUS_ERROR_TYPE_GLOBUS which contains a causal error of type GLOBUS_ERROR_TYPE_ERRNO.

Parameters:

base_source Pointer to the originating module.

system_errno The errno to use when generating the causal error.

type The error type. We may reserve part of this namespace for common errors. Errors not in this space are assumed to be local to the originating module.

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__
short_desc_format Short format string giving a succinct description of the error. To be passed on to the user.
... Arguments for the format string.

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.

5.9 Globus Error API

Intended use:.

Modules

Globus Errno Error API
Globus Generic Error API

5.9.1 Detailed Description

Intended use:.

If a function needs to return an error it should do the following:

External errors, such as error returns from system calls and GSSAPI errors, should be wrapped using the appropriate error type.
The wrapped external error should then be passed as the cause of a globus error.
External error types are expected to provide a utility function to combine the above two steps.
The globus error should then be returned from the function.

Notes on how to generate globus errors:

Module specific error types should be greater or equal to 1024 (to leave some space for global error types).
You may wish to generate a mapping from error types to format strings for use in short descriptions.
You may also wish to generate a common prefix for all of the above fromat strings. The suggested prefix is "Function: %s Line: %s ".

5.10 Globus Generic Error API

Modules

Error Construction
Error Data Accessors and Modifiers
Error Handling Helpers

5.10.1 Detailed Description

These globus_error functions are motivated by the desire to provide a easier way of generating new error types, while at the same time preserving all features (e.g. memory management, chaining) of the current error handling framework. It does this by de ning a generic error type for globus which in turn contains a integer in it's instance data which is used for carrying the actual error type information.

Any program that uses Globus Generic Error functions must include ”globus_common.h”.

5.11 Error Construction

Construct Error

globus_object_t globus_error_construct_error (globus_module_descriptor_t base_source, globus_object_t base_cause, int type, const char source_ le, const char source_func, int source_line, const char short_desc_format,...)
globus_object_t globus_error_v_construct_error (globus_module_descriptor_t base_source, globus_object_t base_cause, const int type, const char source_ le, const char source_func, int source_line, const char short_desc_format, va_list ap)

Initialize Error

globus_object_t globus_error_initialize_error(globus_object_t error, globus_module_descriptor_t base_source, globus_object_t base_cause, int type, const char source_ le, const char source_func, int source_line, const char short_desc_format, va_list ap)

De nes

#de ne GLOBUS_ERROR_TYPE_GLOBUS

5.11.1 Detailed Description

Create and initialize a Globus Generic Error object.

This section de nes operations to create and initialize Globus Generic Error objects.

5.11.2 De ne Documentation

5.11.2.1 #de ne GLOBUS_ERROR_TYPE_GLOBUS

Error type de nition.

5.11.3 Function Documentation

5.11.3.1 globus_object_t globus_error_construct_error (globus_module_descriptor_t base_source, globus_object_t base_cause, int type, const char source_ le , const char source_func, int source_line, const char short_desc_format, ...)

Allocate and initialize an error of type GLOBUS_ERROR_TYPE_GLOBUS.

Parameters:
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.

type The error type. We may reserve part of this namespace for common errors. Errors not in this space are assumed to be local to the originating module.

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__

short_desc_format Short format string giving a succinct description of the error. To be passed on to the user.

... Arguments for the format string.

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.

5.11.3.2 globus_object_t globus_error_v_construct_error (globus_module_descriptor_t base_source, globus_object_t base_cause, const int type, const char source_file, const char source_func, int source_line, const char short_desc_format, va_list ap)

Allocate and initialize an error of type GLOBUS_ERROR_TYPE_GLOBUS.

Parameters:
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.

type The error type. We may reserve part of this namespace for common errors. Errors not in this space are assumed to be local to the originating module.

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__

short_desc_format Short format string giving a succinct description of the error. To be passed on to the user.

ap Arguments for the format string.

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.

