globus ftp client Reference Manual

3.14

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Contents

1 Globus FTP Client API

The Globus FTP Client library provides a convenient way of accessing les on remote FTP servers. In addition to supporting the basic FTP protocol, the FTP Client library supports several security and performance extensions to make FTP more suitable for Grid applications. These extensions are described in the Grid FTP Protocol document.

In addition to protocol support for grid applications, the FTP Client library provides a plugin architecture for installing application or grid-speci c fault recovery and performance tuning algorithms within the library. Application writers may then target their code toward the FTP Client library, and by simply enabling the appropriate plugins, easily tune their application to run it on a different grid.

All applications which use the Globus FTP Client API must include the header le "globus_ftp_client.h" and activate the GLOBUS_FTP_CLIENT_MODULE.

To use the Globus FTP Client API, one must create an FTP Client handle. This structure contains context information about FTP operations which are being executed, a cache of FTP control and data connections, and information about plugins which are being used. The speci cs of the connection caching and plugins are found in the "Handle Attributes" section of this manual.

Once the handle is created, one may begin transferring les or doing other FTP operations by calling the functions in the "FTP Operations" section of this manual. In addition to whole- le transfers, the API supports partial le transfers, restarting transfers from a known point, and various FTP directory management commands. All FTP operations may have a set of attributes, de ned in the "@ref globus_ftp_client_operationattr" section, associated with them to tune various FTP parameters. The data structures and functions needed to restart a le transfer are described in the "Restart Markers" section of this manual. For operations which require the user to send to or receive data from an FTP server the must call the functions in the "@ref globus_ftp_client_data" section of the manual.

2 globus ftp client Module Index

2.1 globus ftp client Modules

Here is a list of all modules:

3 globus ftp client Data Structure Index

3.1 globus ftp client Data Structures

Here are the data structures with brief descriptions:

4 globus ftp client Page Index

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Here is a list of all related documentation pages:

5 globus ftp client Module Documentation

5.1 Activation

The Globus FTP Client library uses the standard module activation and deactivation API to initialize its state.

De nes

- #de ne GLOBUS_FTP_CLIENT_MODULE

5.1.1 Detailed Description

The Globus FTP Client library uses the standard module activation and deactivation API to initialize its state.

Before any FTP functions are called, the module must be activated

```
globus_module_activate(GLOBUS_FTP_CLIENT_MODULE);
```

This function returns GLOBUS_SUCCESS if the FTP library was successfully initialized. This may be called multiple times.

To deactivate the FTP library, the following must be called

```
globus_module_deactivate(GLOBUS_FTP_CLIENT_MODULE);
```

5.1.2 De ne Documentation

5.1.2.1 #de ne GLOBUS_FTP_CLIENT_MODULE

Module descriptor.

5.2 Restart Markers

FTP Restart Markers.

Data Structures

- union globus_ftp_client_restart_marker_t
  Restart marker.

Functions

- globus_result_t globus_ftp_client_restart_marker_init(globus_ftp_client_restart_marker_t marker)
- globus_result_t globus_ftp_client_restart_marker_copy(globus_ftp_client_restart_marker_t new_marker, globus_ftp_client_restart_marker_t marker)
- globus_result_t globus_ftp_client_restart_marker_destroy(globus_ftp_client_restart_marker_t marker)
- globus_result_t globus_ftp_client_restart_marker_insert_range(globus_ftp_client_restart_marker_t marker, globus_off_t offset, globus_off_t end_offset)
- globus_result_t globus_ftp_client_restart_marker_set_ascii_offset(globus_ftp_client_restart_marker_t marker, globus_off_t offset, globus_off_t ascii_offset)
- globus_result_t globus_ftp_client_restart_marker_set_offset(globus_ftp_client_restart_marker_t marker, globus_off_t offset)
- globus_result_t globus_ftp_client_restart_marker_get_total(globus_ftp_client_restart_marker_t marker, globus_off_t total_bytes)
- globus_result_t globus_ftp_client_restart_marker_to_string(globus_ftp_client_restart_marker_t marker, char marker_string)
- globus_result_t globus_ftp_client_restart_marker_from_string(globus_ftp_client_restart_marker_t marker, const char marker_string)

5.2.1 Detailed Description

FTP Restart Markers.

The Globus FTP Client library provides the ability to start a file transfer from a known location into the file. This is accomplished by passing a restart marker to globus_ftp_client_get(), globus_ftp_client_put() or globus_ftp_client_third_party_transfer() functions.

5.2.2 Function Documentation

5.2.2.1 globus_result_t globus_ftp_client_restart_marker_init(globus_ftp_client_restart_marker_t marker)

Initialize a restart marker.

Parameters:
marker New restart marker.

See also:
globus_ftp_client_restart_marker_copy(), globus_ftp_client_restart_marker_destroy()

5.2.2.2 globus_result_t globus_ftp_client_restart_marker_copy(globus_ftp_client_restart_marker_t new_marker, globus_ftp_client_restart_marker_t marker)

Create a copy of a restart marker.

This function copies the contents of marker to new_marker.

Parameters:
new_marker A pointer to a new restart marker.
marker The marker to copy.

See also:
globus_ftp_client_restart_marker_init(), globus_ftp_client_restart_marker_destroy()

5.2.2.3 globus_result_t globus_ftp_client_restart_marker_destroy(globus_ftp_client_restart_marker_t marker)

Destroy a restart marker.

Parameters:
marker Restart marker. This marker must be initialized by either calling globus_ftp_client_restart_marker_init() or globus_ftp_client_restart_marker_copy()

See also:
globus_ftp_client_restart_marker_copy(), globus_ftp_client_restart_marker_init(), globus_ftp_client_restart_marker_copy()

5.2.2.4 globus_result_t globus_ftp_client_restart_marker_insert_range(globus_ftp_client_restart_marker_t marker, globus_off_t offset, globus_off_t end_offset)

Insert a range into a restart marker.

This function updates a restart marker with a new byte range, suitable for using to restart an extended block mode transfer. Adjacent ranges within the marker will be combined into a single entry in the marker.

The marker must first be initialized by calling globus_ftp_client_restart_marker_init() or globus_ftp_client_restart_marker_copy().

A marker can only hold a range list or a stream offset. Calling this function after calling globus_ftp_client_restart_marker_set_offset() will result in a marker suitable only for use restarting an extended block mode transfer.

Parameters:

marker A restart marker

offset The starting offset of the range.

end_offset The ending offset of the range.

See also:

globus_ftp_client_restart_marker_set_offset(), globus_ftp_client_operationattr_set_mode()

5.2.2.5 globus_result_t globus_ftp_client_restart_marker_set_ascii_offset(globus_ftp_client_restart_marker_t marker, globus_off_t offset, globus_off_t ascii_offset)

Set the offset for a restart marker.

This function modifies a restart marker to contain a stream offset, suitable for using to restart a steam mode transfer.

The marker must first be initialized by calling globus_ftp_client_restart_marker_init() or globus_ftp_client_restart_marker_copy().

A marker can only hold a range list or a stream offset. Calling this function after calling globus_ftp_client_restart_marker_insert_range() will delete the ranges associated with the marker, and replace it with a marker suitable only for use restarting a stream mode transfer.

When restarting an ASCII type transfer, use globus_ftp_client_restart_marker_set_ascii_offset() to set both the offset used in the local representation of an ACSII file, and the network representation of the ASCII file. For UNIX systems, the former includes counts newlines as one character towards the file offset, and the latter counts them as 2 characters (CRLF).

Parameters:

marker A restart marker

offset The local stream offset.

ascii_offset The network ascii representation of the offset.

See also:

globus_ftp_client_restart_marker_insert_range(), globus_ftp_client_restart_marker_set_offset(), globus_ftp_client_operationattr_set_mode(), globus_ftp_client_operationattr_set_type()

5.2.2.6 globus_result_t globus_ftp_client_restart_marker_set_offset(globus_ftp_client_restart_marker_t marker, globus_off_t offset)

Set the offset for a restart marker.

This function modifies a restart marker to contain a stream offset, suitable for using to restart a steam mode transfer.

The marker must first be initialized by calling globus_ftp_client_restart_marker_init() or globus_ftp_client_restart_marker_copy().

A marker can only hold a range list or a stream offset. Calling this function after calling globus_ftp_client_restart_marker_insert_range() will delete the ranges associated with the marker, and replace it with a marker suitable only for use restarting a stream mode transfer.

When restarting an ASCII type transfer, the offset must take into account the additional carriage return characters added to the data stream.

Parameters:

marker A restart marker

offset The stream offset

See also:

globus_ftp_client_restart_marker_insert_range(), globus_ftp_client_operationattr_set_mode(), globus_ftp_client_operationattr_set_type()

5.2.2.7 globus_result_t globus_ftp_client_restart_marker_get_total (globus_ftp_client_restart_marker_t marker, globus_off_t total_bytes)

Get total bytes accounted for in restart marker.

This funtion will return the sum of all bytes accounted for in a restart marker. If this restart marker contains a stream offset then this value is the same as the offset (not the ascii offset) that it was set with. If it is a range list, it a sum of all the bytes in the ranges.

Parameters:

marker A previously initialized or copied restart marker

total_bytes pointer to storage for total bytes in marker

Returns:

- Error on NULL marker or total bytes
-

5.2.2.8 globus_result_t globus_ftp_client_restart_marker_to_string (globus_ftp_client_restart_marker_t marker, char marker_string)

Create a string representation of a restart marker.

This function sets the marker_string parameter to point to a freshly allocated string suitable for sending as an argument to the FTP REST command, or for a later call to globus_ftp_client_restart_marker_from_string().

The string pointed to by marker_string must be freed by the caller.

Parameters:

marker An initialized FTP client restart marker.

marker_string A pointer to a char to be set to a freshly allocated marker string.

See also:

globus_ftp_client_restart_marker

5.2.2.9 globus_result_t globus_ftp_client_restart_marker_from_string(globus_ftp_client_restart_marker_t marker, const char marker_string)

Initialize a restart marker from a string.

This function initializes a new restart marker, based on the marker_string parameter. The string may be either a single offset for a stream-mode restart marker, or a comma-separated list of start-end ranges.

Parameters:

marker The restart marker to be unitialized.

marker_string The string containing a textual representation of a restart marker.

See also:

globus_ftp_client_restart_marker

5.3 Handle Management

Create/Destroy/Modify an FTP Client Handle.

Initialize

- globus_result_t globus_ftp_client_handle_init(globus_ftp_client_handle_t handle, globus_ftp_client_handleattr_t attr)

Destroy

- globus_result_t globus_ftp_client_handle_destroy(globus_ftp_client_handle_t handle)

URL Caching

- globus_result_t globus_ftp_client_handle_cache_url_state(globus_ftp_client_handle_t handle, const char url)
- globus_result_t globus_ftp_client_handle_ ush_url_state(globus_ftp_client_handle_t handle, const char url)

User Pointer

- globus_result_t globus_ftp_client_handle_set_user_pointer(globus_ftp_client_handle_t handle, void user_pointer)
- globus_result_t globus_ftp_client_handle_get_user_pointer(const globus_ftp_client_handle_t handle, void user_pointer)

Plugins

- globus_result_t globus_ftp_client_handle_add_plugin(globus_ftp_client_handle_t handle, globus_ftp_client_plugin_t plugin)
- globus_result_t globus_ftp_client_handle_remove_plugin(globus_ftp_client_handle_t handle, globus_ftp_client_plugin_t plugin)

Typedefs

- typedef globus_i_ftp_client_handle_t globus_ftp_client_handle_t

5.3.1 Detailed Description

Create/Destroy/Modify an FTP Client Handle.

Within the Globus FTP Client Libary, all FTP operations require a handle parameter. Currently, only one FTP operation may be in progress at once per FTP handle. FTP connections may be cached between FTP operations, for improved performance.

This section de nes operations to create and destroy FTP Client handles, as well as to modify handles' connection caches.

5.3.2 Typedef Documentation

5.3.2.1 typedef struct globus_i_ftp_client_handle_t globus_ftp_client_handle_t

FTP Client Handle.

An FTP client handle is used to associate state with a group of operations. Handles can have attributes associated with them. All FTP operations take a handle pointer as a parameter.

See also:
globus_ftp_client_handle_init(), globus_ftp_client_handle_destroy(), globus_ftp_client_handleattr_t

5.3.3 Function Documentation

5.3.3.1 globus_result_t globus_ftp_client_handle_init (globus_ftp_client_handle_t handle, globus_ftp_client_handleattr_t attr)

Initialize a client FTP handle.

Initialize an FTP handle which can be used in subsequent get, put, or transfer requests. A handle may have at most one get, put, or third-party transfer in progress.

Parameters:
handle The handle to be initialized.
attr Initial attributes to be used to create this handle.

See also:
globus_ftp_client_handle_destroy()

5.3.3.2 globus_result_t globus_ftp_client_handle_destroy (globus_ftp_client_handle_t handle)

Destroy a client FTP handle.

A FTP client handle may not be destroyed if a get, put, or third-party transfer is in progress.

Parameters:
handle The handle to be destroyed.

See also:
globus_ftp_client_handle_init()

5.3.3.3 globus_result_t globus_ftp_client_handle_cache_url_state(globus_ftp_client_handle_t handle, const char url)

Cache connections to an FTP server.

Explicitly cache connections to URL server in an FTP handle. When an URL is cached, the client library will not close the connection to the URL server after a le transfer completes.

Parameters:
handle Handle which will contain a cached connection to the URL server.
url The URL of the FTP or GSIFTP server to cache.

See also:
globus_ftp_client_ ush_url_state()

5.3.3.4 globus_result_t globus_ftp_client_handle_ ush_url_state(globus_ftp_client_handle_t handle, const char url)

Remove a cached connection from the FTP client handle.

Explicitly remove a cached connection to an FTP server from the FTP handle. If an idle connection to an FTP server exists, it will be closed.

Parameters:
handle Handle which will contain a cached connection to the URL server.
url The URL of the FTP or GSIFTP server to cache.

5.3.3.5 globus_result_t globus_ftp_client_handle_set_user_pointer(globus_ftp_client_handle_t handle, void user_pointer)

Set/Get the user pointer eld from an ftp client handle.

The user pointer is provided to all the user of the FTP client library to assocate a pointer to any application-speci c data to an FTP client handle. This pointer is never internally used by the client library.

Parameters:
handle The FTP client handle to set or query.
user_pointer The value of the user pointer eld.

Note:
Access to the user_pointer are not synchronized, the user must take care to make sure that multiple threads are not modifying it's value.

5.3.3.6 globus_result_t globus_ftp_client_handle_add_plugin(globus_ftp_client_handle_t handle, globus_ftp_client_plugin_t plugin)

Add a plugin to an FTP client handle.

This function adds a plugin to an FTP client handle after it has been created. Plugins may be added to an ftp client handle whenever an operation is not in progress. The plugin will be appended to the list of plugins present in the handle, and will be invoked during any subsequent operations processed with this handle.

Only one instance of a particular plugin may be added to a particular handle.

Plugins may be removed from a handle by calling globus_ftp_client_remove_plugin().

Parameters:
handle The FTP client handle to set or query.
plugin A pointer to the plugin structure to add to this handle.

See also:
globus_ftp_client_remove_plugin(), globus_ftp_clent_handleattr_add_plugin(), globus_ftp_clent_handleattr_-remove_plugin()

5.3.3.7 globus_result_t globus_ftp_client_handle_remove_plugin (globus_ftp_client_handle_t handle, globus_ftp_client_plugin_t plugin)

Remove a plugin to an FTP client handle.

This function removes a plugin from an FTP client handle after it has been created. Plugins may be removed from an ftp client handle whenever an operation is not in progress. The plugin will be removed from the list of plugins, and will not be used during any subsequent operations processed with this handle.

This function can remove plugins which were added at "handle initialization time" or by calling globus_ftp_client_handle_add_plugin().

Parameters:
handle The FTP client handle to set or query.
plugin A pointer to the plugin structure to remove from this handle.

See also:
globus_ftp_client_add_plugin(), globus_ftp_clent_handleattr_add_plugin(), globus_ftp_clent_handleattr_-remove_plugin()

5.3.3.8 globus_result_t globus_ftp_client_handle_get_user_pointer (const globus_ftp_client_handle_t handle, void user_pointer)

Set/Get the user pointer field from an ftp client handle.

The user pointer is provided to all the user of the FTP client library to assocate a pointer to any application-specific data to an FTP client handle. This pointer is never internally used by the client library.

Parameters:
handle The FTP client handle to set or query.
user_pointer The value of the user pointer field.

Note:
Access to the user_pointer are not synchronized, the user must take care to make sure that multiple threads are not modifying it's value.

5.4 Handle Attributes

Handle attributes are used to control additional features of the FTP Client handle.

Initialize

- globus_result_t globus_ftp_client_handleattr_init (globus_ftp_client_handleattr_t attr)

Destroy

- globus_result_t globus_ftp_client_handleattr_destroy (globus_ftp_client_handleattr_t attr)

Copy

- globus_result_t globus_ftp_client_handleattr_copy (globus_ftp_client_handleattr_t dest, globus_ftp_client_handleattr_t src)

Connection Caching

- globus_result_t globus_ftp_client_handleattr_set_cache_all (globus_ftp_client_handleattr_t attr, globus_bool_t cache_all)
- globus_result_t globus_ftp_client_handleattr_get_cache_all (const globus_ftp_client_handleattr_t attr, globus_bool_t cache_all)

Non-root relative URLs

- globus_result_t globus_ftp_client_handleattr_set_rfc1738_url (globus_ftp_client_handleattr_t attr, globus_bool_t rfc1738_url)
- globus_result_t globus_ftp_client_handleattr_get_rfc1738_url (const globus_ftp_client_handleattr_t attr, globus_bool_t rfc1738_url)

GridFTP2 support

- globus_result_t globus_ftp_client_handleattr_set_gridftp2 (globus_ftp_client_handleattr_t attr, globus_bool_t gridftp2)
- globus_result_t globus_ftp_client_handleattr_get_gridftp2 (const globus_ftp_client_handleattr_t attr, globus_bool_t gridftp2)

Command Pipelining

- globus_result_t globus_ftp_client_handleattr_set_pipelining (globus_ftp_client_handleattr_t attr, globus_size_t outstanding_commands, globus_ftp_client_pipeline_callback_t pipeline_callback, void pipeline_arg)
- globus_result_t globus_ftp_client_handleattr_get_pipelining (const globus_ftp_client_handleattr_t attr, globus_size_t outstanding_commands, globus_ftp_client_pipeline_callback_t pipeline_callback, void pipeline_arg)

URL Caching

- globus_result_t globus_ftp_client_handleattr_add_cached_url (globus_ftp_client_handleattr_t attr, const char url)
- globus_result_t globus_ftp_client_handleattr_remove_cached_url (globus_ftp_client_handleattr_t attr, const char url)

Netlogger management

- globus_result_t globus_ftp_client_handleattr_set_netlogger(globus_ftp_client_handleattr_t attr, globus_netlogger_handle_t nl_handle)
- globus_result_t globus_ftp_client_handleattr_set_netlogger_ftp_io(globus_ftp_client_handleattr_t attr, globus_netlogger_handle_t nl_handle, globus_bool_t ftp, globus_bool_t io)

Plugin Management

- globus_result_t globus_ftp_client_handleattr_add_plugin(globus_ftp_client_handleattr_t attr, globus_ftp_client_plugin_t plugin)
- globus_result_t globus_ftp_client_handleattr_remove_plugin(globus_ftp_client_handleattr_t attr, globus_ftp_client_plugin_t plugin)

Typedefs

- typedef globus_i_ftp_client_handleattr_t globus_ftp_client_handleattr_t

5.4.1 Detailed Description

Handle attributes are used to control additional features of the FTP Client handle.

These features are operation independent.

The attribute which can currently set on a handle concern the connection caching behavior of the handle, and the associations of plugins with a handle.

See also:
globus_ftp_client_handle_t

5.4.2 Typedef Documentation

5.4.2.1 typedef struct globus_i_ftp_client_handleattr_t globus_ftp_client_handleattr_t

Handle Attributes.

Handle attributes are used to control the caching behavior of the ftp client handle, and to implement the plugin features for reliability and performance tuning.

See also:
globus_ftp_client_handle_t, Handle Attributes

5.4.3 Function Documentation

5.4.3.1 globus_result_t globus_ftp_client_handleattr_init(globus_ftp_client_handleattr_t attr)

Initialize an FTP client handle attribute set.

This function creates an empty FTP Client handle attribute set. This function must be called on each attribute set before any of the other functions in this section may be called.

Parameters:
attr The new handle attribute.

See also:
globus_ftp_client_handleattr_destroy()

5.4.3.2 globus_result_t globus_ftp_client_handleattr_destroy(globus_ftp_client_handleattr_t attr)

Destroy an FTP client handle attribute set.

This function destroys an ftp client handle attribute set. All attributes on this set will be lost. The user must call globus_ftp_client_handleattr_init() again on this attribute set before calling any other handle attribute functions on it.

Parameters:
attr The attribute set to destroy.

5.4.3.3 globus_result_t globus_ftp_client_handleattr_copy(globus_ftp_client_handleattr_t dest, globus_ftp_client_handleattr_t src)

Create a duplicate of a handle attribute set.

The duplicated attribute set has a deep copy of all data in the attribute set, so the original may be destroyed while the copy is still valid.

Parameters:
dest The attribute set to be initialized to the same values as src.
src The original attribute set to duplicate.