5.11.3.3 globus_object_t globus_error_initialize_error (globus_object_t error, globus_module_descriptor_t base_source, globus_object_t base_cause, int type, const char source_file, const char source_func, int source_line, const char short_desc_format, va_list ap)

Initialize a previously allocated error of type GLOBUS_ERROR_TYPE_GLOBUS.

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.

type The error type. We may reserve part of this namespace for common errors. Errors not in this space are assumed to be local to the originating module.

source_ le Name of le. Use__FILE__

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

source_line Line number. Use __LINE__

short_desc_format Short format string giving a succinct description of the error. To be passed on to the user.

ap Arguments for the format string.

Returns:

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

5.12 Error Data Accessors and Modi ers

Get Source

globus_module_descriptor_t globus_error_get_source(globus_object_t error)

Set Source

void globus_error_set_source(globus_object_t error, globus_module_descriptor_t sourcemodule)

Get Cause

globus_object_t globus_error_get_cause(globus_object_t error)

Set Cause

void globus_error_set_cause(globus_object_t error, globus_object_t causalerror)

Get Type

int globus_error_get_type(globus_object_t error)

Set Type

void globus_error_set_type(globus_object_t error, const int type)

Get Short Description

char globus_error_get_short_desc(globus_object_t error)

Set Short Description

void globus_error_set_short_desc(globus_object_t error, const charshort_descformat,...)

Get Long Description

char globus_error_get_long_desc(globus_object_t error)

Set Long Description

void globus_error_set_long_desc(globus_object_t error, const char *long_desc_format,...)

5.12.1 Detailed Description

Get and set data in a Globus Generic Error object.

This section de nes operations for accessing and modifying data in a Globus Generic Error object.

5.12.2 Function Documentation

5.12.2.1 globus_module_descriptor_t globus_error_get_source (globus_object_t error)

Retrieve the originating module descriptor from a error object.

Parameters:
error The error from which to retrieve the module descriptor

Returns:
The originating module descriptor.

5.12.2.2 void globus_error_set_source (globus_object_t error, globus_module_descriptor_t source_module)

Set the originating module descriptor in a error object.

Parameters:
error The error object for which to set the causative error
source_module The originating module descriptor

Returns:
void

5.12.2.3 globus_object_t globus_error_get_cause (globus_object_t error)

Retrieve the underlying error from a error object.

Parameters:
error The error from which to retrieve the causative error.

Returns:
The underlying error object if it exists, NULL if it doesn't.

5.12.2.4 void globus_error_set_cause (globus_object_t error, globus_object_t causal_error)

Set the causative error in a error object.

Parameters:
error The error object for which to set the causative error.
causal_error The causative error.

Returns:
void

5.12.2.5 int globus_error_get_type (globus_object_t error)

Retrieve the error type from a generic globus error object.

Parameters:
error The error from which to retrieve the error type

Returns:
The error type of the object

5.12.2.6 void globus_error_set_type (globus_object_t error, const int type)

Set the error type in a generic globus error object.

Parameters:
error The error object for which to set the error type
type The error type

Returns:
void

5.12.2.7 char globus_error_get_short_desc (globus_object_t error)

Retrieve the short error description from a generic globus error object.

Parameters:
error The error from which to retrieve the description

Returns:
The short error description of the object

5.12.2.8 void globus_error_set_short_desc (globus_object_t error, const char short_descformat, ...)

Set the short error description in a generic globus error object.

Parameters:
error The error object for which to set the description
short_descformat Short format string giving a succinct description of the error. To be passed on to the user.
... Arguments for the format string.

Returns:
void

5.12.2.9 char globus_error_get_long_desc (globus_object_t error)

Retrieve the long error description from a generic globus error object.

Parameters:
error The error from which to retrieve the description

Returns:
The long error description of the object

5.12.2.10 void globus_error_set_long_desc (globus_object_t error, const char long_desc_format, ...)

Set the long error description in a generic globus error object.

Parameters:
error The error object for which to set the description
long_desc_format Longer format string giving a more detailed explanation of the error.

Returns:
void

5.13 Error Handling Helpers

Error Match

globus_bool_t globus_error_match(globus_object_t error, globus_module_descriptor_t module, int type)

Print Error Chain

char globus_error_print_chain(globus_object_t error)

Print User Friendly Error Message

char globus_error_print_friendly (globus_object_t error)

5.13.1 Detailed Description

Helper functions for dealing with Globus Generic Error objects.

This section de nes utility functions for dealing with Globus Generic Error objects.

5.13.2 Function Documentation

5.13.2.1 globus_bool_t globus_error_match (globus_object_t error, globus_module_descriptor_t module, int type)

Check whether the error originated from a speci c module and is of a speci c type.

This function checks whether the error or any of it's causative errors originated from a speci c module and is of a speci c type. If the module descriptor is left unspeci ed this function will check for any error of the speci ed type and vice versa.

Parameters:
error The error object for which to perform the check
module The module descriptor to check for
type The type to check for

Returns:
GLOBUS_TRUE - the error matched the module and type GLOBUS_FALSE - the error failed to match the module and type

5.13.2.2 char globus_error_print_chain (globus_object_t error)

Return a string containing all printable errors found in a error object and it's causative error chain.

If the GLOBUS_ERROR_VERBOSE env is set, file, line and function info will also be printed (where available). Otherwise, only the module name will be printed.

Parameters:
error The error to print

Returns:
A string containing all printable errors. This string needs to be freed by the user of this function.

5.13.2.3 char globus_error_print_friendly (globus_object_t error)

Return a string containing error messages from the top 1 and bottom 3 objects, and, if found, show a friendly error message.

The error chain will be searched from top to bottom until a friendly handler is found and a friendly message is created.

If the GLOBUS_ERROR_VERBOSE env is set, then the result from globus_error_print_chain() will be used.

Parameters:
error The error to print

Returns:
A string containing a friendly error message. This string needs to be freed by the user of this function.

5.14 Globus Thread API

5.15 URL String Parser

The Globus URL functions provide a simple mechanism for parsing a URL string into a data structure, and for determining the scheme of an URL string.

Data Structures

struct globus_url_t
Parsed URLs.

Enumerations

enum globus_url_scheme_t { GLOBUS_URL_SCHEME_FTP = 0, GLOBUS_URL_SCHEME_GSIFTP, GLOBUS_URL_SCHEME_HTTP, GLOBUS_URL_SCHEME_HTTPS, GLOBUS_URL_SCHEME_LDAP, GLOBUS_URL_SCHEME_FILE, GLOBUS_URL_SCHEME_X_NEXUS, GLOBUS_URL_SCHEME_X_GASS_CACHE, GLOBUS_URL_SCHEME_UNKNOWN , GLOBUS_URL_NUM_SCHEMES }

Functions

int globus_url_parse (const char url_string, globus_url_t url)
int globus_url_parse_rfc1738 (const char url_string, globus_url_t url)

int globus_url_parse_loose(const char *url_string, globus_url_t *url)
int globus_url_destroy(globus_url_t *url)
int globus_url_get_scheme(const char *url_string, globus_url_scheme_t *scheme_type)
int globus_url_copy(globus_url_t *dst, const globus_url_t *src)

5.15.1 Detailed Description

The Globus URL functions provide a simple mechanism for parsing a URL string into a data structure, and for determining the scheme of an URL string.

These functions are part of the Globus common library. The GLOBUS_COMMON module must be activated in order to use them.

5.15.2 Enumeration Type Documentation

5.15.2.1 enum globus_url_scheme_t

URL Schemes.

The Globus URL library supports a set of URL schemes (protocols). This enumeration can be used to quickly dispatch a parsed URL based on a constant value.