5.4.3.4 globus_result_t globus_ftp_client_handleattr_set_cache_all(globus_ftp_client_handleattr_t attr, globus_bool_tcache_all)

Set/Get the cache all connections attribute for an ftp client handle attribute set.

This attribute allows the user to cause all control connections to be cached between ftp operations. When this is enabled, the user skips the authentication handshake and connection establishment overhead for multiple subsequent ftp operations to the same server.

Memory and network connections associated with the caching will be used until the handle is destroyed. If ne grained caching is needed, then the user should disable this attribute and explicitly cache speci c URLs.

Parameters:
attr Attribute to query or modify.
cache_all Value of the cache_all attribute.

See also:
globus_ftp_client_handleattr_add_cached_url(), globus_ftp_client_handleattr_remove_cached_url(), globus_ftp_client_handle_cache_url_state(), globus_ftp_client_handle_ ush_url_state()

5.4.3.5 globus_result_t globus_ftp_client_handleattr_set_rfc1738_url(globus_ftp_client_handleattr_t attr, globus_bool_trfc1738_url)

Enable/Disable rfc1738 support for non-root relative URLs.

Parameters:
attr Attribute to modify
rfc1738_url Set to GLOBUS_TRUE to enable non-root relative URLs. Default of GLOBUS_FALSE speci es root-relative URLs.

5.4.3.6 globus_result_t globus_ftp_client_handleattr_set_gridftp2 (globus_ftp_client_handleattr_t attr, globus_bool_t gridftp2)

Enable/Disable GridFTP2 [GFD.41] support for servers supporting it.

Parameters:

attr Attribute to modify

gridftp2 Set to GLOBUS_TRUE to enable GridFTP2 support. Default of GLOBUS_FALSE specifies that GridFTP is disabled.

5.4.3.7 globus_result_t globus_ftp_client_handleattr_set_pipelining (globus_ftp_client_handleattr_t attr, globus_size_t outstanding_commands, globus_ftp_client_pipeline_callback_t pipeline_callback, void * pipeline_arg)

Enable/Disable command queueing for pipelined transfers.

Parameters:

attr Attribute to modify

outstanding_commands Set to the number of commands to have sent without receiving a reply. Use 0 for the library default.

pipeline_callback Set to a function of type globus_ftp_client_pipeline_callback_t to enable command pipelining. This function will be called during a transfer operation to request the next urls to be transferred.

pipeline_arg User data that will be passed in the pipeline_callback.

5.4.3.8 globus_result_t globus_ftp_client_handleattr_add_cached_url (globus_ftp_client_handleattr_t attr, const char * url)

Enable/Disable caching for a specific URL.

This function adds/removes the specified URL into the default cache for a handle attribute. Handles initialized with this attr will keep connections to FTP servers associated with the URLs in its cache open between operations.

Parameters:

attr Attribute to modify

url URL string to cache

5.4.3.9 globus_result_t globus_ftp_client_handleattr_remove_cached_url (globus_ftp_client_handleattr_t attr, const char * url)

Enable/Disable caching for a specific URL.

This function adds/removes the specified URL into the default cache for a handle attribute. Handles initialized with this attr will keep connections to FTP servers associated with the URLs in its cache open between operations.

Parameters:

attr Attribute to modify

url URL string to cache

5.4.3.10 globus_result_t globus_ftp_client_handleattr_set_netlogger(globus_ftp_client_handleattr_t attr, globus_netlogger_handle_t nl_handle)

Set the netlogger handle used with this transfer.

Each handle can have a netlogger handle associated with it for logging its data.

Only 1 netlogger handle can be associated with a client handle.

Parameters:

attr The attribute set to modify.

nl_handle The open netlogger handle to be associated with this attribute set.

5.4.3.11 globus_result_t globus_ftp_client_handleattr_add_plugin(globus_ftp_client_handleattr_t attr, globus_ftp_client_plugin_t plugin)

Add/Remove a plugin to a handle attribute set.

Each handle attribute set contains a list of plugins associated with it. When a handle is created with a particular attribute set, it will be associated with a copy of those plugins.

Only one instance of a specific plugin may be added to an attribute set. Each plugin must have a different name.

A copy of the plugin is created via the plugins 'copy' method when it is added to an attribute set. Thus, any changes to a particular plugin must be done before the plugin is added to an attribute set, and before the attribute set is used to create handles.

Parameters:

attr The attribute set to modify.

plugin The plugin to add or remove from the list.

5.4.3.12 globus_result_t globus_ftp_client_handleattr_get_cache_all (const globus_ftp_client_handleattr_t attr, globus_bool_t cache_all)

Set/Get the cache all connections attribute for an ftp client handle attribute set.

This attribute allows the user to cause all control connections to be cached between ftp operations. When this is enabled, the user skips the authentication handshake and connection establishment overhead for multiple subsequent ftp operations to the same server.

Memory and network connections associated with the caching will be used until the handle is destroyed. If fine grained caching is needed, then the user should disable this attribute and explicitly cache specific URLs.

Parameters:

attr Attribute to query or modify.

cache_all Value of the cache_all attribute.

See also:

globus_ftp_client_handleattr_add_cached_url(), globus_ftp_client_handleattr_remove_cached_url(), globus_ftp_client_handle_cache_url_state(), globus_ftp_client_handle_flush_url_state()

5.4.3.13 globus_result_t globus_ftp_client_handleattr_get_rfc1738_url (const globus_ftp_client_handleattr_t attr, globus_bool_t rfc1738_url)

Enable/Disable rfc1738 support for non-root relative URLs.

Parameters:

attr Attribute to modify

rfc1738_url Set to GLOBUS_TRUE to enable non-root relative URLs. Default of GLOBUS_FALSE specifies root-relative URLs.

5.4.3.14 globus_result_t globus_ftp_client_handleattr_get_gridftp2 (const globus_ftp_client_handleattr_t attr, globus_bool_t gridftp2)

Enable/Disable GridFTP2 [GFD.41] support for servers supporting it.

Parameters:

attr Attribute to modify

gridftp2 Set to GLOBUS_TRUE to enable GridFTP2 support. Default of GLOBUS_FALSE specifies that GridFTP is disabled.

5.4.3.15 globus_result_t globus_ftp_client_handleattr_get_pipeline (const globus_ftp_client_handleattr_t attr, globus_size_t outstanding_commands, globus_ftp_client_pipeline_callback_t pipeline_callback, void pipeline_arg)

Enable/Disable command queueing for pipelined transfers.

Parameters:

attr Attribute to modify

outstanding_commands Set to the number of commands to have sent without receiving a reply. Use 0 for the library default.

pipeline_callback Set to a function of type globus_ftp_client_pipeline_callback_t to enable command pipelining. This function will be called during a transfer operation to request the next urls to be transferred.

pipeline_arg User data that will be passed in the pipeline_callback.

5.4.3.16 globus_result_t globus_ftp_client_handleattr_set_netlogger_ftp_io (globus_ftp_client_handleattr_t attr, globus_netlogger_handle_t nl_handle, globus_bool_t ftp, globus_bool_t io)

Set the netlogger handle used with this transfer.

Each handle can have a netlogger handle associated with it for logging its data.

Only 1 netlogger handle can be associated with a client handle.

Parameters:

attr The attribute set to modify.

nl_handle The open netlogger handle to be associated with this attribute set.

5.4.3.17 globus_result_t globus_ftp_client_handleattr_remove_plugin(globus_ftp_client_handleattr_t attr, globus_ftp_client_plugin_t plugin)

Add/Remove a plugin to a handle attribute set.

Each handle attribute set contains a list of plugins associated with it. When a handle is created with a particular attribute set, it will be associated with a copy of those plugins.

Only one instance of a speci c plugin may be added to an attribute set. Each plugin must have a different name.

A copy of the plugin is created via the plugins 'copy' method when it is added to an attribute set. Thus, any changes to a particular plugin must be done before the plugin is added to an attribute set, and before the attribute set is used to create handles.

Parameters:

attr The attribute set to modify.

plugin The plugin to add or remove from the list.

5.5 FTP Operations

Initiate an FTP operation.

File or Directory Existence

- globus_result_t globus_ftp_client_exists(globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Features

- globus_result_t globus_ftp_client_features_init(globus_ftp_client_features_t u_features)
- globus_result_t globus_ftp_client_features_destroy(globus_ftp_client_features_t u_features)
- globus_result_t globus_ftp_client_feat(globus_ftp_client_handle_t u_handle, char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_features_t u_features, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)
- globus_result_t globus_ftp_client_is_feature_supported(const globus_ftp_client_features_t u_features, globus_ftp_client_tristate_t answer, globus_ftp_client_probed_feature_t feature)

Make Directory

- globus_result_t globus_ftp_client_mkdir(globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Remove Directory

- globus_result_t globus_ftp_client_rmdir(globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Delete

- globus_result_t globus_ftp_client_delete(globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

List

- globus_result_t globus_ftp_client_list(globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)
- globus_result_t globus_ftp_client_verbose_list(globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

STAT

- globus_result_t globus_ftp_client_stat(globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_byte_t stat_buffer, globus_size_t stat_buffer_length, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

MLST

- globus_result_t globus_ftp_client_mlst(globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_byte_t mlst_buffer, globus_size_t mlst_buffer_length, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Move

- globus_result_t globus_ftp_client_move(globus_ftp_client_handle_t u_handle, const char source_url, const char dest_url, globus_ftp_client_operationattr_t attr, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

chmod

- globus_result_t globus_ftp_client_chmod(globus_ftp_client_handle_t u_handle, const char url, int mode, globus_ftp_client_operationattr_t attr, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Get

- globus_result_t globus_ftp_client_get(globus_ftp_client_handle_t handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_restart_marker_t restart, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)
- globus_result_t globus_ftp_client_partial_get(globus_ftp_client_handle_t handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_restart_marker_t restart, globus_off_t partial_offset, globus_off_t partial_end_offset, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)
- globus_result_t globus_ftp_client_extended_get(globus_ftp_client_handle_t handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_restart_marker_t restart, const char eret_alg_str, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Put

- globus_result_t globus_ftp_client_put(globus_ftp_client_handle_t handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_restart_marker_t restart, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

- globus_result_t globus_ftp_client_partial_put (globus_ftp_client_handle_t handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_restart_marker_t restart, globus_off_t partial_offset, globus_off_t partial_end_offset, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)
- globus_result_t globus_ftp_client_extended_put (globus_ftp_client_handle_t handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_restart_marker_t restart, const char esto_alg_str, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

3rd Party Transfer

- globus_result_t globus_ftp_client_third_party_transfer (globus_ftp_client_handle_t handle, const char source_url, globus_ftp_client_operationattr_t source_attr, const char dest_url, globus_ftp_client_operationattr_t dest_attr, globus_ftp_client_restart_marker_t restart, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)
- globus_result_t globus_ftp_client_partial_third_party_transfer (globus_ftp_client_handle_t handle, const char source_url, globus_ftp_client_operationattr_t source_attr, const char dest_url, globus_ftp_client_operationattr_t dest_attr, globus_ftp_client_restart_marker_t restart, globus_off_t partial_offset, globus_off_t partial_end_offset, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)
- globus_result_t globus_ftp_client_extended_third_party_transfer (globus_ftp_client_handle_t handle, const char source_url, globus_ftp_client_operationattr_t source_attr, const char eret_alg_str, const char dest_url, globus_ftp_client_operationattr_t dest_attr, const char esto_alg_str, globus_ftp_client_restart_marker_t restart, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Modi cation Time

- globus_result_t globus_ftp_client_modi cation_time (globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_abstime_t modi cation_time, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Size

- globus_result_t globus_ftp_client_size (globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_off_t size, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Cksm

- globus_result_t globus_ftp_client_cksm (globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, char cksm, globus_off_t offset, globus_off_t length, const char algorithm, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Abort

- globus_result_t globus_ftp_client_abort (globus_ftp_client_handle_t u_handle)

Typedefs

- typedef void(globus_ftp_client_complete_callback_t)(void user_arg, globus_ftp_client_handle_t handle, globus_object_t error)
- typedef globus_i_ftp_client_features_s globus_ftp_client_features_t

Enumerations

- enum globus_ftp_client_tristate_t
- enum globus_ftp_client_probed_feature_t

Functions

- globus_result_t globus_ftp_client_machine_list (globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

5.5.1 Detailed Description

Initiate an FTP operation.

This module contains the API functions for a user to request a get, put, third-party transfer, or other FTP file operation.

5.5.2 Typedef Documentation

5.5.2.1 typedef void(globus_ftp_client_complete_callback_t)(void user_arg, globus_ftp_client_handle_t handle, globus_object_t error)

Operation complete callback.

Every FTP Client operation (get, put, transfer, mkdir, etc) is asynchronous. A callback of this type is passed to each of the operation function calls to let the user know when the operation is complete. The completion callback is called only once per operation, after all other callbacks for the operation have returned.

Parameters:

user_arg The user_arg parameter passed to the operation.

handle The handle on which the operation was done.

error A Globus error object indicating any problem which occurred, or GLOBUS_SUCCESS, if the operation completed successfully.

5.5.2.2 typedef struct globus_i_ftp_client_features_s globus_ftp_client_features_t

Feature Handle.

Handle used to associate state with feature operations.

See also:

globus_ftp_client_feat, globus_ftp_client_features_init, globus_ftp_client_features_destroy

5.5.3 Enumeration Type Documentation

5.5.3.1 enum globus_ftp_client_tristate_t

Types for feature existence.

FALSE and TRUE are known to be fact that a feature does or does not exist MAYBE means that the feature may exist

5.5.3.2 enum globus_ftp_client_probed_feature_t

Types of features.

5.5.4 Function Documentation

5.5.4.1 globus_result_t globus_ftp_client_exists(globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Check for the existence of a file or directory on an FTP server.

This function attempts to determine whether the specified URL points to a valid file or directory. The complete_callback will be invoked with the result of the existence check passed as a globus error object, or GLOBUS_SUCCESS.

Parameters:

u_handle An FTP Client handle to use for the existence check operation.

url The URL of the directory or file to check. The URL may be an ftp or gsiftp URL.

attr Attributes to use for this operation.

complete_callback Callback to be invoked once the existence operation is completed.

callback_arg Argument to be passed to the complete_callback.

Returns:

This function returns an error when any of these conditions are true:

- u_handle is GLOBUS_NULL
- url is GLOBUS_NULL
- url cannot be parsed
- url is not a ftp or gsiftp url
- complete_callback is GLOBUS_NULL
- handle already has an operation in progress

5.5.4.2 globus_result_t globus_ftp_client_features_init(globus_ftp_client_features_t u_features)

Initialize the feature set, to be later used by globus_ftp_client_feat(). Each feature gets initial value GLOBUS_FTP_CLIENT_MAYBE.

Note:

Structure initialized by this function must be destroyed using globus_ftp_client_features_destroy()

Returns:

GLOBUS_SUCCESS on success, otherwise error.

5.5.4.3 globus_result_t globus_ftp_client_features_destroy(globus_ftp_client_features_t u_features)

Destroy the feature set.

Note:

Structure passed to this function must have been previously initialized by globus_ftp_client_features_init()

Returns:

GLOBUS_SUCCESS on success, otherwise error.

5.5.4.4 globus_result_t globus_ftp_client_feat(globus_ftp_client_handle_t u_handle, char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_features_t u_features, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Check the features supported by the server (FTP FEAT command). After this procedure completes, the features set (parameter u_features) represents the features supported by the server. Prior to calling this procedure, the structure should have been initialized by globus_ftp_client_features_init(), afterwards, it should be destroyed by globus_ftp_client_features_destroy(). After globus_ftp_client_feat() returns, each feature in the list has one of the values: GLOBUS_FTP_CLIENT_TRUE, GLOBUS_FTP_CLIENT_FALSE, or GLOBUS_FTP_CLIENT_MAYBE. The first two denote the server supporting, or not supporting, the given feature. The last one means that the test has not been performed. This is not necessarily caused by error; there might have been no reason to check for this particular feature.

Parameters:

u_handle An FTP Client handle to use for the list operation.

url The URL to list. The URL may be an ftp or gsiftp URL.

attr Attributes for this file transfer.

u_features A pointer to a globus_ftp_client_features_t to be filled with the feature set supported by the server.

complete_callback Callback to be invoked once the size check is completed.

callback_arg Argument to be passed to the complete_callback.

Returns:

This function returns an error when any of these conditions are true:

- u_handle is GLOBUS_NULL
- source_url is GLOBUS_NULL
- source_url cannot be parsed
- source_url is not a ftp or gsiftp url
- u_features is GLOBUS_NULL or badly initialized
- complete_callback is GLOBUS_NULL
- handle already has an operation in progress

5.5.4.5 globus_result_t globus_ftp_client_is_feature_supported (const globus_ftp_client_features_t u_features, globus_ftp_client_tristate_t answer, globus_ftp_client_probed_feature_t feature)

Check if the feature is supported by the server. After the function completes, parameter answer contains the state of the server support of the given function. It can have one of the values: GLOBUS_FTP_CLIENT_TRUE, GLOBUS_FTP_CLIENT_FALSE, or GLOBUS_FTP_CLIENT_MAYBE.

Parameters:

u_features list of features, as returned by globus_ftp_client_feat()

answer this variable will contain the answer

feature feature number, 0 <= feature < GLOBUS_FTP_CLIENT_FEATURE_MAX

Returns:

error when any of the parameters is null or badly initialized

5.5.4.6 globus_result_t globus_ftp_client_mkdir (globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Make a directory on an FTP server.

This function starts a mkdir operation on a FTP server.

When the response to the mkdir request has been received the complete_callback will be invoked with the result of the mkdir operation.

Parameters:

u_handle An FTP Client handle to use for the mkdir operation.

url The URL for the directory to create. The URL may be an ftp or gsiftp URL.

attr Attributes for this operation.

complete_callback Callback to be invoked once the mkdir is completed.

callback_arg Argument to be passed to the complete_callback.

Returns:

This function returns an error when any of these conditions are true:

- u_handle is GLOBUS_NULL
- url is GLOBUS_NULL
- url cannot be parsed
- url is not a ftp or gsiftp url
- complete_callback is GLOBUS_NULL
- handle already has an operation in progress

5.5.4.7 globus_result_t globus_ftp_client_rmdir (globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Make a directory on an FTP server.

This function starts a rmdir operation on a FTP server.

When the response to the rmdir request has been received the complete_callback will be invoked with the result of the rmdir operation.

Parameters:

u_handle An FTP Client handle to use for the rmdir operation.

url The URL for the directory to create. The URL may be an ftp or gsiftp URL.

attr Attributes for this operation.

complete_callback Callback to be invoked once the rmdir is completed.

callback_arg Argument to be passed to the complete_callback.

Returns:

This function returns an error when any of these conditions are true:

- u_handle is GLOBUS_NULL
- url is GLOBUS_NULL

- url cannot be parsed
- url is not a ftp or gsiftp url
- complete_callback is GLOBUS_NULL
- handle already has an operation in progress

5.5.4.8 globus_result_t globus_ftp_client_delete(globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Delete a file on an FTP server.

This function starts a delete operation on a FTP server. Note that this functions will only delete files, not directories.

When the response to the delete request has been received the complete_callback will be invoked with the result of the delete operation.

Parameters:

u_handle An FTP Client handle to use for the delete operation.

url The URL for the file to delete. The URL may be an ftp or gsiftp URL.

attr Attributes for this file transfer.

complete_callback Callback to be invoked once the delete is completed.

callback_arg Argument to be passed to the complete_callback.

Returns:

This function returns an error when any of these conditions are true:

- u_handle is GLOBUS_NULL
- url is GLOBUS_NULL
- url cannot be parsed
- url is not a ftp or gsiftp url
- complete_callback is GLOBUS_NULL
- handle already has an operation in progress

5.5.4.9 globus_result_t globus_ftp_client_list(globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Get a file listing from an FTP server.

This function starts a "NLST" transfer from an FTP server. If this function returns GLOBUS_SUCCESS, then the user may immediately begin calling globus_ftp_client_register_read() to retrieve the data associated with this listing.

When all of the data associated with the listing is retrieved, and all of the data callbacks have been called, or if the list request is aborted, the complete_callback will be invoked with the final status of the list.

Parameters:

u_handle An FTP Client handle to use for the list operation.

url The URL to list. The URL may be an ftp or gsiftp URL.

attr Attributes for this file transfer.

complete_callback Callback to be invoked once the "list" is completed.

callback_arg Argument to be passed to the complete_callback.

Returns:

This function returns an error when any of these conditions are true:

- handle is GLOBUS_NULL
- url is GLOBUS_NULL
- url cannot be parsed
- url is not a ftp or gsiftp url
- complete_callback is GLOBUS_NULL
- handle already has an operation in progress

See also:

globus_ftp_client_register_read()

5.5.4.10 globus_result_t globus_ftp_client_verbose_list(globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Get a le listing from an FTP server.

This function starts a "LIST" transfer from an FTP server. If this function returns GLOBUS_SUCCESS, then the user may immediately begin calling globus_ftp_client_register_read() to retrieve the data associated with this listing.

When all of the data associated with the listing is retrieved, and all of the data callbacks have been called, or if the list request is aborted, the complete_callback will be invoked with the nal status of the list.

Parameters:

u_handle An FTP Client handle to use for the list operation.

url The URL to list. The URL may be an ftp or gsiftp URL.

attr Attributes for this le transfer.

complete_callback Callback to be invoked once the "list" is completed.

callback_arg Argument to be passed to the complete_callback.