See also:
globus_url_t::scheme_type

Enumeration values:
GLOBUS_URL_SCHEME_FTP File Transfer Protocol.
GLOBUS_URL_SCHEME_GSIFTP GSI-enhanced File Transfer Protocol.
GLOBUS_URL_SCHEME_HTTP HyperText Transfer Protocol.
GLOBUS_URL_SCHEME_HTTPS Secure HyperText Transfer Protocol.
GLOBUS_URL_SCHEME_LDAP Lightweight Directory Access Protocol.
GLOBUS_URL_SCHEME_FILE File Location.
GLOBUS_URL_SCHEME_X_NEXUS Nexus endpoint.
GLOBUS_URL_SCHEME_X_GASS_CACHE GASS Cache Entry.
GLOBUS_URL_SCHEME_UNKNOWN Any other URL of the form <scheme>://<something>.
GLOBUS_URL_NUM_SCHEMES Total number of URL schemes supported.

5.15.3 Function Documentation

5.15.3.1 int globus_url_parse (const char *url_string, globus_url_t *url)

Parse a string containing a URL into a globus_url_t.

Parameters:
url_string String to parse
url Pointer to globus_url_t to be filled with the fields of the url

Return values:
GLOBUS_SUCCESS The string was successfully parsed.

GLOBUS_URL_ERROR_NULL_STRING The url_string was GLOBUS_NULL.

GLOBUS_URL_ERROR_NULL_URL The URL pointer was GLOBUS_NULL.

GLOBUS_URL_ERROR_BAD_SCHEME The URL scheme (protocol) contained invalid characters.

GLOBUS_URL_ERROR_BAD_USER The user part of the URL contained invalid characters.

GLOBUS_URL_ERROR_BAD_PASSWORD The password part of the URL contained invalid characters.

GLOBUS_URL_ERROR_BAD_HOST The host part of the URL contained invalid characters.

GLOBUS_URL_ERROR_BAD_PORT The port part of the URL contained invalid characters.

GLOBUS_URL_ERROR_BAD_PATH The path part of the URL contained invalid characters.

GLOBUS_URL_ERROR_BAD_DN -9 The DN part of an LDAP URL contained invalid characters.

GLOBUS_URL_ERROR_BAD_ATTRIBUTES -10 The attributes part of an LDAP URL contained invalid characters.

GLOBUS_URL_ERROR_BAD_SCOPE -11 The scope part of an LDAP URL contained invalid characters.

GLOBUS_URL_ERROR_BAD_FILTER -12 The filter part of an LDAP URL contained invalid characters.

GLOBUS_URL_ERROR_OUT_OF_MEMORY -13 The library was unable to allocate memory to create the the globus_url_t contents.

GLOBUS_URL_ERROR_INTERNAL_ERROR -14 Some unexpected error occurred parsing the URL.

5.15.3.2 int globus_url_parse_rfc1738 (const char *url_string, globus_url_t *url)

Parse a string containing a URL into a globus_url_t.

Parameters:

url_string String to parse

url Pointer to globus_url_t to be filled with the fields of the url

Return values:

GLOBUS_SUCCESS The string was successfully parsed.

GLOBUS_URL_ERROR_NULL_STRING The url_string was GLOBUS_NULL.

GLOBUS_URL_ERROR_NULL_URL The URL pointer was GLOBUS_NULL.

GLOBUS_URL_ERROR_BAD_SCHEME The URL scheme (protocol) contained invalid characters.

GLOBUS_URL_ERROR_BAD_USER The user part of the URL contained invalid characters.

GLOBUS_URL_ERROR_BAD_PASSWORD The password part of the URL contained invalid characters.

GLOBUS_URL_ERROR_BAD_HOST The host part of the URL contained invalid characters.

GLOBUS_URL_ERROR_BAD_PORT The port part of the URL contained invalid characters.

GLOBUS_URL_ERROR_BAD_PATH The path part of the URL contained invalid characters.