Returns:

This function returns an error when any of these conditions are true:

- handle is GLOBUS_NULL
- url is GLOBUS_NULL
- url cannot be parsed
- url is not a ftp or gsiftp url
- complete_callback is GLOBUS_NULL
- handle already has an operation in progress

See also:

globus_ftp_client_register_read()

5.5.4.11 globus_result_t globus_ftp_client_stat(globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_byte_t stat_buffer, globus_size_t stat_buffer_length, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Get information about a file or directory from a FTP server.

This function requests the STAT listing of a file or directory from an FTP server.

When the STAT request is completed or aborted, the complete_callback will be invoked with the final status of the operation. If the callback is returns without an error, the STAT fact string will be stored in the globus_byte_t pointed to by the stat_buffer parameter to this function.

Parameters:

u_handle An FTP Client handle to use for the list operation.

url The URL of a file or directory to list. The URL may be an ftp or gsiftp URL.

attr Attributes for this file transfer.

stat_buffer A pointer to a globus_byte_t to be allocated and filled with the STAT listing of the file, if it exists. Otherwise, the value pointed to by it is undefined. It is up to the user to free this memory.

stat_buffer_length A pointer to a globus_size_t to be filled with the length of the data in stat_buffer.

complete_callback Callback to be invoked once the STAT command is completed.

callback_arg Argument to be passed to the complete_callback.

Returns:

This function returns an error when any of these conditions are true:

- handle is GLOBUS_NULL
- url is GLOBUS_NULL
- url cannot be parsed
- url is not a ftp or gsiftp url
- stat_buffer is GLOBUS_NULL
- stat_buffer_length is GLOBUS_NULL
- complete_callback is GLOBUS_NULL
- handle already has an operation in progress

5.5.4.12 globus_result_t globus_ftp_client_machine_list(globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Get a machine parseable file listing from an FTP server.

This function starts a "MLSD" transfer from an FTP server. If this function returns GLOBUS_SUCCESS, then the user may immediately begin calling globus_ftp_client_register_read() to retrieve the data associated with this listing.

When all of the data associated with the listing is retrieved, and all of the data callbacks have been called, or if the list request is aborted, the complete_callback will be invoked with the final status of the list.

Parameters:

u_handle An FTP Client handle to use for the list operation.

url The URL to list. The URL may be an ftp or gsiftp URL.

attr Attributes for this file transfer.

complete_callback Callback to be invoked once the "list" is completed.

callback_arg Argument to be passed to the complete_callback.

Returns:
This function returns an error when any of these conditions are true:

- handle is GLOBUS_NULL
- url is GLOBUS_NULL
- url cannot be parsed
- url is not a ftp or gsiftp url
- complete_callback is GLOBUS_NULL
- handle already has an operation in progress

See also:
globus_ftp_client_register_read()

5.5.4.13 globus_result_t globus_ftp_client_mlst(globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_byte_t mlst_buffer, globus_size_t mlst_buffer_length, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Get information about a file or directory from a FTP server.

This function requests the MLST fact string of a file or directory from an FTP server.

When the MLST request is completed or aborted, the complete_callback will be invoked with the final status of the operation. If the callback is returns without an error, the MLST fact string will be stored in the globus_byte_t pointed to by the mlst_buffer parameter to this function.

Parameters:
u_handle An FTP Client handle to use for the list operation.

url The URL of a file or directory to list. The URL may be an ftp or gsiftp URL.

attr Attributes for this file transfer.

mlst_buffer A pointer to a globus_byte_t to be allocated and filled with the MLST fact string of the file, if it exists. Otherwise, the value pointed to by it is undefined. It is up to the user to free this memory.

mlst_buffer_length A pointer to a globus_size_t to be filled with the length of the data in mlst_buffer.

complete_callback Callback to be invoked once the MLST command is completed.

callback_arg Argument to be passed to the complete_callback.

Returns:
This function returns an error when any of these conditions are true:

- handle is GLOBUS_NULL
- url is GLOBUS_NULL
- url cannot be parsed
- url is not a ftp or gsiftp url
- mlst_buffer is GLOBUS_NULL
- mlst_buffer_length is GLOBUS_NULL
- complete_callback is GLOBUS_NULL
- handle already has an operation in progress

5.5.4.14 globus_result_t globus_ftp_client_move(globus_ftp_client_handle_t u_handle, const char source_url, const char dest_url, globus_ftp_client_operationattr_t attr, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Move a file on an FTP server.

This function starts a move (rename) operation on an FTP server. Note that this function does not move files between FTP servers and that the host:port part of the destination url is ignored.

When the response to the move request has been received the complete_callback will be invoked with the result of the move operation.

Parameters:

u_handle An FTP Client handle to use for the move operation.

source_url The URL for the file to move.

dest_url The URL for the target of the move. The host:port part of this URL is ignored.

attr Attributes for this operation.

complete_callback Callback to be invoked once the move is completed.

callback_arg Argument to be passed to the complete_callback.

Returns:

This function returns an error when any of these conditions are true:

- handle is GLOBUS_NULL
- source_url is GLOBUS_NULL
- source_url cannot be parsed
- source_url is not a ftp or gsiftp url
- complete_callback is GLOBUS_NULL
- handle already has an operation in progress

5.5.4.15 globus_result_t globus_ftp_client_chmod(globus_ftp_client_handle_t u_handle, const char url, int mode, globus_ftp_client_operationattr_t attr, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Change permissions on a file.

This function changes file permissions

When the response to the move request has been received the complete_callback will be invoked with the result of the operation.

Parameters:

u_handle An FTP Client handle to use for the move operation.

url The URL of the file to modify permissions.

mode The integer file mode to change to. Be sure that the integer is in the proper base, i.e. 0777 (octal) vs 777 (decimal).

attr Attributes for this operation.

complete_callback Callback to be invoked once the move is completed.

callback_arg Argument to be passed to the complete_callback.

Returns:

This function returns an error when any of these conditions are true:

- handle is GLOBUS_NULL
- url is GLOBUS_NULL
- url cannot be parsed
- url is not a ftp or gsiftp url
- complete_callback is GLOBUS_NULL
- handle already has an operation in progress

5.5.4.16 globus_result_t globus_ftp_client_get(globus_ftp_client_handle_t handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_restart_marker_t restart, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Get a file from an FTP server.

This function starts a "get" file transfer from an FTP server. If this function returns GLOBUS_SUCCESS, then the user may immediately begin calling globus_ftp_client_register_read() to retrieve the data associated with this URL.

When all of the data associated with this URL is retrieved, and all of the data callbacks have been called, or if the get request is aborted, the complete_callback will be invoked with the final status of the get.

Parameters:

handle An FTP Client handle to use for the get operation.

url The URL to download. The URL may be an ftp or gsiftp URL.

attr Attributes for this file transfer.

restart Pointer to a restart marker.

complete_callback Callback to be invoked once the "get" is completed.

callback_arg Argument to be passed to the complete_callback.

Returns:

This function returns an error when any of these conditions are true:

- handle is GLOBUS_NULL
- url is GLOBUS_NULL
- url cannot be parsed
- url is not a ftp or gsiftp url
- complete_callback is GLOBUS_NULL
- handle already has an operation in progress

See also:

globus_ftp_client_register_read()

5.5.4.17 globus_result_t globus_ftp_client_partial_get(globus_ftp_client_handle_t handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_restart_marker_t restart, globus_off_t partial_offset, globus_off_t partial_end_offset, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Get a file from an FTP server.

This function starts a "get" file transfer from an FTP server. If this function returns GLOBUS_SUCCESS, then the user may immediately begin calling globus_ftp_client_register_read() to retrieve the data associated with this URL.

When all of the data associated with this URL is retrieved, and all of the data callbacks have been called, or if the get request is aborted, the complete_callback will be invoked with the final status of the get.

Parameters:

handle An FTP Client handle to use for the get operation.

url The URL to download. The URL may be an ftp or gsiftp URL.

attr Attributes for this le transfer.

restart Pointer to a restart marker.

partial_offset Starting offset for a partial le get.

partial_end_offset Ending offset for a partial le get. Use -1 for EOF.

complete_callback Callback to be invoked once the "get" is completed.

callback_arg Argument to be passed to the complete_callback.

Returns:

This function returns an error when any of these conditions are true:

- handle is GLOBUS_NULL
- url is GLOBUS_NULL
- url cannot be parsed
- url is not a ftp or gsiftp url
- complete_callback is GLOBUS_NULL
- handle already has an operation in progress

5.5.4.18 globus_result_t globus_ftp_client_extended_get(globus_ftp_client_handle_t handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_restart_marker_t restart, const char eret_alg_str, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Get a le from an FTP server with server-side processing.

This function starts a "get" le transfer from an FTP server. If this function returns GLOBUS_SUCCESS, then the user may immediately begin calling globus_ftp_client_register_read() to retrieve the data associated with this URL.

When all of the data associated with this URL is retrieved, and all of the data callbacks have been called, or if the get request is aborted, the complete_callback will be invoked with the nal status of the get.

This function differs from the globus_ftp_client_get() function by allowing the user to invoke server-side data processing algorithms. GridFTP servers may support support algorithms for data reduction or other customized data storage requirements. There is no client-side veri cation done on the algorithm string provided by the user. If the server does not understand the requested algorithm, the transfer will fail.

Parameters:

handle An FTP Client handle to use for the get operation.

url The URL to download. The URL may be an ftp or gsiftp URL.

attr Attributes for this le transfer.

restart Pointer to a restart marker.

eret_alg_str The ERET algorithm string. This string contains information needed to invoke a server-speci c data reduction algorithm on the le being retrieved.

complete_callback Callback to be invoked once the "get" is completed.

callback_arg Argument to be passed to the complete_callback.

Returns:

This function returns an error when any of these conditions are true:

- handle is GLOBUS_NULL
- url is GLOBUS_NULL
- url cannot be parsed
- url is not a ftp or gsiftp url
- complete_callback is GLOBUS_NULL
- handle already has an operation in progress

See also:
globus_ftp_client_register_read()

5.5.4.19 globus_result_t globus_ftp_client_put(globus_ftp_client_handle_t handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_restart_marker_t restart, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Store a file on an FTP server.

This function starts a "put" file transfer to an FTP server. If this function returns GLOBUS_SUCCESS, then the user may immediately begin calling globus_ftp_client_register_write() to send the data associated with this URL.

When all of the data associated with this URL is sent, and all of the data callbacks have been called, or if the put request is aborted, the complete_callback will be invoked with the final status of the put.

Parameters:
handle An FTP Client handle to use for the put operation.
url The URL to store the data to. The URL may be an ftp or gsiftp URL.
attr Attributes for this file transfer.
restart Pointer to a restart marker.
complete_callback Callback to be invoked once the "put" is completed.
callback_arg Argument to be passed to the complete_callback.

See also:
globus_ftp_client_register_write()

5.5.4.20 globus_result_t globus_ftp_client_partial_put(globus_ftp_client_handle_t handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_restart_marker_t restart, globus_off_t partial_offset, globus_off_t partial_end_offset, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Store a file on an FTP server.

This function starts a "put" file transfer to an FTP server. If this function returns GLOBUS_SUCCESS, then the user may immediately begin calling globus_ftp_client_register_write() to send the data associated with this URL.

When all of the data associated with this URL is sent, and all of the data callbacks have been called, or if the put request is aborted, the complete_callback will be invoked with the final status of the put.

Parameters:
handle An FTP Client handle to use for the put operation.
url The URL to store the data to. The URL may be an ftp or gsiftp URL.
attr Attributes for this file transfer.

restart Pointer to a restart marker.

partial_offset Starting offset for a partial file put.

partial_end_offset Ending offset for a partial file put.

complete_callback Callback to be invoked once the "put" is completed.

callback_arg Argument to be passed to the complete_callback.

See also:
globus_ftp_client_register_write()

5.5.4.21 globus_result_t globus_ftp_client_extended_put(globus_ftp_client_handle_t handle, const char url, globus_ftp_client_operationattr_t attr, globus_ftp_client_restart_marker_t restart, const char esto_alg_str, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Store a file on an FTP server with server-side processing.

This function starts a "put" file transfer to an FTP server. If this function returns GLOBUS_SUCCESS, then the user may immediately begin calling globus_ftp_client_register_write() to send the data associated with this URL.

When all of the data associated with this URL is sent, and all of the data callbacks have been called, or if the put request is aborted, the complete_callback will be invoked with the final status of the put.

This function differs from the globus_ftp_client_put() function by allowing the user to invoke server-side data processing algorithms. GridFTP servers may support algorithms for data reduction or other customized data storage requirements. There is no client-side verification done on the alogirhtm string provided by the user. if the server does not understand the requested algorithm, the transfer will fail.

Parameters:
handle An FTP Client handle to use for the put operation.

url The URL to store the data to. The URL may be an ftp or gsiftp URL.

attr Attributes for this file transfer.

restart Pointer to a restart marker.

esto_alg_str

complete_callback Callback to be invoked once the "put" is completed.

callback_arg Argument to be passed to the complete_callback.

See also:
globus_ftp_client_register_write()

5.5.4.22 globus_result_t globus_ftp_client_third_party_transfer(globus_ftp_client_handle_t handle, const char source_url, globus_ftp_client_operationattr_t source_attr, const char dest_url, globus_ftp_client_operationattr_t dest_attr, globus_ftp_client_restart_marker_t restart, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Transfer a file between two FTP servers.

This function starts up a third-party file transfer between FTP server. This function returns immediately.

When the transfer is completed or if the transfer is aborted, the complete_callback will be invoked with the final status of the transfer.

Parameters:
handle An FTP Client handle to use for the get operation.

source_url The URL to transfer. The URL may be an ftp or gsiftp URL.

source_attr Attributes for the souce URL.

dest_url The destination URL for the transfer. The URL may be an ftp or gsiftp URL.

dest_attr Attributes for the destination URL.

restart Pointer to a restart marker.

complete_callback Callback to be invoked once the "put" is completed.

callback_arg Argument to be passed to the complete_callback.

Note:

The source_attr and dest_attr MUST be compatible. For example, the MODE and TYPE should match for both the source and destination.

5.5.4.23 globus_result_t globus_ftp_client_partial_third_party_transfer (globus_ftp_client_handle_t handle, const char source_url, globus_ftp_client_operationattr_t source_attr, const char dest_url, globus_ftp_client_operationattr_t dest_attr, globus_ftp_client_restart_marker_t restart, globus_off_t partial_offset, globus_off_t partial_end_offset, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Transfer a file between two FTP servers.

This function starts up a third-party file transfer between FTP server. This function returns immediately.

When the transfer is completed or if the transfer is aborted, the complete_callback will be invoked with the final status of the transfer.

Parameters:

handle An FTP Client handle to use for the get operation.

source_url The URL to transfer. The URL may be an ftp or gsiftp URL.

source_attr Attributes for the souce URL.

dest_url The destination URL for the transfer. The URL may be an ftp or gsiftp URL.

dest_attr Attributes for the destination URL.

restart Pointer to a restart marker.

partial_offset Starting offset for a partial file get.

partial_end_offset Ending offset for a partial file get. Use -1 for EOF.

complete_callback Callback to be invoked once the "put" is completed.

callback_arg Argument to be passed to the complete_callback.

Note:

The source_attr and dest_attr MUST be compatible. For example, the MODE and TYPE should match for both the source and destination.

5.5.4.24 globus_result_t globus_ftp_client_extended_third_party_transfer (globus_ftp_client_handle_t handle, const char source_url, globus_ftp_client_operationattr_t source_attr, const char eret_alg_str, const char dest_url, globus_ftp_client_operationattr_t dest_attr, const char esto_alg_str, globus_ftp_client_restart_marker_t restart, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Transfer a file between two FTP servers with server-side processing.

This function starts up a third-party file transfer between FTP server. This function returns immediately.

When the transfer is completed or if the transfer is aborted, the complete_callback will be invoked with the final status of the transfer.

This function differes from the globus_ftp_client_third_party_transfer() fnciton by allowing the user to invoke server-side data processing algorithms. GridFTP servers may support algorithms for data reduction or other customized data storage requirements. There is no client-side verification done on the alogirhtm string provided by the user. if the server does not understand the requested algorithm, the transfer will fail.

Parameters:

handle An FTP Client handle to use for the get operation.

source_url The URL to transfer. The URL may be an ftp or gsiftp URL.

source_attr Attributes for the souce URL.

eret_alg_str

dest_url The destination URL for the transfer. The URL may be an ftp or gsiftp URL.

dest_attr Attributes for the destination URL.

esto_alg_str

restart Pointer to a restart marker.

complete_callback Callback to be invoked once the "put" is completed.

callback_arg Argument to be passed to the complete_callback.

Note:

The source_attr and dest_attr MUST be compatible. For example, the MODE and TYPE should match for both the source and destination.

5.5.4.25 globus_result_t globus_ftp_client_modification_time(globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_abstime_t modification_time, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Get a file's modification time from an FTP server.

This function requests the modification time of a file from an FTP server.

When the modification time request is completed or aborted, the complete_callback will be invoked with the final status of the operation. If the callback is returns without an error, the modification time will be stored in the globus_abstime_t value pointed to by the modification_time parameter to this function.

Parameters:

u_handle An FTP Client handle to use for the list operation.

url The URL to list. The URL may be an ftp or gsiftp URL.

attr Attributes for this file transfer.

modification_time A pointer to a globus_abstime_t to be filled with the modification time of the file, if it exists. Otherwise, the value pointed to by it is undefined.

complete_callback Callback to be invoked once the modification time check is completed.

callback_arg Argument to be passed to the complete_callback.

Returns:

This function returns an error when any of these conditions are true:

- handle is GLOBUS_NULL

- url is GLOBUS_NULL
- url cannot be parsed
- url is not a ftp or gsiftp url
- modi cation time is GLOBUS_NULL
- complete_callback is GLOBUS_NULL
- handle already has an operation in progress

5.5.4.26 globus_result_t globus_ftp_client_size(globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, globus_off_t size, globus_ftp_client_complete_callback_t complete_-callback, void callback_arg)

Get a le's size from an FTP server.

This function requests the size of a le from an FTP server.

When the size request is completed or aborted, the complete_callback will be invoked with the nal status of the operation. If the callback is returns without an error, the size will be stored in the globus_off_t value pointed to by the size parameter to this function.

Note:

In ASCII mode, the size will be the size of the le after conversion to ASCII mode. The actual amount of data which is returned in the data callbacks may be less than this amount.

Parameters:

u_handle An FTP Client handle to use for the list operation.

url The URL to list. The URL may be an ftp or gsiftp URL.

attr Attributes for this le transfer.

size A pointer to a globus_off_t to be lled with the total size of the le, if it exists. Otherwise, the value pointed to by it is unde ned.

complete_callback Callback to be invoked once the size check is completed.

callback_arg Argument to be passed to the complete_callback.

Returns:

This function returns an error when any of these conditions are true:

- handle is GLOBUS_NULL
- url is GLOBUS_NULL
- url cannot be parsed
- url is not a ftp or gsiftp url
- size is GLOBUS_NULL
- complete_callback is GLOBUS_NULL
- handle already has an operation in progress

5.5.4.27 globus_result_t globus_ftp_client_cksm(globus_ftp_client_handle_t u_handle, const char url, globus_ftp_client_operationattr_t attr, char cksm, globus_off_t offset, globus_off_t length, const char algorithm, globus_ftp_client_complete_callback_t complete_callback, void callback_arg)

Get a file's checksum from an FTP server.

This function requests the checksum of a file from an FTP server.

When the request is completed or aborted, the complete_callback will be invoked with the final status of the operation. If the callback is returns without an error, the checksum will be stored in the cksm buffer provided in the 'checksum' parameter to this function. The buffer must be large enough to hold the expected checksum result.

Parameters:

u_handle An FTP Client handle to use for the list operation.

url The URL to list. The URL may be an ftp or gsiftp URL.

attr Attributes for this file transfer.

cksm A pointer to a buffer to be filled with the checksum of the file. On error the buffer contents are undefined.

offset File offset to start calculating checksum.

length Length of data to read from the starting offset. Use -1 to read the entire file.

algorithm A pointer to a string to specifying the desired algorithm Currently, GridFTP servers only support the MD5 algorithm.

complete_callback Callback to be invoked once the checksum is completed.

callback_arg Argument to be passed to the complete_callback.

Returns:

This function returns an error when any of these conditions are true:

- handle is GLOBUS_NULL
- url is GLOBUS_NULL
- url cannot be parsed
- url is not a ftp or gsiftp url
- size is GLOBUS_NULL
- complete_callback is GLOBUS_NULL
- handle already has an operation in progress

5.5.4.28 globus_result_t globus_ftp_client_abort(globus_ftp_client_handle_t u_handle)

Abort the operation currently in progress.

Parameters:

u_handle Handle which to abort.

5.6 FTP Operation Attributes

Operation attributes are used to control the security and performance of an FTP operation.

Storage Module

- globus_result_t globus_ftp_client_operationattr_set_storage_module(globus_ftp_client_operationattr_t attr, const char module_name, const char module_args)
- globus_result_t globus_ftp_client_operationattr_get_storage_module(const globus_ftp_client_operationattr_t attr, char module_name, char module_args)

Custom Data Channel Driver Stack

- globus_result_t globus_ftp_client_operationattr_set_net_stack (globus_ftp_client_operationattr_t attr, const char driver_list)
- globus_result_t globus_ftp_client_operationattr_get_net_stack (const globus_ftp_client_operationattr_t attr, char driver_list)

Custom Server File Driver Stack

- globus_result_t globus_ftp_client_operationattr_set_disk_stack (globus_ftp_client_operationattr_t attr, const char driver_list)
- globus_result_t globus_ftp_client_operationattr_get_disk_stack (const globus_ftp_client_operationattr_t attr, char driver_list)

Parallelism

- globus_result_t globus_ftp_client_operationattr_set_parallelism (globus_ftp_client_operationattr_t attr, const globus_ftp_control_parallelism_t parallelism)
- globus_result_t globus_ftp_client_operationattr_get_parallelism (const globus_ftp_client_operationattr_t attr, globus_ftp_control_parallelism_t parallelism)

allocate

- globus_result_t globus_ftp_client_operationattr_set_allocate (globus_ftp_client_operationattr_t attr, const globus_off_t allocated_size)
- globus_result_t globus_ftp_client_operationattr_get_allocate (const globus_ftp_client_operationattr_t attr, globus_off_t allocated_size)

authz_assert

- globus_result_t globus_ftp_client_operationattr_set_authz_assert (globus_ftp_client_operationattr_t attr, const char authz_assert, globus_bool_t cache_authz_assert)
- globus_result_t globus_ftp_client_operationattr_get_authz_assert (const globus_ftp_client_operationattr_t attr, char authz_assert, globus_bool_t cache_authz_assert)

Striped Data Movement

- globus_result_t globus_ftp_client_operationattr_set_striped (globus_ftp_client_operationattr_t attr, globus_bool_t striped)
- globus_result_t globus_ftp_client_operationattr_get_striped (const globus_ftp_client_operationattr_t attr, globus_bool_t striped)

Striped File Layout

- globus_result_t globus_ftp_client_operationattr_set_layout (globus_ftp_client_operationattr_t attr, const globus_ftp_control_layout_t layout)
- globus_result_t globus_ftp_client_operationattr_get_layout (const globus_ftp_client_operationattr_t attr, globus_ftp_control_layout_t layout)

TCP Buffer

- globus_result_t globus_ftp_client_operationattr_set_tcp_buffer (globus_ftp_client_operationattr_t attr, const globus_ftp_control_tcpbuffer_t tcp_buffer)
- globus_result_t globus_ftp_client_operationattr_get_tcp_buffer (const globus_ftp_client_operationattr_t attr, globus_ftp_control_tcpbuffer_t tcp_buffer)

File Type

- globus_result_t globus_ftp_client_operationattr_set_type (globus_ftp_client_operationattr_t attr, globus_ftp_control_type_t type)
- globus_result_t globus_ftp_client_operationattr_get_type (const globus_ftp_client_operationattr_t attr, globus_ftp_control_type_t type)

Transfer Mode

- globus_result_t globus_ftp_client_operationattr_set_mode (globus_ftp_client_operationattr_t attr, globus_ftp_control_mode_t mode)
- globus_result_t globus_ftp_client_operationattr_get_mode (const globus_ftp_client_operationattr_t attr, globus_ftp_control_mode_t mode)

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- globus_result_t globus_ftp_client_operationattr_set_list_uses_data_mode (const globus_ftp_client_operationattr_t attr, globus_bool_t list_uses_data_mode)
- globus_result_t globus_ftp_client_operationattr_get_list_uses_data_mode (const globus_ftp_client_operationattr_t attr, globus_bool_t list_uses_data_mode)

Authorization

- globus_result_t globus_ftp_client_operationattr_set_authorization (globus_ftp_client_operationattr_t attr, gss_cred_id_t credential, const char user, const char password, const char account, const char subject)
- globus_result_t globus_ftp_client_operationattr_get_authorization (const globus_ftp_client_operationattr_t attr, gss_cred_id_t credential, char user, char password, char account, char subject)

Data Channel Authentication

- globus_result_t globus_ftp_client_operationattr_set_dcau (globus_ftp_client_operationattr_t attr, const globus_ftp_control_dcau_t dcau)
- globus_result_t globus_ftp_client_operationattr_get_dcau (const globus_ftp_client_operationattr_t attr, globus_ftp_control_dcau_t dcau)

Data Channel Protection

- globus_result_t globus_ftp_client_operationattr_set_data_protection (globus_ftp_client_operationattr_t attr, globus_ftp_control_protection_t protection)
- globus_result_t globus_ftp_client_operationattr_get_data_protection (const globus_ftp_client_operationattr_t attr, globus_ftp_control_protection_t protection)

Control Channel Protection

- globus_result_t globus_ftp_client_operationattr_set_control_protection(globus_ftp_client_operationattr_t attr, globus_ftp_control_protection_t protection)
- globus_result_t globus_ftp_client_operationattr_get_control_protection(const globus_ftp_client_operationattr_t attr, globus_ftp_control_protection_t protection)

Append

- globus_result_t globus_ftp_client_operationattr_set_append(globus_ftp_client_operationattr_t attr, globus_bool_t append)
- globus_result_t globus_ftp_client_operationattr_get_append(const globus_ftp_client_operationattr_t attr, globus_bool_t append)

IPv6

- globus_result_t globus_ftp_client_operationattr_set_allow_ipv6(globus_ftp_client_operationattr_t attr, globus_bool_t allow_ipv6)
- globus_result_t globus_ftp_client_operationattr_get_allow_ipv6(const globus_ftp_client_operationattr_t attr, globus_bool_t allow_ipv6)

Read into a Single Buffer

- globus_result_t globus_ftp_client_operationattr_set_read_all(globus_ftp_client_operationattr_t attr, globus_bool_t read_all, globus_ftp_client_data_callback_t intermediate_callback, void intermediate_callback_arg)
- globus_result_t globus_ftp_client_operationattr_get_read_all(const globus_ftp_client_operationattr_t attr, globus_bool_t read_all, globus_ftp_client_data_callback_t intermediate_callback, void intermediate_callback_arg)

Typedefs

- typedef globus_i_ftp_client_operationattr_t globus_ftp_client_operationattr_t

Functions

- globus_result_t globus_ftp_client_operationattr_init(globus_ftp_client_operationattr_t attr)
- globus_result_t globus_ftp_client_operationattr_destroy(globus_ftp_client_operationattr_t attr)
- globus_result_t globus_ftp_client_operationattr_set_delayed_pasv(const globus_ftp_client_operationattr_t attr, globus_bool_t delayed_pasv)
- globus_result_t globus_ftp_client_operationattr_copy(globus_ftp_client_operationattr_t dst, const globus_ftp_client_operationattr_t src)

5.6.1 Detailed Description

Operation attributes are used to control the security and performance of an FTP operation.

These features are often dependent on the capabilities of the FTP server which you are going to access.

5.6.2 Typedef Documentation

5.6.2.1 typedef struct globus_i_ftp_client_operationattr_t globus_ftp_client_operationattr_t

Operation Attributes.

FTP Client attributes are used to control the parameters needed to access an URL using the FTP protocol. Attributes are created and manipulated using the functions in the attributes section of the library.

See also:
globus_ftp_client_operationattr_init(), globus_ftp_client_operationattr_destroy()

5.6.3 Function Documentation

5.6.3.1 globus_result_t globus_ftp_client_operationattr_init(globus_ftp_client_operationattr_t attr)

Initialize an FTP client attribute set.

Parameters:
attr A pointer to the new attribute set.

5.6.3.2 globus_result_t globus_ftp_client_operationattr_destroy(globus_ftp_client_operationattr_t attr)

Destroy an FTP client attribute set.

Parameters:
attr A pointer to the attribute to destroy.

5.6.3.3 globus_result_t globus_ftp_client_operationattr_set_storage_module(globus_ftp_client_operationattr_t attr, const char module_name, const char module_args)

Set/Get the gridftp storage module (DSI).

This attribute allows the user to control what backend module they use with the gridftp server. The module MUST be implemented by the server or the transfer/get/put will result in an error.

This attribute is ignored in stream mode.

Parameters:
attr The attribute set to query or modify.
module_name The backend storage module name
module_args The backend storage module parameters

See also:
#globus_gsiftp_control_parallelism_t, globus_ftp_client_operationattr_set_layout(), globus_ftp_client_operationattr_set_mode()

Note:
This is a Grid-FTP extension, and may not be supported on all FTP servers.

5.6.3.4 globus_result_t globus_ftp_client_operationattr_set_net_stack(globus_ftp_client_operationattr_t attr, const char driver_list)

Set/Get the gridftp xio driver stack used for the data channel.

This attribute allows the user to control which xio drivers will be used for data transport. The driver MUST be installed and allowed by the server or the transfer/get/put will result in an error.

Parameters:

attr The attribute set to query or modify.

driver_list driver list in the following format: driver1[:driver1opts][,driver2[:driver2opts]][...]. The string "default" will reset the stack list to the server default.

Note:

This is a GridFTP extension, and may not be supported on all FTP servers.

5.6.3.5 globus_result_t globus_ftp_client_operationattr_set_disk_stack(globus_ftp_client_operationattr_t attr, const char driver_list)

Set/Get the gridftp xio driver stack used for the le storage.

This attribute allows the user to control which xio drivers will be used for le DSI only. This is an experimental feature of the gridftp server. Only works for third party transfers.

Parameters:

attr The attribute set to query or modify.

driver_list driver list in the following format: driver1[:driver1opts][,driver2[:driver2opts]][...]. The string "default" will reset the stack list to the server default.

Note:

This is a GridFTP extension, and may not be supported on all FTP servers.

5.6.3.6 globus_result_t globus_ftp_client_operationattr_set_parallelism(globus_ftp_client_operationattr_t attr, const globus_ftp_control_parallelism_t parallelism)

Set/Get the parallelism attribute for an ftp client attribute set.

This attribute allows the user to control the level of parallelism to be used on an extended block mode le transfer. Currently, only a " xed" parallelism level is supported. This is interpreted by the FTP server as the number of parallel data connections to be allowed for each stripe of data. Currently, only the " xed" parallelism type is

This attribute is ignored in stream mode.

Parameters:

attr The attribute set to query or modify.

parallelism The value of parallelism attribute.

See also:

#globus_gsiftp_control_parallelism_t, globus_ftp_client_operationattr_set_layout() globus_ftp_client_operationattr_set_mode()

Note:

This is a Grid-FTP extension, and may not be supported on all FTP servers.

5.6.3.7 globus_result_t globus_ftp_client_operationattr_set_allocate(globus_ftp_client_operationattr_t attr, const globus_off_t allocated_size)

Set/Get the allocate attribute for an ftp client attribute set.

This attribute lets the user set a size to be passed to the server before a put operation.

This attribute is ignored for get operations.

Parameters:

attr The attribute set to query or modify.

allocated_size The size to direct server to allocate.

5.6.3.8 globus_result_t globus_ftp_client_operationattr_set_authz_assert(globus_ftp_client_operationattr_t attr, const char authz_assert, globus_bool_t cache_authz_assert)

Set/Get the authz_assert attribute for an ftp client attribute set.

This attribute lets the user set an AUTHORIZATION assertion to be passed to the server

Parameters:

attr The attribute set to query or modify.

authz_assert The AUTHORIZATION assertion.

cache_authz_assert Boolean that specifies whether to cache this assertion for subsequent operations

5.6.3.9 globus_result_t globus_ftp_client_operationattr_set_striped(globus_ftp_client_operationattr_t attr, globus_bool_t striped)

Set/Get the striped attribute for an ftp client attribute set.

This attribute allows the user to force the client library to used the FTP commands to do a striped data transfer, even when the user has not requested a specific file layout via the layout attribute. This is useful when transferring files between servers which use the server side processing commands ERET or ESTO to transform data and send it to particular stripes on the destination server.

The layout attribute is used only when the data is being stored the server (on a put or 3rd party transfer). This attribute is ignored for stream mode data transfers.

Parameters:

attr The attribute set to query or modify.

striped The value of striped attribute.

See also:

globus_ftp_client_operationattr_set_parallelism(), globus_ftp_client_operationattr_set_layout(), globus_ftp_client_operationattr_set_mode()

Note:

This is a Grid-FTP extension, and may not be supported on all FTP servers.

5.6.3.10 globus_result_t globus_ftp_client_operationattr_set_layout(globus_ftp_client_operationattr_t attr, const globus_ftp_control_layout_t layout)

Set/Get the layout attribute for an ftp client attribute set.

This attribute allows the user to control the layout of a le being transfered to a striped Grid-FTP server. The striping layout de nes what regions of a le will be stored on each stripe of a multiple-striped ftp server.

The layout attribute is used only when the data is being stored on the server (on a put or 3rd party transfer). This attribute is ignored for stream mode data transfers.

Parameters:

attr The attribute set to query or modify.

layout The value of layout attribute.

See also:

globus_ftp_control_layout_t, globus_ftp_client_operationattr_set_parallelism() globus_ftp_client_operationattr_set_mode()

Note:

This is a Grid-FTP extension, and may not be supported on all FTP servers.

5.6.3.11 globus_result_t globus_ftp_client_operationattr_set_tcp_buffer(globus_ftp_client_operationattr_t attr, const globus_ftp_control_tcpbuffer_t tcp_buffer)

Set/Get the TCP buffer attribute for an ftp client attribute set.

This attribute allows the user to control the TCP buffer size used for all data channels used in a le transfer. The size of the TCP buffer can make a signi cant impact on the performance of a le transfer. The user may set the buffer to either a system-dependent default value, or to a xed value.

The actual implementation of this attribute is designed to be as widely interoperable as possible. In addition to supporting the SBUF command described in the GridFTP protocol extensions document, it also supports other commands and site commands which are used by other servers to set TCP buffer sizes. These are

- SITE RETRBUFSIZE
- SITE RBUFSZ
- SITE RBUFSIZ
- SITE STORBUFIZE
- SITE SBUFSZ
- SITE SBUFSIZ
- SITE BUFSIZE

This attribute is affects any type of data transfer done with the ftp client library.

Parameters:

attr The attribute set to query or modify.

tcp_buffer The value of tcp_buffer attribute.

See also:

#globus_gsiftp_control_tcpbuffer_t

5.6.3.12 globus_result_t globus_ftp_client_operationattr_set_type(globus_ftp_client_operationattr_t attr, globus_ftp_control_type_t type)

Set/Get the file representation type attribute for an ftp client attribute set.

This attribute allows the user to choose the file type used for an FTP file transfer. The file may be transferred as either ASCII or a binary image.

When transferring an ASCII file, the data will be transformed in the following way

- the high-order bit will be set to zero
- end-of line characters will be converted to a CRLF pair for the data transfer, and then converted to native format before being returned to the user's data callbacks.

The default type for the ftp client libary is binary.

Parameters:

attr The attribute set to query or modify.

type The value of type attribute.

See also:

globus_ftp_control_type_t

5.6.3.13 globus_result_t globus_ftp_client_operationattr_set_mode(globus_ftp_client_operationattr_t attr, globus_ftp_control_mode_t mode)

Set/Get the file transfer mode attribute for an ftp client attribute set.

This attribute allows the user to choose the data channel protocol used to transfer a file. There are two modes supported by this library: stream mode and extended block mode.

Stream mode is a file transfer mode where all data is sent over a single TCP socket, without any data framing. In stream mode, data will arrive in sequential order. This mode is supported by nearly all FTP servers.

Extended block mode is a file transfer mode where data can be sent over multiple parallel connections and to multiple data storage nodes to provide a high-performance data transfer. In extended block mode, data may arrive out-of-order. ASCII type files are not supported in extended block mode.

Parameters:

attr The attribute set to query or modify.

mode The value of mode attribute

See also:

globus_ftp_control_mode_t globus_ftp_client_operationattr_set_parallelism() globus_ftp_client_operationattr_set_layout()

Note:

Extended block mode is a Grid-FTP extension, and may not be supported on all FTP servers.

5.6.3.14 globus_result_t globus_ftp_client_operationattr_set_list_uses_data_mode (const globus_ftp_client_operationattr_t attr, globus_bool_t list_uses_data_mode)

Set/Get whether or not list data will use the current data mode.

This attribute allows the user to allow list data to be transferred using the current data channel mode.

Parameters:

attr The attribute set to query or modify.

list_uses_data_mode globus_bool_t

Note:

List data transfers in nonstandard modes is a Grid-FTP extension, and may not be supported on all FTP servers.

5.6.3.15 globus_result_t globus_ftp_client_operationattr_set_delayed_pasv (const globus_ftp_client_operationattr_t attr, globus_bool_t delayed_pasv)

Set/Get whether or not delayed passive should be used.

This attribute allows the user to enable delayed passive so the server can provide the passive address after it knows the lename to be transferred.

Parameters:

attr The attribute set to query or modify.

delayed_pasv globus_bool_t

Note:

Delayed passive is a GridFTP extension, and may not be supported on all FTP servers.

5.6.3.16 globus_result_t globus_ftp_client_operationattr_set_authorization (globus_ftp_client_operationattr_t attr, gss_cred_id_t credential, const char user, const char password, const char account, const char subject)

Set/Get the authorization attribute for an ftp client attribute set.

This attribute allows the user to pass authentication information to the ftp client library. This information is used to authenticate with the ftp server.

The Globus FTP client library supports authentication using either the GSSAPI, or standard plaintext username and passwords. The type of authentication is determined by the URL scheme which is used for the individual get, put, or 3rd party transfer calls.

Parameters:

attr The attribute set to query or modify.

credential The credential to use for authenticating with a GSIFTP server. This may be GSS_C_NO_CREDENTIAL to use the default credential.

user The user name to send to the FTP server. When doing a gsiftp transfer, this may be set to NULL, and the default globusmap entry for the user's GSI identity will be usd.

password The password to send to the FTP server. When doing a gsiftp transfer, this may be set to NULL.

account The account to use for the data transfer. Most FTP servers do not require this.

subject The subject name of the FTP server. This is only used when doing a gsiftp transfer, and then only when the security subject name does not match the hostname of the server (ie, when the server is being run by a user).

5.6.3.17 globus_result_t globus_ftp_client_operationattr_set_dcau(globus_ftp_client_operationattr_t attr, const globus_ftp_control_dcau_t dcau)

Set/Get the data channel authentication attribute for an ftp client attribute set.

Data channel authentication is a GridFTP extension, and may not be supported by all servers. If a server supports it, then the default is to delegate a credential to the server, and authenticate all data channels with that delegated credential.

Parameters:

attr The attribute set to query or modify.

dcau The value of data channel authentication attribute.

5.6.3.18 globus_result_t globus_ftp_client_operationattr_set_data_protection(globus_ftp_client_operationattr_t attr, globus_ftp_control_protection_t protection)

Set/Get the data channel protection attribute for an ftp client attribute set.

Parameters:

attr The attribute set to query or modify.

protection The value of data channel protection attribute.

Bug

Only safe and private protection levels are supported by gsiftp.

5.6.3.19 globus_result_t globus_ftp_client_operationattr_set_control_protection(globus_ftp_client_operationattr_t attr, globus_ftp_control_protection_t protection)

Set/Get the control channel protection attribute for an ftp client attribute set.

The control channel protection attribute allows the user to decide whether to encrypt or integrity check the command session between the client and the FTP server. This attribute is only relevant if used with a gsiftp URL.

Parameters:

attr The attribute set to query or modify.

protection The value of control channel protection attribute.

Bug

The clear and safe protection levels are treated identically, with the client integrity checking all commands. The con dential and private protection levels are treated identically, with the client encrypting all commands.

5.6.3.20 globus_result_t globus_ftp_client_operationattr_set_append(globus_ftp_client_operationattr_t attr, globus_bool_t append)

Set/Get the append attribute for an ftp client attribute set.

This attribute allows the user to append to a le on an FTP server, instead of replacing the existing le when doing a globus_ftp_client_put() or globus_ftp_client_transfer().

This attribute is ignored on the retrieving side of a transfer, or a globus_ftp_client_get()

Parameters:

attr The attribute set to query or modify.

append The value of append attribute.

5.6.3.21 globus_result_t globus_ftp_client_operationattr_set_allow_ipv6 (globus_ftp_client_operationattr_t attr, globus_bool_t allow_ipv6)

Set/Get the allow ipv6 attribute for an ftp client attribute set.

This attribute allows client library to make use of ipv6 when possible.

Use of this is currently very experimental.

Parameters:

attr The attribute set to query or modify.

allow_ipv6 GLOBUS_TRUE to allow ipv6 or GLOBUS_FALSE to disallow(default)

5.6.3.22 globus_result_t globus_ftp_client_operationattr_set_read_all (globus_ftp_client_operationattr_t attr, globus_bool_t read_all, globus_ftp_client_data_callback_t intermediate_callback, void * intermediate_callback_arg)

Set/Get the read_all attribute for an ftp client attribute set.

This attribute allows the user to pass in a single buffer to receive all of the data for the current transfer. This buffer must be large enough to hold all of the data for the transfer. Only one buffer may be registered with globus_ftp_client_register_read() when this attribute is used for a get.

In extended block mode, this attribute will cause data to be stored directly into the buffer from multiple streams without any extra data copies.

If the user sets the intermediate callback to a non-null value, this function will be called whenever an intermediate sub-section of the data is received into the buffer.

This attribute is ignored for globus_ftp_client_put() or globus_ftp_client_third_party_transfer() operations.

Parameters:

attr The attribute set to query or modify.

read_all The value of read_all attribute.

intermediate_callback Callback to be invoked when a subsection of the data has been retreived. This callback may be GLOBUS_NULL, if the user only wants to be noti ed when the data transfer is completed.

intermediate_callback_arg User data to be passed to the intermediate callback function.