GLOBUS_URL_ERROR_BAD_DN -9 The DN part of an LDAP URL contained invalid characters.

GLOBUS_URL_ERROR_BAD_ATTRIBUTES -10 The attributes part of an LDAP URL contained invalid characters.

GLOBUS_URL_ERROR_BAD_SCOPE -11 The scope part of an LDAP URL contained invalid characters.

GLOBUS_URL_ERROR_BAD_FILTER -12 The filter part of an LDAP URL contained invalid characters.

GLOBUS_URL_ERROR_OUT_OF_MEMORY -13 The library was unable to allocate memory to create the the globus_url_t contents.

GLOBUS_URL_ERROR_INTERNAL_ERROR -14 Some unexpected error occurred parsing the URL.

5.15.3.3 int globus_url_parse_loose (const char *url_string, globus_url_t *url)

Parse a string containing a URL into a globus_url_t Looser restrictions on characters allowed in the path part of the URL.

Parameters:
- url_string String to parse
- url Pointer to globus_url_t to be filled with the fields of the url

Return values:
- GLOBUS_SUCCESS The string was successfully parsed.
- GLOBUS_URL_ERROR_NULL_STRING The url_string was GLOBUS_NULL.
- GLOBUS_URL_ERROR_NULL_URL The URL pointer was GLOBUS_NULL.
- GLOBUS_URL_ERROR_BAD_SCHEME The URL scheme (protocol) contained invalid characters.
- GLOBUS_URL_ERROR_BAD_USER The user part of the URL contained invalid characters.
- GLOBUS_URL_ERROR_BAD_PASSWORD The password part of the URL contained invalid characters.
- GLOBUS_URL_ERROR_BAD_HOST The host part of the URL contained invalid characters.
- GLOBUS_URL_ERROR_BAD_PORT The port part of the URL contained invalid characters.
- GLOBUS_URL_ERROR_BAD_PATH The path part of the URL contained invalid characters.
- GLOBUS_URL_ERROR_BAD_DN -9 The DN part of an LDAP URL contained invalid characters.
- GLOBUS_URL_ERROR_BAD_ATTRIBUTES -10 The attributes part of an LDAP URL contained invalid characters.
- GLOBUS_URL_ERROR_BAD_SCOPE -11 The scope part of an LDAP URL contained invalid characters.
- GLOBUS_URL_ERROR_BAD_FILTER -12 The filter part of an LDAP URL contained invalid characters.
- GLOBUS_URL_ERROR_OUT_OF_MEMORY -13 The library was unable to allocate memory to create the the globus_url_t contents.
- GLOBUS_URL_ERROR_INTERNAL_ERROR -14 Some unexpected error occurred parsing the URL.

5.15.3.4 int globus_url_destroy (globus_url_t *url)

Destroy a globus_url_t structure.

This function frees all memory associated with a globus_url_t structure.

Parameters:
- url The url structure to destroy

Return values:
- GLOBUS_SUCCESS The URL was successfully destroyed.

5.15.3.5 int globus_url_get_scheme (const char *url_string, globus_url_scheme_t *scheme_type)

Get the scheme of an URL.

This function determines the scheme type of the url string, and populates the variable pointed to by second parameter with that value. This performs a less expensive parsing than globus_url_parse() and is suitable for applications which need only to choose a handler based on the URL scheme.

Parameters:

url_string The string containing the URL.

schemetype A pointer to a globus_url_scheme_t which will be set to the scheme.

Return values:

GLOBUS_SUCCESS The URL scheme was recogized, and schemetype has been updated.

GLOBUS_URL_ERROR_BAD_SCHEME The URL scheme was not recogized.

5.15.3.6 int globus_url_copy (globus_url_t dst, const globus_url_t src)

Create a copy of an URL structure.

This function copies the contents of a url structure into another.

Parameters:

dst The URL structure to be populated with a copy of the contents of src.

src The original URL.