5.6.3.23 globus_result_t globus_ftp_client_operationattr_copy (globus_ftp_client_operationattr_t * dst, const globus_ftp_client_operationattr_t * src)

Create a duplicate of an attribute set.

The duplicated attribute set has a deep copy of all data in the attribute set, so the original may be destroyed, while the copy is still valid.

Parameters:

dst The attribute set to be initialized to the same values as src.

src The original attribute set to duplicate.

5.6.3.24 globus_result_t globus_ftp_client_operationattr_get_storage_module (const globus_ftp_client_operationattr_t attr, char module_name, char module_args)

Set/Get the gridftp storage module (DSI).

This attribute allows the user to control what backend module they use with the gridftp server. The module MUST be implemented by the server or the transfer/get/put will result in an error.

This attribute is ignored in stream mode.

Parameters:

attr The attribute set to query or modify.

module_name The backend storage module name

module_args The backend storage module parameters

See also:

#globus_gsiftp_control_parallelism_t, globus_ftp_client_operationattr_set_layout() globus_ftp_client_operationattr_set_mode()

Note:

This is a Grid-FTP extension, and may not be supported on all FTP servers.

5.6.3.25 globus_result_t globus_ftp_client_operationattr_get_net_stack (const globus_ftp_client_operationattr_t attr, char driver_list)

Set/Get the gridftp xio driver stack used for the data channel.

This attribute allows the user to control which xio drivers will be used for data transport. The driver MUST be installed and allowed by the server or the transfer/get/put will result in an error.

Parameters:

attr The attribute set to query or modify.

driver_list driver list in the following format: driver1[:driver1opts][,driver2[:driver2opts]][...]. The string "default" will reset the stack list to the server default.

Note:

This is a GridFTP extension, and may not be supported on all FTP servers.

5.6.3.26 globus_result_t globus_ftp_client_operationattr_get_disk_stack (const globus_ftp_client_operationattr_t attr, char driver_list)

Set/Get the gridftp xio driver stack used for the file storage.

This attribute allows the user to control which xio drivers will be used for file DSI only. This is an experimental feature of the gridftp server. Only works for third party transfers.

Parameters:

attr The attribute set to query or modify.

driver_list driver list in the following format: driver1[:driver1opts][,driver2[:driver2opts]][...]. The string "default" will reset the stack list to the server default.

Note:

This is a GridFTP extension, and may not be supported on all FTP servers.

5.6.3.27 globus_result_t globus_ftp_client_operationattr_get_parallelism (const globus_ftp_client_operationattr_t attr, globus_ftp_control_parallelism_t parallelism)

Set/Get the parallelism attribute for an ftp client attribute set.

This attribute allows the user to control the level of parallelism to be used on an extended block mode le transfer. Currently, only a " xed" parallelism level is supported. This is interpreted by the FTP server as the number of parallel data connections to be allowed for each stripe of data. Currently, only the " xed" parallelism type is

This attribute is ignored in stream mode.

Parameters:
attr The attribute set to query or modify.
parallelism The value of parallelism attribute.

See also:
#globus_gsiftp_control_parallelism_t, globus_ftp_client_operationattr_set_layout() globus_ftp_client_operationattr_set_mode()

Note:
This is a Grid-FTP extension, and may not be supported on all FTP servers.

5.6.3.28 globus_result_t globus_ftp_client_operationattr_get_allocate (const globus_ftp_client_operationattr_t attr, globus_off_t allocated_size)

Set/Get the allocate attribute for an ftp client attribute set.

This attribute lets the user set a size to be passed to the server before a put operation.

This attribute is ignored for get operations.

Parameters:
attr The attribute set to query or modify.
allocated_size The size to direct server to allocate.

5.6.3.29 globus_result_t globus_ftp_client_operationattr_get_authz_assert (const globus_ftp_client_operationattr_t attr, char authz_assert, globus_bool_t cache_authz_assert)

Set/Get the authz_assert attribute for an ftp client attribute set.

This attribute lets the user set an AUTHORIZATION assertion to be passed to the server

Parameters:
attr The attribute set to query or modify.
authz_assert The AUTHORIZATION assertion.
cache_authz_assert Boolean that speci es whether to cache this assertion for subsequent operations

5.6.3.30 globus_result_t globus_ftp_client_operationattr_get_striped (const globus_ftp_client_operationattr_t attr, globus_bool_t striped)

Set/Get the striped attribute for an ftp client attribute set.

This attribute allows the user to force the client library to used the FTP commands to do a striped data transfer, even when the user has not requested a speci c le layout via the layout attribute. This is useful when transferring les between servers which use the server side processing commands ERET or ESTO to transform data and send it to particular stripes on the destination server.

The layout attribute is used only when the data is being stored the server (on a put or 3rd party transfer). This attribute is ignored for stream mode data transfers.

Parameters:

attr The attribute set to query or modify.

striped The value of striped attribute.

See also:

globus_ftp_client_operationattr_set_parallelism() globus_ftp_client_operationattr_set_layout() globus_ftp_client_operationattr_set_mode()

Note:

This is a Grid-FTP extension, and may not be supported on all FTP servers.

5.6.3.31 globus_result_t globus_ftp_client_operationattr_get_layout (const globus_ftp_client_operationattr_t attr, globus_ftp_control_layout_t layout)

Set/Get the layout attribute for an ftp client attribute set.

This attribute allows the user to control the layout of a le being transfered to a striped Grid-FTP server. The striping layout de nes what regions of a le will be stored on each stripe of a multiple-striped ftp server.

The layout attribute is used only when the data is being stored on the server (on a put or 3rd party transfer). This attribute is ignored for stream mode data transfers.

Parameters:

attr The attribute set to query or modify.

layout The value of layout attribute.

See also:

globus_ftp_control_layout_t, globus_ftp_client_operationattr_set_parallelism() globus_ftp_client_operationattr_set_mode()

Note:

This is a Grid-FTP extension, and may not be supported on all FTP servers.

5.6.3.32 globus_result_t globus_ftp_client_operationattr_get_tcp_buffer (const globus_ftp_client_operationattr_t attr, globus_ftp_control_tcpbuffer_t tcp_buffer)

Set/Get the TCP buffer attribute for an ftp client attribute set.

This attribute allows the user to control the TCP buffer size used for all data channels used in a le transfer. The size of the TCP buffer can make a signi cant impact on the performance of a le transfer. The user may set the buffer to either a system-dependent default value, or to a xed value.

The actual implementation of this attribute is designed to be as widely interoperable as possible. In addition to supporting the SBUF command described in the GridFTP protocol extensions document, it also supports other commands and site commands which are used by other servers to set TCP buffer sizes. These are

- SITE RETRBUFSIZE
- SITE RBUFSZ
- SITE RBUFSIZ
- SITE STORBUFIZE
- SITE SBUFSZ
- SITE SBUFSIZ
- SITE BUFSIZE

This attribute is affects any type of data transfer done with the ftp client library.

Parameters:
attr The attribute set to query or modify.
tcp_buffer The value of tcp_buffer attribute.

See also:
#globus_gsiftp_control_tcpbuffer_t

5.6.3.33 globus_result_t globus_ftp_client_operationattr_get_type (const globus_ftp_client_operationattr_t attr, globus_ftp_control_type_t type)

Set/Get the file representation type attribute for an ftp client attribute set.

This attribute allows the user to choose the file type used for an FTP file transfer. The file may be transferred as either ASCII or a binary image.

When transferring an ASCII file, the data will be transformed in the following way

- the high-order bit will be set to zero
- end-of line characters will be converted to a CRLF pair for the data transfer, and then converted to native format before being returned to the user's data callbacks.

The default type for the ftp client libary is binary.

Parameters:
attr The attribute set to query or modify.
type The value of type attribute.

See also:
globus_ftp_control_type_t

5.6.3.34 globus_result_t globus_ftp_client_operationattr_get_mode (const globus_ftp_client_operationattr_t attr, globus_ftp_control_mode_t mode)

Set/Get the file transfer mode attribute for an ftp client attribute set.

This attribute allows the user to choose the data channel protocol used to transfer a file. There are two modes supported by this library: stream mode and extended block mode.

Stream mode is a file transfer mode where all data is sent over a single TCP socket, without any data framing. In stream mode, data will arrive in sequential order. This mode is supported by nearly all FTP servers.

Extended block mode is a file transfer mode where data can be sent over multiple parallel connections and to multiple data storage nodes to provide a high-performance data transfer. In extended block mode, data may arrive out-of-order. ASCII type files are not supported in extended block mode.

Parameters:

attr The attribute set to query or modify.

mode The value of mode attribute

See also:

globus_ftp_control_mode_t globus_ftp_client_operationattr_set_parallelism() globus_ftp_client_operationattr_set_layout()

Note:

Extended block mode is a Grid-FTP extension, and may not be supported on all FTP servers.

5.6.3.35 globus_result_t globus_ftp_client_operationattr_get_list_uses_data_mode (const globus_ftp_client_operationattr_t attr, globus_bool_t list_uses_data_mode)

Set/Get whether or not list data will use the current data mode.

This attribute allows the user to allow list data to be transferred using the current data channel mode.

Parameters:

attr The attribute set to query or modify.

list_uses_data_mode globus_bool_t

Note:

List data transfers in nonstandard modes is a Grid-FTP extension, and may not be supported on all FTP servers.

5.6.3.36 globus_result_t globus_ftp_client_operationattr_get_authorization (const globus_ftp_client_operationattr_t attr, gss_cred_id_t credential, char user, char password, char account, char subject)

Set/Get the authorization attribute for an ftp client attribute set.

This attribute allows the user to pass authentication information to the ftp client library. This information is used to authenticate with the ftp server.

The Globus FTP client library supports authentication using either the GSSAPI, or standard plaintext username and passwords. The type of authentication is determined by the URL scheme which is used for the individual get, put, or 3rd party transfer calls.

Parameters:

attr The attribute set to query or modify.

credential The credential to use for authenticating with a GSIFTP server. This may be GSS_C_NO_CREDENTIAL to use the default credential.

user The user name to send to the FTP server. When doing a gsiftp transfer, this may be set to NULL, and the default globusmap entry for the user's GSI identity will be usd.

password The password to send to the FTP server. When doing a gsiftp transfer, this may be set to NULL.

account The account to use for the data transfer. Most FTP servers do not require this.

subject The subject name of the FTP server. This is only used when doing a gsiftp transfer, and then only when the security subject name does not match the hostname of the server (ie, when the server is being run by a user).

5.6.3.37 globus_result_t globus_ftp_client_operationattr_get_dcau (const globus_ftp_client_operationattr_t attr, globus_ftp_control_dcau_t dcau)

Set/Get the data channel authentication attribute for an ftp client attribute set.

Data channel authentication is a GridFTP extension, and may not be supported by all servers. If a server supports it, then the default is to delegate a credential to the server, and authenticate all data channels with that delegated credential.

Parameters:

attr The attribute set to query or modify.

dcau The value of data channel authentication attribute.

5.6.3.38 globus_result_t globus_ftp_client_operationattr_get_data_protection (const globus_ftp_client_operationattr_t attr, globus_ftp_control_protection_t protection)

Set/Get the data channel protection attribute for an ftp client attribute set.

Parameters:

attr The attribute set to query or modify.

protection The value of data channel protection attribute.

Bug

Only safe and private protection levels are supported by gsiftp.

5.6.3.39 globus_result_t globus_ftp_client_operationattr_get_control_protection (const globus_ftp_client_operationattr_t attr, globus_ftp_control_protection_t protection)

Set/Get the control channel protection attribute for an ftp client attribute set.

The control channel protection attribute allows the user to decide whether to encrypt or integrity check the command session between the client and the FTP server. This attribute is only relevant if used with a gsiftp URL.

Parameters:

attr The attribute set to query or modify.

protection The value of control channel protection attribute.

Bug

The clear and safe protection levels are treated identically, with the client integrity checking all commands. The con dential and private protection levels are treated identically, with the client encrypting all commands.

5.6.3.40 globus_result_t globus_ftp_client_operationattr_get_append (const globus_ftp_client_operationattr_t attr, globus_bool_t append)

Set/Get the append attribute for an ftp client attribute set.

This attribute allows the user to append to a file on an FTP server, instead of replacing the existing file when doing a globus_ftp_client_put() or globus_ftp_client_transfer().

This attribute is ignored on the retrieving side of a transfer, or a globus_ftp_client_get()

Parameters:
attr The attribute set to query or modify.
append The value of append attribute.

5.6.3.41 globus_result_t globus_ftp_client_operationattr_get_allow_ipv6 (const globus_ftp_client_operationattr_t attr, globus_bool_t allow_ipv6)

Set/Get the allow ipv6 attribute for an ftp client attribute set.

This attribute allows client library to make use of ipv6 when possible.

Use of this is currently very experimental.

Parameters:
attr The attribute set to query or modify.
allow_ipv6 GLOBUS_TRUE to allow ipv6 or GLOBUS_FALSE to disallow(default)

5.6.3.42 globus_result_t globus_ftp_client_operationattr_get_read_all (const globus_ftp_client_operationattr_t attr, globus_bool_t read_all, globus_ftp_client_data_callback_t intermediate_callback, void intermediate_callback_arg)

Set/Get the read_all attribute for an ftp client attribute set.

This attribute allows the user to pass in a single buffer to receive all of the data for the current transfer. This buffer must be large enough to hold all of the data for the transfer. Only one buffer may be registered with globus_ftp_client_register_read() when this attribute is used for a get.

In extended block mode, this attribute will cause data to be stored directly into the buffer from multiple streams without any extra data copies.

If the user sets the intermediate callback to a non-null value, this function will be called whenever an intermediate sub-section of the data is received into the buffer.

This attribute is ignored for globus_ftp_client_put() or globus_ftp_client_third_party_transfer() operations.

Parameters:
attr The attribute set to query or modify.
read_all The value of read_all attribute.
intermediate_callback Callback to be invoked when a subsection of the data has been retreived. This callback may be GLOBUS_NULL, if the user only wants to be notified when the data transfer is completed.
intermediate_callback_arg User data to be passed to the intermediate callback function.

5.7 Reading and Writing Data

Certain FTP client operations require the user to supply buffers for reading or writing data to an FTP server.

Typedefs

- typedef void(globus_ftp_client_data_callback_t)(void user_arg, globus_ftp_client_handle_t handle, globus_object_t error, globus_byte_t buffer, globus_size_t length, globus_off_t offset, globus_bool_t eof)

Functions

- globus_result_t globus_ftp_client_register_read(globus_ftp_client_handle_t handle, globus_byte_t buffer, globus_size_t buffer_length, globus_ftp_client_data_callback_t callback, void callback_arg)
- globus_result_t globus_ftp_client_register_write(globus_ftp_client_handle_t handle, globus_byte_t buffer, globus_size_t buffer_length, globus_off_t offset, globus_bool_t eof, globus_ftp_client_data_callback_t callback, void callback_arg)

5.7.1 Detailed Description

Certain FTP client operations require the user to supply buffers for reading or writing data to an FTP server.

These operations are globus_ftp_client_get(), globus_ftp_client_partial_get(), globus_ftp_client_put(), globus_ftp_client_partial_put(), globus_ftp_client_list(), globus_ftp_client_machine_list(), and globus_ftp_client_verbose_list().

When doing these operations, the user must pass data buffers to the FTP Client library. Data is read or written directly from the data buffers, without any internal copies being done.

The functions in this section of the manual may be called as soon as the operation function has returned. Multiple data blocks may be registered with the FTP Client Library at once, and may be sent in parallel to or from the FTP server if the GridFTP protocol extensions are being used.

5.7.2 Typedef Documentation

5.7.2.1 typedef void(globus_ftp_client_data_callback_t)(void user_arg, globus_ftp_client_handle_t handle, globus_object_t error, globus_byte_t buffer, globus_size_t length, globus_off_t offset, globus_bool_t eof)

Data Callback.

Each read or write operation in the FTP Client library is asynchronous. A callback of this type is passed to each of the data operation function calls to let the user know when the data block has been processed.

Parameters:

user_arg The user_arg parameter passed to the read or write function.

handle The handle on which the data block operation was done.

error A Globus error object indicating any problem which occurred processing this data block, or or GLOBUS_SUCCESS if the operation completed successfully.

buffer The data buffer passed to the original read or write call.

length The amount of data in the data buffer. When reading data, this may be smaller than original buffer's length.

offset The offset into the file which this data block contains.

eof GLOBUS_TRUE if EOF has been reached on this data transfer, GLOBUS_FALSE otherwise. This may be set to GLOBUS_TRUE for multiple callbacks.

5.7.3 Function Documentation

5.7.3.1 globus_result_t globus_ftp_client_register_read(globus_ftp_client_handle_t handle, globus_byte_t buffer, globus_size_t buffer_length, globus_ftp_client_data_callback_t callback, void callback_arg)

Register a data buffer to handle a part of the FTP data transfer.

The data buffer will be associated with the current get being performed on this client handle.

Parameters:

handle A pointer to a FTP Client handle which contains state information about the get operation.

buffer A user-supplied buffer into which data from the FTP server will be stored.

buffer_length The maximum amount of data that can be stored into the buffer.

callback The function to be called once the data has been read.

callback_arg Argument passed to the callback function

See also:

globus_ftp_client_operationattr_set_read_all()

5.7.3.2 globus_result_t globus_ftp_client_register_write(globus_ftp_client_handle_t handle, globus_byte_t buffer, globus_size_t buffer_length, globus_off_t offset, globus_bool_t eof, globus_ftp_client_data_callback_t callback, void callback_arg)

Register a data buffer to handle a part of the FTP data transfer.

The data buffer will be associated with the current "put" being performed on this client handle. Multiple data buffers may be registered on a handle at once. There is no guaranteed ordering of the data callbacks in extended block mode.

Parameters:

handle A pointer to a FTP Client handle which contains state information about the put operation.

buffer A user-supplied buffer containing the data to write to the server.

buffer_length The size of the buffer to be written.

offset The offset of the buffer to be written. In extended-block mode, the data does not need to be sent in order. In stream mode (the default), data must be sent in sequential order. The behavior is unde ned if multiple writes overlap.

eof

callback The function to be called once the data has been written.

callback_arg Argument passed to the callback function

5.8 Debugging Plugin

De nes

- #de ne GLOBUS_FTP_CLIENT_DEBUG_PLUGIN_MODULE (&globus_i_ftp_client_debug_plugin_module)

Functions

- globus_result_t globus_ftp_client_debug_plugin_init(globus_ftp_client_plugin_t plugin, FILE stream, const char text)
- globus_result_t globus_ftp_client_debug_plugin_destroy(globus_ftp_client_plugin_t plugin)

5.8.1 Detailed Description

The FTP Debugging plugin provides a way for the user to trace FTP protocol messages which occur while the GridFTP client library processes an FTP operation. This may be useful for debugging FTP con guration problems.

When this plugin is used for a GridFTP Client operation, information will be printed to the le stream associated with the plugin when a user begins an operation, for all data buffers which pass through while handling a data transfer, and for all protocol messages which are sent and received.

Example Usage:

The following example illustrates a typical use of the debug plugin. In this case, we con gure a plugin instance to output log messages preceded by the process name and pid to a le named gridftp.log.

```
int main(int argc, char *argv[])
{
    globus_ftp_client_plugin_t restart_plugin;
    globus_ftp_client_handleattr_t handleattr;
    globus_ftp_client_handle_t handle;
    FILE * log;
    char text[256];

    /* Activate the necessary modules */
    globus_module_activate(GLOBUS_FTP_CLIENT_MODULE);
    globus_module_activate(GLOBUS_FTP_CLIENT_DEBUG_PLUGIN_MODULE);

    /* Configure plugin to show custom text, and send plugin data to
     * a custom log file
     */
    log = fopen("gridftp.log", "a");
    sprintf(text, "%s:%ld", argv[0], (long) getpid());

    globus_ftp_client_debug_plugin_init(&debug_plugin, log, text);

    /* Set up our client handle to use the new plugin */
    globus_ftp_client_handleattr_init(&handleattr);
    globus_ftp_client_handleattr_add_plugin(&handleattr, &debug_plugin);
    globus_ftp_client_handle_init(&handle, &handleattr);

    /* As this get is processed, data will be appended to our gridftp.log
     * file
     */
    globus_ftp_client_get(&handle,
                          "ftp://ftp.globus.org/pub/globus/README",
                          GLOBUS_NULL,
                          GLOBUS_NULL,
                          callback_fn,
                          GLOBUS_NULL);
}
```

5.8.2 De ne Documentation

5.8.2.1 #de ne GLOBUS_FTP_CLIENT_DEBUG_PLUGIN_MODULE (&globus_i_ftp_client_debug_plugin_module)

Module descriptor.

5.8.3 Function Documentation

5.8.3.1 globus_result_t globus_ftp_client_debug_plugin_init(globus_ftp_client_plugin_t plugin, FILE stream, const char text)

Initialize an instance of the GridFTP debugging plugin.

This function will initialize the debugging plugin-specific instance data for this plugin, and will make the plugin usable for ftp client handle attribute and handle creation.

Parameters:

plugin A pointer to an uninitialized plugin. The plugin will be configured as a debugging plugin, with the default of sending debugging messages to stderr.

stream

text

Returns:

This function returns an error if

- plugin is null

See also:

globus_ftp_client_debug_plugin_destroy(), globus_ftp_client_handleattr_add_plugin(), globus_ftp_client_handleattr_remove_plugin(), globus_ftp_client_handle_init()

5.8.3.2 globus_result_t globus_ftp_client_debug_plugin_destroy(globus_ftp_client_plugin_t plugin)

Destroy an instance of the GridFTP debugging plugin.