Return values:

GLOBUS_SUCCESS The URL was successfully copied.

GLOBUS_URL_ERROR_NULL_URL One of the URLs was GLOBUS_NULL.

GLOBUS_URL_ERROR_OUT_OF_MEMORY ; The library was unable to allocate memory to create the the globus_url_t contents.

6 globus common Data Structure Documentation

6.1 globus_url_t Struct Reference

Parsed URLs.

Data Fields

- char scheme
- globus_url_scheme_t schemetype
- char user
- char password
- char host
- unsigned short port
- char url_path
- char dn
- char attributes
- char scope
- char filter
- char url_specific_part

6.1.1 Detailed Description

Parsed URLs.

This structure contains the fields which were parsed from an string representation of an URL. There are no methods to access fields of this structure.

6.1.2 Field Documentation

6.1.2.1 char globus_url_t::scheme

A string containing the URL's scheme (http, ftp, etc).

6.1.2.2 globus_url_schemet globus_url_t::scheme_type

An enumerated scheme type.

This is derived from the scheme string

6.1.2.3 char globus_url_t::user

The username portion of the URL.

[ftp, gsiftp]

6.1.2.4 char globus_url_t::password

The user's password from the URL.

[ftp, gsiftp]

6.1.2.5 char globus_url_t::host

The host name or IP address of the URL.

[ftp, gsiftp, http, https, ldap, x-nexus

6.1.2.6 unsigned short globus_url_t::port

The TCP port number of the service providing the URL [ftp, gsiftp, http, https, ldap, x-nexus].

6.1.2.7 char globus_url_t::url_path

The path name of the resource on the service providing the URL.

[ftp, gsiftp, http, https]

6.1.2.8 char globus_url_t::dn

The distinguished name for the base of an LDAP search.

[ldap]

6.1.2.9 char globus_url_t::attributes

The list of attributes which should be returned from an LDAP search.

[ldap]

6.1.2.10 char globus_url_t::scope

The scope of an LDAP search.

[ldap]

6.1.2.11 char globus_url_t:: filter

The filter to be applied to an LDAP search [ldap].

6.1.2.12 char globus_url_t::url_specific_part

An unparsed string containing the remaining text after the optional host and port of an unknown URL, or the contents of a x-gass-cache URL [x-gass-cache, unknown].

7 globus common File Documentation

7.1 globus_callback.h File Reference

Globus Callback API.

Module Specific

#define GLOBUS_CALLBACK_MODULE
#define GLOBUS_POLL_MODULE
typedef int globus_callback_handle_t
typedef int globus_callback_space_t
typedef globus_callback_space_attr_s globus_callback_space_attr_t
enum globus_callback_error_type_t { GLOBUS_CALLBACK_ERROR_INVALID_CALLBACK_HANDLE = 1024, GLOBUS_CALLBACK_ERROR_INVALID_SPACE, GLOBUS_CALLBACK_ERROR_MEMORY_ALLOC, GLOBUS_CALLBACK_ERROR_INVALID_ARGUMENT, GLOBUS_CALLBACK_ERROR_ALREADY_CANCELED, GLOBUS_CALLBACK_ERROR_NO_ACTIVE_CALLBACK }

Convenience Macros

#define globus_callback_poll(a)
#define globus_poll_blocking()
#define globus_poll_nonblocking()
#define globus_poll()
#define globus_signal_poll()
#define globus_callback_register_oneshot(callback_handle,delay_time,callback_func,callback_user_arg)
#define globus_callback_register_periodic(callback_handle,delay_time,period,callback_func,callback_user_arg)
#define globus_callback_register_signal_handler(signum,persist,callback_func,callback_user_arg)

Callback Prototypes

typedef void(globus_callback_func_t)(void user_arg)

Oneshot Callbacks

globus_result_t globus_callback_space_register_oneshot (globus_callback_handle_t callback_handle, const globus_reltime_t delay_time, globus_callback_func_t callback_func, void callback_user_arg, globus_callback_space_t space)