This function will free all debugging plugin-specific instance data from this plugin, and will make the plugin unusable for further ftp handle creation.

Existing FTP client handles and handle attributes will not be affected by destroying a plugin associated with them, as a local copy of the plugin is made upon handle initialization.

Parameters:

plugin A pointer to a GridFTP debugging plugin, previously initialized by calling globus_ftp_client_debug_plugin_init()

Returns:

This function returns an error if

- plugin is null
- plugin is not a debugging plugin

See also:

globus_ftp_client_debug_plugin_init(), globus_ftp_client_handleattr_add_plugin(), globus_ftp_client_handleattr_remove_plugin(), globus_ftp_client_handle_init()

5.9 Performance Marker Plugin

Defines

- #define GLOBUS_FTP_CLIENT_PERF_PLUGIN_MODULE (&globus_i_ftp_client_perf_plugin_module)

Typedefs

- typedef void(globus_ftp_client_perf_plugin_begin_cb_t)(void user_speci c, globus_ftp_client_handle_t handle, const char source_url, const char dest_url, globus_bool_t restart)
- typedef void(globus_ftp_client_perf_plugin_marker_cb_t)(void user_speci c, globus_ftp_client_handle_t handle, long time_stamp_int, char time_stamp_tength, int stripe_ndx, int num_stripes, globus_off_t nbytes)
- typedef void(globus_ftp_client_perf_plugin_complete_cb_t)(void user_speci c, globus_ftp_client_handle_t handle, globus_bool_t success)
- typedef void (globus_ftp_client_perf_plugin_user_copy_cb_t)(void user_speci c)
- typedef void(globus_ftp_client_perf_plugin_user_destroy_cb_t)(void user_speci c)

Functions

- globus_result_t globus_ftp_client_perf_plugin_init(globus_ftp_client_plugin_t plugin, globus_ftp_client_perf_plugin_begin_cb_t begin_cb, globus_ftp_client_perf_plugin_marker_cb_t marker_cb, globus_ftp_client_perf_plugin_complete_cb_t complete_cb, void user_speci c)
- globus_result_t globus_ftp_client_perf_plugin_set_copy_destroy(globus_ftp_client_plugin_t plugin, globus_ftp_client_perf_plugin_user_copy_cb_t copy_cb, globus_ftp_client_perf_plugin_user_destroy_cb_t destroy_cb)
- globus_result_t globus_ftp_client_perf_plugin_destroy(globus_ftp_client_plugin_t plugin)
- globus_result_t globus_ftp_client_perf_plugin_get_user_speci c(globus_ftp_client_plugin_t plugin, void user_speci c)

5.9.1 Detailed Description

The FTP Performance Marker plugin allows the user to obtain performance markers for all types of transfers except a third party transfer in which Extended Block mode is not enabled.

These markers may be generated internally, or they may be received from a server ('put' or third_party_transfer' only).

Copy constructor and destructor callbacks are also provided to allow one to more easily layer other plugins on top of this one.

5.9.2 De ne Documentation

5.9.2.1 #de ne GLOBUS_FTP_CLIENT_PERF_PLUGIN_MODULE (&globus_i_ftp_client_perf_plugin_module)

Module descriptor.

5.9.3 Typedef Documentation

5.9.3.1 typedef void(globus_ftp_client_perf_plugin_begin_cb_t)(void user_speci c, globus_ftp_client_handle_t handle, const char source_url, const char dest_url, globus_bool_t restart)

Transfer begin callback.

This callback is called when a get, put, or third party transfer is started. Note that it is possible for this callback to be made multiple times before ever receiving the complete callback... this would be the case if a transfer was restarted. The 'restart' will indicate whether or not we have been restarted.

Parameters:

handle this the client handle that this transfer will be occurring on

user_speci c this is user speci c data either created by the copy method, or, if a copy method was not speci ed, the value passed to init

source_url source of the transfer (GLOBUS_NULL if 'put')

dest_url dest of the transfer (GLOBUS_NULL if 'get')

restart boolean indicating whether this callback is result of a restart

Returns:

- n/a

5.9.3.2 typedef void(globus_ftp_client_perf_plugin_marker_cb_t)(void user_speci c, globus_ftp_client_handle_t handle, long time_stamp_int, char time_stamp_tength, int stripe_ndx, int num_stripes, globus_off_t nbytes)

Performance marker received callback.

This callback is called for all types of transfers except a third party in which extended block mode is not used (because 112 perf markers wont be sent in that case). For extended mode 'put' and '3pt', actual 112 perf markers will be used and the frequency of this callback is dependent upon the frequency those messages are received. For 'put' in which extended block mode is not enabled and 'get' transfers, the information in this callback will be determined locally and the frequency of this callback will be at a maximum of one per second.

Parameters:

handle this the client handle that this transfer is occurring on

user_speci c this is user speci c data either created by the copy method, or, if a copy method was not speci ed, the value passed to init

time_stamp the timestamp at which the number of bytes is valid

stripe_ndx the stripe index this data refers to

num_stripes total number of stripes involved in this transfer

nbytes the total bytes transfered on this stripe

Returns:

- n/a

5.9.3.3 typedef void(globus_ftp_client_perf_plugin_complete_cb_t)(void user_speci c, globus_ftp_client_handle_t handle, globus_bool_t success)

Transfer complete callback.

This callback will be called upon transfer completion (successful or otherwise)

Parameters:

handle this the client handle that this transfer was occurring on

user_speci c this is user speci c data either created by the copy method, or, if a copy method was not speci ed, the value passed to init

success indicates whether this transfer completed successfully or was interrupted (by error or abort)

Returns:

- n/a

5.9.3.4 typedef void(globus_ftp_client_perf_plugin_user_copy_cb_t)(void user_speci c)

Copy constructor.

This callback will be called when a copy of this plugin is made, it is intended to allow initialization of a new user_-speci c data

Parameters:

user_speci c this is user speci c data either created by this copy method, or the value passed to init

Returns:

- a pointer to a user speci c piece of data
- GLOBUS_NULL (does not indicate error)

5.9.3.5 typedef void(globus_ftp_client_perf_plugin_user_destroy_cb_t)(void user_speci c)

Destructor.

This callback will be called when a copy of this plugin is destroyed, it is intended to allow the user to free up any memory associated with the user speci c data

Parameters:

user_speci c this is user speci c data created by the copy method

Returns:

- n/a

5.9.4 Function Documentation

5.9.4.1 globus_result_t globus_ftp_client_perf_plugin_init(globus_ftp_client_plugin_t plugin, globus_ftp_client_perf_plugin_begin_cb_t begin_cb, globus_ftp_client_perf_plugin_marker_cb_t marker_cb, globus_ftp_client_perf_plugin_complete_cb_t complete_cb, void user_speci c)

Initialize a perf plugin.

This function initializes a performance marker plugin. Any params except for the plugin may be GLOBUS_NULL

Parameters:

plugin a pointer to a plugin type to be initialized

user_speci c a pointer to some user speci c data that will be provided to all callbacks

begin_cb the callback to be called upon the start of a transfer

marker_cb the callback to be called with every performance marker received

complete_cb the callback to be called to indicate transfer completion

Returns:

- GLOBUS_SUCCESS
- Error on NULL plugin
- Error on init internal plugin

5.9.4.2 globus_result_t globus_ftp_client_perf_plugin_set_copy_destroy(globus_ftp_client_plugin_t plugin, globus_ftp_client_perf_plugin_user_copy_cb_t copy_cb, globus_ftp_client_perf_plugin_user_destroy_cb_t destroy_cb)

Set user copy and destroy callbacks.

Use this to have the plugin make callbacks any time a copy of this plugin is being made. This will allow the user to keep state for different handles.

Parameters:
plugin plugin previously initialized with init (above)
copy_cb func to be called when a copy is needed
destroy_cb func to be called when a copy is to be destroyed

Returns:
- Error on NULL arguments
- GLOBUS_SUCCESS

5.9.4.3 globus_result_t globus_ftp_client_perf_plugin_destroy(globus_ftp_client_plugin_t plugin)

Destroy performance marker plugin.

Frees up memory associated with plugin

Parameters:
plugin plugin previously initialized with init (above)

Returns:
- GLOBUS_SUCCESS
- Error on NULL plugin

5.9.4.4 globus_result_t globus_ftp_client_perf_plugin_get_user_specific(globus_ftp_client_plugin_t plugin, void user_specific)

Retrieve user specific pointer.

Parameters:
plugin plugin previously initialized with init (above)
user_specific pointer to storage for user_specific pointer

Returns:
- GLOBUS_SUCCESS
- Error on NULL plugin
- Error on NULL user_specific

5.10 Plugins

Plugin API.

Modules

- Debugging Plugin
- Performance Marker Plugin
- Restart Marker Plugin
- Restart Plugin
- Netlogger Throughput Plugin
- Throughput Performance Plugin

Typedefs

- typedef globus_i_ftp_client_plugin_t globus_ftp_client_plugin_t
- typedef globus_ftp_client_plugin_t (globus_ftp_client_plugin_copy_t)(globus_ftp_client_plugin_t plugin_template, void plugin_speci c)
- typedef void(globus_ftp_client_plugin_destroy_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c)
- typedef void(globus_ftp_client_plugin_connect_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url)
- typedef void(globus_ftp_client_plugin_authenticate_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_control_auth_info_t auth_info)
- typedef void(globus_ftp_client_plugin_chmod_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, int mode, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)
- typedef void(globus_ftp_client_plugin_cksm_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, globus_off_t offset, globus_off_t length, const char algorithm, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)
- typedef void(globus_ftp_client_plugin_delete_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)
- typedef void(globus_ftp_client_plugin_feat_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)
- typedef void(globus_ftp_client_plugin_mkdir_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)
- typedef void(globus_ftp_client_plugin_rmdir_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)
- typedef void(globus_ftp_client_plugin_list_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)
- typedef void(globus_ftp_client_plugin_verbose_list_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)
- typedef void(globus_ftp_client_plugin_machine_list_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)
- typedef void(globus_ftp_client_plugin_mlst_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)

- typedef void(globus_ftp_client_plugin_stat_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)
- typedef void(globus_ftp_client_plugin_move_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char source_url, const char dest_url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)
- typedef void(globus_ftp_client_plugin_get_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)
- typedef void(globus_ftp_client_plugin_put_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)
- typedef void(globus_ftp_client_plugin_third_party_transfer_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char source_url, const globus_ftp_client_operationattr_t source_attr, const char dest_url, const globus_ftp_client_operationattr_t dest_attr, globus_bool_t restart)
- typedef void(globus_ftp_client_plugin_modi cation_time_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)
- typedef void(globus_ftp_client_plugin_size_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)
- typedef void(globus_ftp_client_plugin_abort_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle)
- typedef void(globus_ftp_client_plugin_read_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const globus_byte_t buffer, globus_size_t buffer_length)
- typedef void(globus_ftp_client_plugin_write_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const globus_byte_t buffer, globus_size_t buffer_length, globus_off_t offset, globus_bool_t eof)
- typedef void(globus_ftp_client_plugin_data_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, globus_object_t error, const globus_byte_t buffer, globus_size_t length, globus_off_t offset, globus_bool_t eof)
- typedef void(globus_ftp_client_plugin_command_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const char command)
- typedef void(globus_ftp_client_plugin_response_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, globus_object_t error, const globus_ftp_control_response_t ftp_response)
- typedef void(globus_ftp_client_plugin_fault_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, globus_object_t error)
- typedef void(globus_ftp_client_plugin_complete_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle)

Enumerations

- enum globus_ftp_client_plugin_command_mask_t {
  GLOBUS_FTP_CLIENT_CMD_MASK_CONTROL_ESTABLISHMENT = 1<< 0,
  GLOBUS_FTP_CLIENT_CMD_MASK_DATA_ESTABLISHMENT = 1<< 1,
  GLOBUS_FTP_CLIENT_CMD_MASK_TRANSFER_PARAMETERS = 1<< 2,
  GLOBUS_FTP_CLIENT_CMD_MASK_TRANSFER_MODIFIERS = 1<< 3,
  GLOBUS_FTP_CLIENT_CMD_MASK_FILE_ACTIONS = 1<< 4,

GLOBUS_FTP_CLIENT_CMD_MASK_INFORMATION = 1<< 5,
GLOBUS_FTP_CLIENT_CMD_MASK_MISC = 1<< 6,
GLOBUS_FTP_CLIENT_CMD_MASK_BUFFER = 1<< 7,
GLOBUS_FTP_CLIENT_CMD_MASK_ALL = 0x7fffffff }

Functions

- globus_result_t globus_ftp_client_plugin_restart_list (globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)
- globus_result_t globus_ftp_client_plugin_restart_verbose_list (globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)
- globus_result_t globus_ftp_client_plugin_restart_machine_list (globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)
- globus_result_t globus_ftp_client_plugin_restart_mlsd (globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)
- globus_result_t globus_ftp_client_plugin_restart_stat (globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)
- globus_result_t globus_ftp_client_plugin_restart_chmod (globus_ftp_client_handle_t handle, const char url, int mode, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)
- globus_result_t globus_ftp_client_plugin_restart_cksm (globus_ftp_client_handle_t handle, const char url, globus_off_t offset, globus_off_t length, const char algorithm, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)
- globus_result_t globus_ftp_client_plugin_restart_delete (globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)
- globus_result_t globus_ftp_client_plugin_restart_feat (globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)
- globus_result_t globus_ftp_client_plugin_restart_mkdir (globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)
- globus_result_t globus_ftp_client_plugin_restart_rmdir (globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)
- globus_result_t globus_ftp_client_plugin_restart_move (globus_ftp_client_handle_t handle, const char source_url, const char dest_url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)
- globus_result_t globus_ftp_client_plugin_restart_get (globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_ftp_client_restart_marker_t restart_marker, const globus_abstime_t when)
- globus_result_t globus_ftp_client_plugin_restart_put (globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_ftp_client_restart_marker_t restart_marker, const globus_abstime_t when)
- globus_result_t globus_ftp_client_plugin_restart_third_party_transfer (globus_ftp_client_handle_t handle, const char source_url, const globus_ftp_client_operationattr_t source_attr, const char dest_url, const globus_ftp_client_operationattr_t dest_attr, globus_ftp_client_restart_marker_t restart_marker, const globus_abstime_t when)
- globus_result_t globus_ftp_client_plugin_restart_size (globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)
- globus_result_t globus_ftp_client_plugin_restart_modification_time (globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)
- globus_result_t globus_ftp_client_plugin_restart_get_marker (globus_ftp_client_handle_t handle, globus_ftp_client_restart_marker_t marker)
- globus_result_t globus_ftp_client_plugin_abort (globus_ftp_client_handle_t handle)
- globus_result_t globus_ftp_client_plugin_add_data_channels (globus_ftp_client_handle_t handle, unsigned int num_channels, unsigned int stripe)

- globus_result_t globus_ftp_client_plugin_remove_data_channels(globus_ftp_client_handle_t handle, unsigned int num_channels, unsigned int stripe)

5.10.1 Detailed Description

Plugin API.

A plugin is a way to implement application-independent reliability and performance tuning behavior. Plugins are written using the API described in this document.

A plugin is created by de ning a globus_ftp_client_plugin_t which contains the function pointers and plugin-speci c data needed for the plugin's operation. It is recommended that a plugin de ne a a globus_module_descriptor_t and plugin initialization functions, to ensure that the plugin is properly initialized.

The functions pointed to in a plugin are called when signi cant events in the life of an FTP Client operation occur. Note that plugins will only be called when the plugin has the function pointer for both the operation (get, put, list, etc), and the event (connect, authenticate, command, etc), are de ned. The command and response functions are ltered based on the command_mask de ned in the plugin structure.

Every plugin must de ne copy and destroy functions. The copy function is called when the plugin is added to an attribute set or a handle is initialized with an attribute set containing the plugin. The destroy function is called when the handle or attribute set is destroyed.

5.10.2 Typedef Documentation

5.10.2.1 typedef struct globus_i_ftp_client_plugin_t globus_ftp_client_plugin_t

FTP Client plugin.

An FTP Client plugin is used to add restart, monitoring, and performance tuning operations to the FTP Client library, without modifying the base API. Multiple plugins may be associated with a globus_ftp_client_handle_t.

See also:
globus_ftp_client_handle_init(), globus_ftp_client_handle_destroy(), globus_ftp_client_handleattr_t, Debugging Plugin

5.10.2.2 typedef globus_ftp_client_plugin_t (globus_ftp_client_plugin_copy_t)(globus_ftp_client_plugin_t plugin_template, void plugin_speci c)

Plugin copy function.

This function is used to create a new copy or reference count a plugin. This function is called by the FTP Client library when a plugin is added to a handle attribute set, or when a handle is initialized with an attribute which contains the plugin.

A plugin may not call any of the plugin API functions from it's instantiate method.

Parameters:
- plugin_template A plugin previously initialized by a call to the plugin-speci c initialization function. by the user.
- plugin_speci c Plugin-speci c data.

Returns:
A pointer to a plugin. This plugin copy must remain valid until the copy's destroy function is called on the copy.

See also:
globus_ftp_client_plugin_destroy_t

5.10.2.3 typedef void(globus_ftp_client_plugin_destroy_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c)

Plugin destroy function.

This function is used to free or unreference a copy of a plugin which was allocated by calling the instantiate function from the plugin.

Parameters:
plugin The plugin, created by the create function, which is to be destroyed.
plugin_speci c Plugin-speci c data.

5.10.2.4 typedef void(globus_ftp_client_plugin_connect_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url)

Plugin connection begin function.

This callback is used to notify a plugin that connection establishment is being done for this client handle. This noti cation can occur when a new request is made or when a restart is done by a plugin.

If a response_callback is de ned by a plugin, then that will be once the connection establishment has completed (successfully or unsuccessfully).

Parameters:
plugin The plugin which is being noti ed.
plugin_speci c Plugin-speci c data.
handle The handle associated with the connection.

Note:
This function will not be called for a get, put, or third-party transfer operation when a cached connection is used.

5.10.2.5 typedef void(globus_ftp_client_plugin_authenticate_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_control_auth_info_t auth_info)

Plugin authentication noti cation callback.

This callback is used to notify a plugin that an authentication handshake is being done for this client handle. This noti cation can occur when a new request is made or when a hard restart is done by a plugin.

If a response_callback is de ned by a plugin, then that will be once the authentication has completed (successfully or unsuccessfully).

Parameters:
plugin The plugin which is being noti ed.
plugin_speci c Plugin-speci c data.
handle The handle associated with the connection.
url The URL of the server to connect to.
auth_info Authentication and authorization info being used to authenticate with the FTP or GridFTP server.

5.10.2.6 typedef void(globus_ftp_client_plugin_chmod_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, int mode, const globus_ftp_client_-operationattr_t attr, globus_bool_t restart)

Plugin chmod noti cation callback.

This callback is used to notify a plugin that a chmod is being requested on a client handle. This noti cation happens both when the user requests a chmod, and when a plugin restarts the currently active chmod request.

If this function is not de ned by the plugin, then no plugin callbacks associated with the chmod will be called.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the delete operation.

url The url to chmod.

mode The le mode to be applied.

attr The attributes to be used during this operation.

restart This value is set to GLOBUS_TRUE when this callback is caused by a plugin restarting the current delete operation; otherwise, this is set to GLOBUS_FALSE.

5.10.2.7 typedef void(globus_ftp_client_plugin_cksm_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, globus_off_t offset, globus_off_t length, const char algorithm, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)

Plugin chmod noti cation callback.

This callback is used to notify a plugin that a chmod is being requested on a client handle. This noti cation happens both when the user requests a chmod, and when a plugin restarts the currently active chmod request.

If this function is not de ned by the plugin, then no plugin callbacks associated with the chmod will be called.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the delete operation.

url The url to chmod.

offset File offset to start calculating checksum.

length Length of data to read from the starting offset. Use -1 to read the entire le.

algorithm A pointer to a string to be lled with the checksum of the le. On error the value pointed to by it is unde ned.

attr The attributes to be used during this operation.

restart This value is set to GLOBUS_TRUE when this callback is caused by a plugin restarting the current delete operation; otherwise, this is set to GLOBUS_FALSE.

5.10.2.8 typedef void(globus_ftp_client_plugin_delete_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)

Plugin delete noti cation callback.

This callback is used to notify a plugin that a delete is being requested on a client handle. This noti cation happens both when the user requests a delete, and when a plugin restarts the currently active delete request.

If this function is not de ned by the plugin, then no plugin callbacks associated with the delete will be called.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the delete operation.

url The url to be deleted.

attr The attributes to be used during this operation.

restart This value is set to GLOBUS_TRUE when this callback is caused by a plugin restarting the current delete operation; otherwise, this is set to GLOBUS_FALSE.

5.10.2.9 typedef void(globus_ftp_client_plugin_feat_t)(globus_ftp_client_plugin_t plugin, void plugin_-speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)

Plugin feat noti cation callback.

This callback is used to notify a plugin that a feat is being requested on a client handle. This noti cation happens both when the user requests a feat, and when a plugin restarts the currently active feat request.

If this function is not de ned by the plugin, then no plugin callbacks associated with the feat will be called.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the feat operation.

url The url to be feat'd.

attr The attributes to be used during this operation.

restart This value is set to GLOBUS_TRUE when this callback is caused by a plugin restarting the current feat operation; otherwise, this is set to GLOBUS_FALSE.

5.10.2.10 typedef void(globus_ftp_client_plugin_mkdir_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)

Plugin mkdir noti cation callback.

This callback is used to notify a plugin that a mkdir is being requested on a client handle. This noti cation happens both when the user requests a mkdir, and when a plugin restarts the currently active mkdir request.

If this function is not de ned by the plugin, then no plugin callbacks associated with the mkdir will be called.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the mkdir operation.

url The url of the directory to create.

attr The attributes to be used during this operation.

restart This value is set to GLOBUS_TRUE when this callback is caused by a plugin restarting the current mkdir operation; otherwise, this is set to GLOBUS_FALSE.

5.10.2.11 typedef void(globus_ftp_client_plugin_rmdir_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)

Plugin rmdir noti cation callback.

This callback is used to notify a plugin that a rmdir is being requested on a client handle. This noti cation happens both when the user requests a rmdir, and when a plugin restarts the currently active rmdir request.

If this function is not de ned by the plugin, then no plugin callbacks associated with the rmdir will be called.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the rmdir operation.

url The url of the rmdir operation.

attr The attributes to be used during this operation.

restart This value is set to GLOBUS_TRUE when this callback is caused by a plugin restarting the current rmdir operation; otherwise, this is set to GLOBUS_FALSE.

5.10.2.12 typedef void(globus_ftp_client_plugin_list_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)

Plugin list noti cation callback.

This callback is used to notify a plugin that a list is being requested on a client handle. This noti cation happens both when the user requests a list, and when a plugin restarts the currently active list request.

If this function is not de ned by the plugin, then no plugin callbacks associated with the list will be called.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the list operation.

url The url of the list operation.

attr The attributes to be used during this transfer.

restart This value is set to GLOBUS_TRUE when this callback is caused by a plugin restarting the current list transfer; otherwise, this is set to GLOBUS_FALSE.

5.10.2.13 typedef void(globus_ftp_client_plugin_verbose_list_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)

Plugin verbose list noti cation callback.

This callback is used to notify a plugin that a list is being requested on a client handle. This noti cation happens both when the user requests a list, and when a plugin restarts the currently active list request.

If this function is not de ned by the plugin, then no plugin callbacks associated with the list will be called.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the list operation.

url The url of the list operation.

attr The attributes to be used during this transfer.

restart This value is set to GLOBUS_TRUE when this callback is caused by a plugin restarting the current list transfer; otherwise, this is set to GLOBUS_FALSE.

5.10.2.14 typedef void(globus_ftp_client_plugin_machine_list_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)

Plugin machine list noti cation callback.

This callback is used to notify a plugin that a list is being requested on a client handle. This noti cation happens both when the user requests a list, and when a plugin restarts the currently active list request.

If this function is not de ned by the plugin, then no plugin callbacks associated with the list will be called.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the list operation.

url The url of the list operation.

attr The attributes to be used during this transfer.

restart This value is set to GLOBUS_TRUE when this callback is caused by a plugin restarting the current list transfer; otherwise, this is set to GLOBUS_FALSE.

5.10.2.15 typedef void(globus_ftp_client_plugin_mlst_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)

Plugin mlst noti cation callback.

This callback is used to notify a plugin that a mlst is being requested on a client handle. This noti cation happens both when the user requests a list, and when a plugin restarts the currently active list request.

If this function is not de ned by the plugin, then no plugin callbacks associated with the list will be called.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the list operation.

url The url of the list operation.

attr The attributes to be used during this transfer.

restart This value is set to GLOBUS_TRUE when this callback is caused by a plugin restarting the current list transfer; otherwise, this is set to GLOBUS_FALSE.

5.10.2.16 typedef void(* globus_ftp_client_plugin_stat_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)

Plugin stat noti cation callback.

This callback is used to notify a plugin that a stat is being requested on a client handle. This noti cation happens both when the user requests a list, and when a plugin restarts the currently active list request.

If this function is not de ned by the plugin, then no plugin callbacks associated with the list will be called.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the list operation.

url The url of the list operation.

attr The attributes to be used during this transfer.

restart This value is set to GLOBUS_TRUE when this callback is caused by a plugin restarting the current list transfer; otherwise, this is set to GLOBUS_FALSE.

5.10.2.17 typedef void(* globus_ftp_client_plugin_move_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char source_url, const char dest_url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)

Plugin move noti cation callback.

This callback is used to notify a plugin that a move is being requested on a client handle. This noti cation happens both when the user requests a move, and when a plugin restarts the currently active move request.

If this function is not de ned by the plugin, then no plugin callbacks associated with the move will be called.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the move operation.

source_url The source url of the move operation.

dest_url The destination url of the move operation.

attr The attributes to be used during this move.

restart This value is set to GLOBUS_TRUE when this callback is caused by a plugin restarting the current move transfer; otherwise, this is set to GLOBUS_FALSE.

5.10.2.18 typedef void(* globus_ftp_client_plugin_get_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)

Plugin get noti cation callback.

This callback is used to notify a plugin that a get is being requested on a client handle. This noti cation happens both when the user requests a get, and when a plugin restarts the currently active get request.

If this function is not de ned by the plugin, then no plugin callbacks associated with the get will be called.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the get operation.

url The url of the get operation.

attr The attributes to be used during this transfer.

restart This value is set to GLOBUS_TRUE when this callback is caused by a plugin restarting the current get transfer; otherwise, this is set to GLOBUS_FALSE.

5.10.2.19 typedef void(globus_ftp_client_plugin_put_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)

Plugin put noti cation callback.

This callback is used to notify a plugin that a put is being requested on a client handle. This noti cation happens both when the user requests a put, and when a plugin restarts the currently active put request.

If this function is not de ned by the plugin, then no plugin callbacks associated with the put will be called.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the put operation.

url The url of the put operation.

attr The attributes to be used during this transfer.

restart This value is set to GLOBUS_TRUE when this callback is caused by a plugin restarting the current put transfer; otherwise, this is set to GLOBUS_FALSE.

5.10.2.20 typedef void(globus_ftp_client_plugin_third_party_transfer_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char source_url, constglobus_ftp_client_operationattr_t source_attr, const char dest_url, constglobus_ftp_client_operationattr_t dest_attr, globus_bool_t restart)

Plugin third-party transfer noti cation callback.

This callback is used to notify a plugin that a transfer is being requested on a client handle. This noti cation happens both when the user requests a transfer, and when a plugin restarts the currently active transfer request.

If this function is not de ned by the plugin, then no plugin callbacks associated with the third-party transfer will be called.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the transfer operation.

source_url The source url of the transfer operation.

source_attr The attributes to be used during this transfer on the source.

dest_url The destination url of the third-party transfer operation.

dest_attr The attributes to be used during this transfer on the destination.

restart This value is set to GLOBUS_TRUE when this callback is caused by a plugin restarting the current transfer transfer; otherwise, this is set to GLOBUS_FALSE.

5.10.2.21 typedef void(globus_ftp_client_plugin_modi cation_time_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)

Plugin modi cation time noti cation callback.

This callback is used to notify a plugin that a modi cation time check is being requested on a client handle. This noti cation happens both when the user requests the modi cation time of a le, and when a plugin restarts the currently active request.

If this function is not de ned by the plugin, then no plugin callbacks associated with the modi cation time request will be called.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the list operation.

url The url of the list operation.

attr The attributes to be used during this transfer.

restart This value is set to GLOBUS_TRUE when this callback is caused by a plugin restarting the current list transfer; otherwise, this is set to GLOBUS_FALSE.

5.10.2.22 typedef void(globus_ftp_client_plugin_size_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_bool_t restart)

Plugin size noti cation callback.

This callback is used to notify a plugin that a size check is being requested on a client handle. This noti cation happens both when the user requests the size of a le, and when a plugin restarts the currently active request.

If this function is not de ned by the plugin, then no plugin callbacks associated with the size request will be called.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the list operation.

url The url of the list operation.

attr The attributes to be used during this transfer.

restart This value is set to GLOBUS_TRUE when this callback is caused by a plugin restarting the current list transfer; otherwise, this is set to GLOBUS_FALSE.

5.10.2.23 typedef void(globus_ftp_client_plugin_abort_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle)

Plugin abort noti cation callback.

This callback is used to notify a plugin that an abort is being requested on a client handle. This noti cation happens both when the user aborts a request and when a plugin aborts the currently active request.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the request.

5.10.2.24 typedef void(globus_ftp_client_plugin_read_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const globus_byte_t buffer, globus_size_t buffer_length)

Plugin read registration callback.

This callback is used to notify a plugin that the client API has registered a buffer with the FTP control API for reading when processing a get.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the request.

buffer The data buffer to read into.

buffer_length The maximum amount of data to read into the buffer.

5.10.2.25 typedef void(globus_ftp_client_plugin_write_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const globus_byte_t buffer, globus_size_t buffer_length, globus_off_t offset, globus_bool_t eof)

Plugin write registration callback.

This callback is used to notify a plugin that the client API has registered a buffer with the FTP control API for writing when processing a put.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the request.

buffer The buffer which is being written.

buffer_length The amount of data in the buffer.

offset The offset within the le where the buffer is to be written.

eof This value is set to GLOBUS_TRUE if this is the last data buffer to be sent for this put request.

5.10.2.26 typedef void(globus_ftp_client_plugin_data_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, globus_object_t error, const globus_byte_t buffer, globus_size_t length, globus_off_t offset, globus_bool_t eof)

Plugin data callback handler.

This callback is used to notify a plugin that a read or write operation previously registered has completed. The buffer pointer will match that of a previous plugin read or write registration callback.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the request.

buffer The buffer which was successfully transferred over the network.

length The amount of data to read or written.

offset The offset into the le where this data buffer belongs.

eof This value is set to GLOBUS_TRUE if end-of- le is being processed for this transfer.

5.10.2.27 typedef void(globus_ftp_client_plugin_command_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, const char command)

Command callback.

This callback is used to notify a plugin that a FTP control command is being sent. The client library will only call this function for response callbacks associated with a command which is in the plugin's command mask, and associated with one of the other ftp operations with a de ned callback in the plugin.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the request.

url The URL which this command is being sent to.

command A string containing the command which is being sent to the server (TYPE I, for example).

5.10.2.28 typedef void(globus_ftp_client_plugin_response_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, globus_object_t error, const globus_ftp_control_response_t ftp_response)

Response callback.

This callback is used to notify a plugin that a FTP control response has occurred on a control connection. FTP response callbacks will come back to the user in the order which the commands were executed. The client library will only call this function for response callbacks associated with a command which is in the plugin's command mask, or associated with one of the other ftp operations with a de ned callback in the plugin.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the request.

url The URL which this response came from.

error An error which occurred while processing this command/response pair.

ftp_responseThe response structure from the ftp control library.

5.10.2.29 typedef void(globus_ftp_client_plugin_fault_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle, const char url, globus_object_t error)

Fault noti cation callback.

This callback is used to notify a plugin that a fault occurred while processing the request. The fault may be internally generated, or come from a call to another library.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the request.

url The url being processed when the fault ocurred.

error An error object describing the fault.

5.10.2.30 typedef void(globus_ftp_client_plugin_complete_t)(globus_ftp_client_plugin_t plugin, void plugin_speci c, globus_ftp_client_handle_t handle)

Completion noti cation callback.

This callback is used to notify a plugin that an operation previously begun has completed. The plugin may not call any other plugin operation on this handle after this has occurred. This is the nal callback for the plugin while processing the operation. The plugin may free any internal state associated with the operation at this point.

Parameters:

plugin The plugin which is being noti ed.

plugin_speci c Plugin-speci c data.

handle The handle associated with the operation.

5.10.3 Enumeration Type Documentation

5.10.3.1 enum globus_ftp_client_plugin_command_mask_t

Command Mask.

This enumeration includes the types of commands which the plugin is interested in.

Enumeration values:

GLOBUS_FTP_CLIENT_CMD_MASK_CONTROL_ESTABLISHMENT connect, authenticate

GLOBUS_FTP_CLIENT_CMD_MASK_DATA_ESTABLISHMENT PASV, PORT, SPOR, SPAS.

GLOBUS_FTP_CLIENT_CMD_MASK_TRANSFER_PARAMETERS MODE, TYPE, STRU, OPTS RETR, DCAU.

GLOBUS_FTP_CLIENT_CMD_MASK_TRANSFER_MODIFIERS ALLO, REST.

GLOBUS_FTP_CLIENT_CMD_MASK_FILE_ACTIONS STOR, RETR, ESTO, ERET, APPE, LIST, NLST, MLSD, GET, PUT.

GLOBUS_FTP_CLIENT_CMD_MASK_INFORMATION HELP, SITE HELP, FEAT, STAT, SYST, SIZE.

GLOBUS_FTP_CLIENT_CMD_MASK_MISC SITE, NOOP.

GLOBUS_FTP_CLIENT_CMD_MASK_BUFFER SBUF, ABUF.

GLOBUS_FTP_CLIENT_CMD_MASK_ALL All possible commands.

5.10.4 Function Documentation

5.10.4.1 globus_result_t globus_ftp_client_plugin_restart_list_g(globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)

Restart an existing list.

This function will cause the currently executing transfer operation to be restarted. When a restart happens, the operation will be silently aborted, and then restarted with potentially a new URL and attributes. Any data buffers which are currently queued will be cleared and reused once the connection is re-established.

The user will not receive any noti cation that a restart has happened. Each plugin which is interested in list events will receive a list callback with the restart boolean set to GLOBUS_TRUE.

Parameters:

handle The handle which is associated with the list.

url The destination URL of the transfer. This may be different than the original list's URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL.

attr The attributes to use for the new transfer. This may be a modi ed version of the original list's attribute set.

when Absolute time for when to restart the list. The current control and data connections will be stopped immediately. If this completes before when, then the restart will be delayed until that time. Otherwise, it will be immediately restarted.

5.10.4.2 globus_result_t globus_ftp_client_plugin_restart_verbose_list(globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)

Restart an existing verbose list.

This function will cause the currently executing transfer operation to be restarted. When a restart happens, the operation will be silently aborted, and then restarted with potentially a new URL and attributes. Any data buffers which are currently queued will be cleared and reused once the connection is re-established.

The user will not receive any noti cation that a restart has happened. Each plugin which is interested in list events will receive a list callback with the restart boolean set to GLOBUS_TRUE.

Parameters:

handle The handle which is associated with the list.

url The destination URL of the transfer. This may be different than the original list's URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL.

attr The attributes to use for the new transfer. This may be a modi ed version of the original list's attribute set.

when Absolute time for when to restart the list. The current control and data connections will be stopped immediately. If this completes before when, then the restart will be delayed until that time. Otherwise, it will be immediately restarted.

5.10.4.3 globus_result_t globus_ftp_client_plugin_restart_machine_list(globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)

Restart an existing machine list.

This function will cause the currently executing transfer operation to be restarted. When a restart happens, the operation will be silently aborted, and then restarted with potentially a new URL and attributes. Any data buffers which are currently queued will be cleared and reused once the connection is re-established.

The user will not receive any noti cation that a restart has happened. Each plugin which is interested in list events will receive a list callback with the restart boolean set to GLOBUS_TRUE.

Parameters:

handle The handle which is associated with the list.

url The destination URL of the transfer. This may be different than the original list's URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL.

attr The attributes to use for the new transfer. This may be a modi ed version of the original list's attribute set.

when Absolute time for when to restart the list. The current control and data connections will be stopped immediately. If this completes before when, then the restart will be delayed until that time. Otherwise, it will be immediately restarted.

5.10.4.4 globus_result_t globus_ftp_client_plugin_restart_mlst(globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)

Restart an existing MLST.

This function will cause the currently executing transfer operation to be restarted. When a restart happens, the operation will be silently aborted, and then restarted with potentially a new URL and attributes. Any data buffers which are currently queued will be cleared and reused once the connection is re-established.

The user will not receive any noti cation that a restart has happened. Each plugin which is interested in list events will receive a list callback with the restart boolean set to GLOBUS_TRUE.

Parameters:

handle The handle which is associated with the list.

url The destination URL of the transfer. This may be different than the original list's URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL.

attr The attributes to use for the new transfer. This may be a modi ed version of the original list's attribute set.

when Absolute time for when to restart the list. The current control and data connections will be stopped immediately. If this completes before when, then the restart will be delayed until that time. Otherwise, it will be immediately restarted.

5.10.4.5 globus_result_t globus_ftp_client_plugin_restart_stat(globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)

Restart an existing STAT.

This function will cause the currently executing transfer operation to be restarted. When a restart happens, the operation will be silently aborted, and then restarted with potentially a new URL and attributes. Any data buffers which are currently queued will be cleared and reused once the connection is re-established.

The user will not receive any noti cation that a restart has happened. Each plugin which is interested in list events will receive a list callback with the restart boolean set to GLOBUS_TRUE.

Parameters:

handle The handle which is associated with the list.

url The destination URL of the transfer. This may be different than the original list's URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL.

attr The attributes to use for the new transfer. This may be a modi ed version of the original list's attribute set.

when Absolute time for when to restart the list. The current control and data connections will be stopped immediately. If this completes before when, then the restart will be delayed until that time. Otherwise, it will be immediately restarted.

5.10.4.6 globus_result_t globus_ftp_client_plugin_restart_chmod(globus_ftp_client_handle_t handle, const char url, int mode, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)

Restart an existing chmod.

This function will cause the currently executing chmod operation to be restarted. When a restart happens, the operation will be silently aborted, and then restarted with potentially a new URL and attributes. Any data buffers which are currently queued will be cleared and reused once the connection is re-established.

The user will not receive any noti cation that a restart has happened. Each plugin which is interested in chmod events will receive a chmod callback with the restart boolean set to GLOBUS_TRUE.

Parameters:

handle The handle which is associated with the chmod.

url The destination URL of the transfer. This may be different than the original chmod's URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL.

mode The le mode that will be applied. Must be an octal number repre- senting the bit pattern for the new permissions.

attr The attributes to use for the new transfer. This may be a modi ed version of the original chmod's attribute set.

when Absolute time for when to restart the chmod. The current control and data connections will be stopped immediately. If this completes before when, then the restart will be delayed until that time. Otherwise, it will be immediately restarted.

5.10.4.7 globus_result_t globus_ftp_client_plugin_restart_cksm(globus_ftp_client_handle_t handle, const char url, globus_off_t offset, globus_off_t length, const char algorithm, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)

Restart an existing cksm.

This function will cause the currently executing cksm operation to be restarted. When a restart happens, the operation will be silently aborted, and then restarted with potentially a new URL and attributes. Any data buffers which are currently queued will be cleared and reused once the connection is re-established.

The user will not receive any noti cation that a restart has happened. Each plugin which is interested in cksm events will receive a cksm callback with the restart boolean set to GLOBUS_TRUE.

Parameters:

handle The handle which is associated with the cksm.

url The destination URL of the transfer. This may be different than the original cksm's URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL.

offset File offset to start calculating checksum.

length Length of data to read from the starting offset. Use -1 to read the entire le.

algorithm A pointer to a string to be lled with the checksum of the le. On error the value pointed to by it is unde ned.

attr The attributes to use for the new transfer. This may be a modi ed version of the original cksm's attribute set.

when Absolute time for when to restart the cksm. The current control and data connections will be stopped immediately. If this completes before when, then the restart will be delayed until that time. Otherwise, it will be immediately restarted.

5.10.4.8 globus_result_t globus_ftp_client_plugin_restart_delete(globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)

Restart an existing delete.

This function will cause the currently executing delete operation to be restarted. When a restart happens, the operation will be silently aborted, and then restarted with potentially a new URL and attributes. Any data buffers which are currently queued will be cleared and reused once the connection is re-established.

The user will not receive any noti cation that a restart has happened. Each plugin which is interested in delete events will receive a delete callback with the restart boolean set to GLOBUS_TRUE.

Parameters:

handle The handle which is associated with the delete.

url The destination URL of the transfer. This may be different than the original delete's URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL.

attr The attributes to use for the new transfer. This may be a modified version of the original delete's attribute set.

when Absolute time for when to restart the delete. The current control and data connections will be stopped immediately. If this completes before when, then the restart will be delayed until that time. Otherwise, it will be immediately restarted.

5.10.4.9 globus_result_t globus_ftp_client_plugin_restart_feat(globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)

Restart an existing feat.

This function will cause the currently executing feat operation to be restarted. When a restart happens, the operation will be silently aborted, and then restarted with potentially a new URL and attributes. Any data buffers which are currently queued will be cleared and reused once the connection is re-established.

The user will not receive any notification that a restart has happened. Each plugin which is interested in feat events will receive a feat callback with the restart boolean set to GLOBUS_TRUE.

Parameters:

handle The handle which is associated with the feat.

url The destination URL of the transfer. This may be different than the original feat's URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL.

attr The attributes to use for the new transfer. This may be a modified version of the original feat's attribute set.

when Absolute time for when to restart the feat. The current control and data connections will be stopped immediately. If this completes before when, then the restart will be delayed until that time. Otherwise, it will be immediately restarted.

5.10.4.10 globus_result_t globus_ftp_client_plugin_restart_mkdir(globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)

Restart an existing mkdir.

This function will cause the currently executing operation to be restarted. When a restart happens, the operation will be silently aborted, and then restarted with potentially a new URL and attributes. Any data buffers which are currently queued will be cleared and reused once the connection is re-established.

The user will not receive any notification that a restart has happened. Each plugin which is interested in mkdir events will receive a mkdir callback with the restart boolean set to GLOBUS_TRUE.