Periodic Callbacks

globus_result_t globus_callback_space_register_periodic (globus_callback_handle_t callback_handle, const globus_reltime_t delay_time, const globus_reltime_t period, globus_callback_func_t callback_func, void callback_user_arg, globus_callback_space_t space)
globus_result_t globus_callback_unregister (globus_callback_handle_t callback_handle, globus_callback_func_t unregister_callback, void unreg_arg, globus_bool_t active)
globus_result_t globus_callback_adjust_oneshot (globus_callback_handle_t callback_handle, const globus_reltime_t new_delay)
globus_result_t globus_callback_adjust_period (globus_callback_handle_t callback_handle, const globus_reltime_t new_period)

Callback Polling

void globus_callback_space_poll (const globus_abstime_t timestop, globus_callback_space_t space)
void globus_callback_signal_poll ()

Miscellaneous

globus_bool_t globus_callback_get_timeout (globus_reltime_t time_left)
globus_bool_t globus_callback_has_time_expired ()
globus_bool_t globus_callback_was_restarted ()

De nes

#de ne GLOBUS_CALLBACK_GLOBAL_SPACE
#de ne GLOBUS_SIGNAL_INTERRUPT

Enumerations

enum globus_callback_space_behavior_t { GLOBUS_CALLBACK_SPACE_BEHAVIOR_SINGLE, GLOBUS_CALLBACK_SPACE_BEHAVIOR_SERIALIZED, GLOBUS_CALLBACK_SPACE_BEHAVIOR_THREADED }

Functions

globus_result_t globus_callback_space_init (globus_callback_space_t space, globus_callback_space_attr_t attr)
globus_result_t globus_callback_space_reference (globus_callback_space_t space)
globus_result_t globus_callback_space_destroy (globus_callback_space_t space)
globus_result_t globus_callback_space_attr_init (globus_callback_space_attr_t attr)
globus_result_t globus_callback_space_attr_destroy (globus_callback_space_attr_t attr)
globus_result_t globus_callback_space_attr_set_behavior (globus_callback_space_attr_t attr, globus_callback_space_behavior_t behavior)
globus_result_t globus_callback_space_attr_get_behavior (globus_callback_space_attr_t attr, globus_callback_space_behavior_t behavior)
globus_result_t globus_callback_space_get (globus_callback_space_t space)
int globus_callback_space_get_depth (globus_callback_space_t space)
globus_bool_t globus_callback_space_is_single (globus_callback_space_t space)
globus_result_t globus_callback_space_register_signal_handler (int signum, globus_bool_t persist, globus_callback_func_t callback_func, void callback_user_arg, globus_callback_space_t space)

globus_result_t globus_callback_unregister_signal_handler (int signum, globus_callback_func_t unregister_callback, void unreg_arg)
void globus_callback_add_wakeup_handler (void(* wakeup)(void), void user_arg)

7.1.1 Detailed Description

Globus Callback API.

Source:
/home/globdev/CVS/globus-packages/common/source/library/globus_callback.h,v

Date:
2006/01/19 05:54:13

Revision:
1.12

Author:
mlink

7.2 globus_thread_common.h File Reference

Common Thread Interface.

7.2.1 Detailed Description

Common Thread Interface.

Source:
/home/globdev/CVS/globus-packages/common/source/library/globus_thread_common.h,v

Date:
2006/01/19 05:54:14

Revision:
1.6

Author:
mlink

7.2.2 Define Documentation

7.2.2.1 #define globus_thread_blocking_callback_push(f, u, i)

Value:

```
globus_thread_blocking_space_callback_push(                     \
        (f), (u), GLOBUS_CALLBACK_GLOBAL_SPACE, (i))
```

8 globus common Page Documentation

8.1 Deprecated List

Global GLOBUS_POLL_MODULE

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