Parameters:

handle The handle which is associated with the mkdir.

url The destination URL of the transfer. This may be different than the original mkdir's URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL.

attr The attributes to use for the new transfer. This may be a modified version of the original mkdir's attribute set.

when Absolute time for when to restart the mkdir. The current control and data connections will be stopped immediately. If this completes before when, then the restart will be delayed until that time. Otherwise, it will be immediately restarted.

5.10.4.11 globus_result_t globus_ftp_client_plugin_restart_rmdir(globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)

Restart an existing rmdir.

This function will cause the currently executing operation to be restarted. When a restart happens, the operation will be silently aborted, and then restarted with potentially a new URL and attributes. Any data buffers which are currently queued will be cleared and reused once the connection is re-established.

The user will not receive any noti cation that a restart has happened. Each plugin which is interested in rmdir events will receive a rmdir callback with the restart boolean set to GLOBUS_TRUE.

Parameters:

handle The handle which is associated with the rmdir.

url The destination URL of the transfer. This may be different than the original rmdir's URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL.

attr The attributes to use for the new transfer. This may be a modi ed version of the original rmdir's attribute set.

when Absolute time for when to restart the rmdir. The current control and data connections will be stopped immediately. If this completes before when, then the restart will be delayed until that time. Otherwise, it will be immediately restarted.

5.10.4.12 globus_result_t globus_ftp_client_plugin_restart_move(globus_ftp_client_handle_t handle, const char source_url, const char dest_url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)

Restart an existing move.

This function will cause the currently executing move operation to be restarted. When a restart happens, the operation will be silently aborted, and then restarted with potentially new URLs and attributes.

The user will not receive any noti cation that a restart has happened. Each plugin which is interested in get events will receive a move callback with the restart boolean set to GLOBUS_TRUE.

Parameters:

handle The handle which is associated with the move.

source_url The source URL of the move. This may be different than the original get's URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL.

dest_url The destination URL of the move. This may be different than the original get's URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL. Note that only the path component of this URL is used.

attr The attributes to use for the new transfer. This may be a modi ed version of the original move's attribute set. This may be useful when the plugin wishes to send restart markers to the FTP server to prevent re-sending the data which has already been sent.

when Absolute time for when to restart the move. The current control and data connections will be stopped immediately. If this completes before when, then the restart will be delayed until that time. Otherwise, it will be immediately restarted.

5.10.4.13 globus_result_t globus_ftp_client_plugin_restart_get(globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_ftp_client_restart_marker_t restart_marker, const globus_abstime_t when)

Restart an existing get.

This function will cause the currently executing transfer operation to be restarted. When a restart happens, the operation will be silently aborted, and then restarted with potentially a new URL and attributes. Any data buffers which are currently queued will be cleared and reused once the connection is re-established.

The user will not receive any noti cation that a restart has happened. Each plugin which is interested in get events will receive a get callback with the restart boolean set to GLOBUS_TRUE.

Parameters:

handle The handle which is associated with the get.

url The source URL of the transfer. This may be different than the original get's URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL.

attr The attributes to use for the new transfer. This may be a modi ed version of the original get's attribute set. This may be useful when the plugin wishes to send restart markers to the FTP server to prevent re-sending the data which has already been sent.

restart_marker Plugin-provided restart marker for resuming at a non-default restart point. This may be used to implement a persistent restart across process invocations. The default behavior if this is NULL is to use any restart information which has been received by the ftp client library while processing this operation when restarted.

when Absolute time for when to restart the get. The current control and data connections will be stopped immediately. If this completes before when, then the restart will be delayed until that time. Otherwise, it will be immediately restarted.

5.10.4.14 globus_result_t globus_ftp_client_plugin_restart_put(globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, globus_ftp_client_restart_marker_t restart_marker, const globus_abstime_t when)

Restart an existing put.

This function will cause the currently executing transfer operation to be restarted. When a restart happens, the operation will be silently aborted, and then restarted with potentially a new URL and attributes. Any data buffers which are currently queued but not called back will be resent once the connection is re-established.

The user will not receive any noti cation that a restart has happened. Each plugin which is interested in get events will receive a put callback with the restart boolean set to GLOBUS_TRUE.

Parameters:

handle The handle which is associated with the put.

url The URL of the transfer. This may be different than the original put's URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL. If the put is restarted with a different URL, the plugin must re-send any data which has already been acknowledged by it's callback.

attr The attributes to use for the new transfer. This may be a modi ed version of the original put's attribute set. This may be useful when the plugin wishes to send restart markers to the FTP server to prevent re-sending the data which has already been sent.

restart_marker Plugin-provided restart marker for resuming at a non-default restart point. This may be used to implement a persistent restart across process invocations. The default behavior if this is NULL is to use any restart information which has been received by the ftp client library while processing this operation when restarted.

when Absolute time for when to restart the put. The current control and data connections will be stopped immediately. If this completes before when, then the restart will be delayed until that time. Otherwise, it will be immediately restarted.

5.10.4.15 globus_result_t globus_ftp_client_plugin_restart_third_party_transfer(globus_ftp_client_handle_t handle, const char source_url, const globus_ftp_client_operationattr_t source_attr, const char dest_url, const globus_ftp_client_operationattr_t dest_attr, globus_ftp_client_restart_marker_t restart_marker, const globus_abstime_t when)

Restart an existing third-party transfer.

This function will cause the currently executing transfer operation to be restarted. When a restart happens, the operation will be silently aborted, and then restarted with potentially a new URLs and attributes.

The user will not receive any noti cation that a restart has happened. Each plugin which is interested in third-party transfer events will receive a transfer callback with the restart boolean set to GLOBUS_TRUE.

Parameters:

handle The handle which is associated with the transfer.

source_url The source URL of the transfer. This may be different than the original URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL

source_attr The attributes to use for the new transfer. This may be a modi ed version of the original transfer's attribute set. This may be useful when the plugin wishes to send restart markers to the FTP server to prevent re-sending the data which has already been sent.

dest_url The destination URL of the transfer. This may be different than the original destination URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL.

dest_attr The attributes to use for the new transfer. This may be a modi ed version of the original transfer's attribute set. This may be useful when the plugin wishes to send restart markers to the FTP server to prevent re-sending the data which has already been sent.

restart_marker Plugin-provided restart marker for resuming at a non-default restart point. This may be used to implement a persistent restart across process invocations. The default behavior if this is NULL is to use any restart information which has been received by the ftp client library while processing this operation when restarted.

when Absolute time for when to restart the transfer. The current control and data connections will be stopped immediately. If this completes before when, then the restart will be delayed until that time. Otherwise, it will be immediately restarted.

5.10.4.16 globus_result_t globus_ftp_client_plugin_restart_size(globus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)

Restart a size check operation.

This function will cause the currently executing size check operation to be restarted. When a restart happens, the operation will be silently aborted, and then restarted with potentially a new URL and attributes.

The user will not receive any noti cation that a restart has happened. Each plugin which is interested in size operations will receive a size callback with the restart boolean set to GLOBUS_TRUE.

Parameters:

handle The handle which is associated with the operation.

url The source URL of the size check. This may be different than the original operations URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL.

attr The attributes to use for the new operation. This may be a modi ed version of the original operations's attribute set.

when Absolute time for when to restart the size check. The current control and data connections will be stopped immediately. If this completes before when, then the restart will be delayed until that time. Otherwise, it will be immediately restarted.

5.10.4.17 globus_result_t globus_ftp_client_plugin_restart_modi cation_timeg(lobus_ftp_client_handle_t handle, const char url, const globus_ftp_client_operationattr_t attr, const globus_abstime_t when)

Restart a modi cation time check operation.

This function will cause the currently executing modi cation time check operation to be restarted. When a restart happens, the operation will be silently aborted, and then restarted with potentially a new URL and attributes.

The user will not receive any noti cation that a restart has happened. Each plugin which is interested in modi cation time operations will receive a modi cation time callback with the restart boolean set to GLOBUS_TRUE.

Parameters:

handle The handle which is associated with the operation.

url The source URL of the modi cation time check. This may be different than the original operations URL, if the plugin decides to redirect to another FTP server due to performance or reliability problems with the original URL.

attr The attributes to use for the new operation. This may be a modi ed version of the original operations's attribute set.

when Absolute time for when to restart the modi cation time check. The current control and data connections will be stopped immediately. If this completes before when, then the restart will be delayed until that time. Otherwise, it will be immediately restarted.

5.10.4.18 globus_result_t globus_ftp_client_plugin_restart_get_marker(globus_ftp_client_handle_t handle, globus_ftp_client_restart_marker_t marker)

Get restart marker.

This function will allow this user to get the restart marker associated with a restarted le transfer. This function may only be called within the get, put, or third party transfer callback in which the 'restart' argument is GLOBUS_TRUE

Parameters:

handle The handle which is associated with the transfer.

marker Pointer to an uninitialized restart marker type

Returns:

- Error on NULL handle or marker
- Error on invalid use of function
- GLOBUS_SUCCESS (marker will be populated)

5.10.4.19 globus_result_t globus_ftp_client_plugin_abortg(lobus_ftp_client_handle_t handle)

Abort a transfer operation.

This function will cause the currently executing transfer operation to be aborted. When this happens, all plugins will be noti ed by their abort callbacks. Once those are processed, the complete callback will be called for all plugins, and then for the user's callback.

The complete callback will indicate that the transfer did not complete successfully.

Parameters:

handle The handle which is associated with the transfer.

5.10.4.20 globus_result_t globus_ftp_client_plugin_add_data_channels(globus_ftp_client_handle_t handle, unsigned int num_channels, unsigned int stripe)

Add data channels to an existing put transfer.

This function will cause the currently executing transfer operation to have additional data channels acquired if the attribute set allows it.

Parameters:

handle The handle which is associated with the transfer.

num_channels The number of channels to add to the transfer.

stripe The stripe number to have the channels added to.

Note:

Do the plugins need to be noti ed when this happens?

5.10.4.21 globus_result_t globus_ftp_client_plugin_remove_data_channels(globus_ftp_client_handle_t handle, unsigned int num_channels, unsigned int stripe)

Remove data channels from an existing put transfer.

This function will cause the currently executing transfer operation to have data channels removed, if the attribute set allows it.

Parameters:

handle The handle which is associated with the transfer.

num_channels The number of channels to remove from the transfer.

stripe The stripe number to have the channels removed from.

Note:

Do the plugins need to be noti ed when this happens?

5.11 Restart Marker Plugin

De nes

- #de ne GLOBUS_FTP_CLIENT_RESTART_MARKER_PLUGIN_MODULE (&globus_i_ftp_client_restart_marker_plugin_module)

Typedefs

- typedef globus_bool_t(globus_ftp_client_restart_marker_plugin_begin_cb)(void user_arg, globus_ftp_client_handle_t handle, const char source_url, const char dest_url, globus_ftp_client_restart_marker_t user_saved_marker)
- typedef void(globus_ftp_client_restart_marker_plugin_marker_cb)(void user_arg, globus_ftp_client_handle_t handle, globus_ftp_client_restart_marker_t marker)
- typedef void(globus_ftp_client_restart_marker_plugin_complete_cb)(void user_arg, globus_ftp_client_handle_t handle, globus_object_t error, const char error_url)

Functions

- globus_result_t globus_ftp_client_restart_marker_plugin_init (globus_ftp_client_plugin_t plugin, globus_ftp_client_restart_marker_plugin_begin_cb_t begin_cb, globus_ftp_client_restart_marker_plugin_marker_cb_t marker_cb, globus_ftp_client_restart_marker_plugin_complete_cb_t complete_cb, void user_arg)
- globus_result_t globus_ftp_client_restart_marker_plugin_destroy (globus_ftp_client_plugin_t plugin)

5.11.1 Detailed Description

This plugin is intended to allow users to make restart markers persistant. During a transfer, every marker received will result in the user's 'marker' callback being called with the new restart marker that can be stored. If the application were to prematurely terminate (while transferring), the user (after restarting the application) could pass this stored marker back to the plugin via the 'begin' callback to force the transfer to be restarted from the last marked point.

5.11.2 De ne Documentation

5.11.2.1 #de ne GLOBUS_FTP_CLIENT_RESTART_MARKER_PLUGIN_MODULE (&globus_i_ftp_client_restart_marker_plugin_module)

Module descriptor.

5.11.3 Typedef Documentation

5.11.3.1 typedef globus_bool_t(globus_ftp_client_restart_marker_plugin_begin_cb_t)(void user_arg, globus_ftp_client_handle_t handle, const char source_url, const char dest_url, globus_ftp_client_restart_marker_t user_saved_marker)

Transfer begin callback.

This callback is called when a get, put, or third party transfer is started.

The intended use for this callback is for the user to use the transfer urls to locate a restart marker in some persistant storage. If one is found, it should be copied into 'user_saved_marker' and the callback should return GLOBUS_TRUE. This will cause the transfer to be restarted using that restart marker. If one is not found, return GLOBUS_FALSE to indicate that the transfer should proceed from the beginning.

In any case, this is also an opportunity for the user to set up any storage in anticipation of restart markers for this transfer.

Parameters:

handle this the client handle that this transfer will be occurring on

user_arg this is the user_arg passed to the init func

source_url source of the transfer (GLOBUS_NULL if 'put')

dest_url dest of the transfer (GLOBUS_NULL if 'get')

user_saved_marker pointer to an unitialized restart marker

Returns:

- GLOBUS_TRUE to indicate that the plugin should use 'user_saved_marker' to restart the transfer (and subsequently, destroy the marker)
- GLOBUS_FALSE to indicate that 'user_saved_marker' has not been modi ed, and that the transfer should proceed normally

5.11.3.2 typedef void(globus_ftp_client_restart_marker_plugin_marker_cb_t)(void user_arg, globus_ftp_client_handle_t handle, globus_ftp_client_restart_marker_t marker)

Restart marker received callback.

This callback will be called every time a restart marker is available.

To receive restart markers in a 'put' or 'third_party_transfer', the transfer must be in Extended Block mode. 'get' transfers will have their markers generated internally. Markers generated internally will be 'sent' at most, once per second.

The intended use for this callback is to allow the user to store this marker (most likely in place of any previous marker) in a format that the 'begin_cb' can parse and pass back.

Parameters:

handle this the client handle that this transfer is occurring on

user_arg this is the user_arg passed to the init func

marker the restart marker that has been received. Thsi marker is owned by the caller. The user must use the copy method to keep it. Note: this restart marker currently contains all ranges received as of yet. Should I instead only pass a marker with the ranges just made available? If so, the user may need a way to combine restart markers (globus_ftp_client_restart_marker_combine)

Returns:

- n/a

5.11.3.3 typedef void(globus_ftp_client_restart_marker_plugin_complete_cb_t)(void user_arg, globus_ftp_client_handle_t handle, globus_object_t error, const char error_url)

Transfer complete callback.

This callback will be called upon transfer completion (successful or otherwise)

Parameters:

handle this the client handle that this transfer was occurring on

user_arg this is the user_arg passed to the init func

error the error object indicating what went wrong (GLOBUS_NULL on success)

error_url the url which is the source of the above error (GLOBUS_NULL on success)

Returns:

- n/a

5.11.4 Function Documentation

5.11.4.1 globus_result_t globus_ftp_client_restart_marker_plugin_init(globus_ftp_client_plugin_t plugin, globus_ftp_client_restart_marker_plugin_begin_cb_t begin_cb, globus_ftp_client_restart_marker_plugin_marker_cb_t marker_cb, globus_ftp_client_restart_marker_plugin_complete_cb_t complete_cb, void user_arg)

Initialize a restart marker plugin.

This function initializes a restart marker plugin. Any params except for the plugin may be GLOBUS_NULL

Parameters:

plugin a pointer to a plugin type to be initialized

user_arg a pointer to some user speci c data that will be provided to all callbacks

begin_cb the callback to be called upon the start of a transfer

marker_cb the callback to be called with every restart marker received

complete_cb the callback to be called to indicate transfer completion

Returns:

- GLOBUS_SUCCESS
- Error on NULL plugin
- Error on init internal plugin

5.11.4.2 globus_result_t globus_ftp_client_restart_marker_plugin_destroy(globus_ftp_client_plugin_t plugin)

Destroy restart marker plugin.

Frees up memory associated with plugin

Parameters:

plugin plugin previously initialized with init (above)

Returns:

- GLOBUS_SUCCESS
- Error on NULL plugin

5.12 Restart Plugin

De nes

- #de ne GLOBUS_FTP_CLIENT_RESTART_PLUGIN_MODULE(&globus_i_ftp_client_restart_plugin_module)

Functions

- globus_result_t globus_ftp_client_restart_plugin_init(globus_ftp_client_plugin_t plugin, int max_retries, globus_reltime_t interval, globus_abstime_t deadline)
- globus_result_t globus_ftp_client_restart_plugin_destroy(globus_ftp_client_plugin_t plugin)

5.12.1 Detailed Description

The restart plugin implements one scheme for providing reliability functionality for the FTP Client library. Other plugins may be developed to provide other methods of reliability.

The speci c functionality of this plugin is to restart any FTP operation when a fault occurs. The plugin's operation is parameterized to control how often and when to attempt to restart the operation.

This restart plugin will restart an FTP operation if a noticable fault has occurred—a connection timing out, a failure by the server to process a command, a protocol error, an authentication error.

This plugin has three user-con gurable parameters; these are the maximum number of retries to attempt, the interval to wait between retries, and the deadline after which no further retries will be attempted. These are set by initializing a restart plugin instance with the function globus_ftp_client_restart_plugin_init().

Example Usage The following example illustrates a typical use of the restart plugin. In this case, we con gure a plugin instance to restart the operation for up to an hour, using an exponential back-off between retries.

```
#include "globus_ftp_client.h"
#include "globus_ftp_client_restart_plugin.h"
#include "globus_time.h"

int
main(int argc, char *argv[])
{
    globus_ftp_client_plugin_t restart_plugin;
    globus_ftp_client_handleattr_t handleattr;
    globus_ftp_client_handle_t handle;
    globus_abstime_t deadline;

    globus_module_activate(GLOBUS_FTP_CLIENT_MODULE);
    globus_module_activate(GLOBUS_FTP_CLIENT_RESTART_PLUGIN_MODULE);

    /* Set a deadline to be now + 1 hour */
    GlobusAbstimeSet(deadline, 60 * 60, 0);

    /* initialize a plugin with this deadline */
    globus_ftp_client_restart_plugin_init(
        &restart_plugin,
        0,                              /* # retry limit (0 means don't limit) */
        GLOBUS_NULL,                    /* interval between retries--null means
                                         * exponential backoff
                                         */
        &deadline);

    /* Set up our handle to use the new plugin */
    globus_ftp_client_handleattr_init(&handleattr);
    globus_ftp_client_handleattr_add_plugin(&handleattr, &restart_plugin);
    globus_ftp_client_handle_init(&handle, &handleattr);

    /*
     * Now, if a fault occurs processing this get, the plugin will restart
     * it with an exponential back-off, and will bail if a fault occurs
     * after 1 hour of retrying
     */
    globus_ftp_client_get(&handle,
                          "ftp://ftp.globus.org/pub/globus/README",
                          GLOBUS_NULL,
                          GLOBUS_NULL,
                          callback_fn,
                          GLOBUS_NULL);
}
```

5.12.2 De ne Documentation

5.12.2.1 #de ne GLOBUS_FTP_CLIENT_RESTART_PLUGIN_MODULE (&globus_i_ftp_client_restart_plugin_module)

Module descriptor.

5.12.3 Function Documentation

5.12.3.1 globus_result_t globus_ftp_client_restart_plugin_init(globus_ftp_client_plugin_t plugin, int max_retries, globus_reltime_t interval, globus_abstime_t deadline)

Initialize an instance of the GridFTP restart plugin.

This function will initialize the plugin-speci c instance data for this plugin, and will make the plugin usable for ftp client handle attribute and handle creation.

Parameters:

plugin A pointer to an uninitialized plugin. The plugin will be con gured as a restart plugin.

max_retries The maximum number of times to retry the operation before giving up on the transfer. If this value is less than or equal to 0, then the restart plugin will keep trying to restart the operation until it completes or the deadline is reached with an unsuccessful operation.

interval The interval to wait after a failures before retrying the transfer. If the interval is 0 seconds or GLOBUS_NULL, then an exponential backoff will be used.

deadline An absolute timeout. If the deadline is GLOBUS_NULL then the retry will never timeout.

Returns:

This function returns an error if

- plugin is null

See also:

globus_ftp_client_restart_plugin_destroy(), globus_ftp_client_handleattr_add_plugin(), globus_ftp_client_handleattr_remove_plugin(), globus_ftp_client_handle_init()

5.12.3.2 globus_result_t globus_ftp_client_restart_plugin_destroy(globus_ftp_client_plugin_t plugin)

Destroy an instance of the GridFTP restart plugin.

This function will free all restart plugin-speci c instance data from this plugin, and will make the plugin unusable for further ftp handle creation.

Existing FTP client handles and handle attributes will not be affected by destroying a plugin associated with them, as a local copy of the plugin is made upon handle initialization.

Parameters:

plugin A pointer to a GridFTP restart plugin, previously initialized by calling globus_ftp_client_restart_plugin_init()

Returns:

This function returns an error if

- plugin is null
- plugin is not a restart plugin

See also:

globus_ftp_client_restart_plugin_init(), globus_ftp_client_handleattr_add_plugin(), globus_ftp_client_handleattr_remove_plugin(), globus_ftp_client_handle_init()

5.13 Netlogger Throughput Plugin

De nes

- #de ne GLOBUS_FTP_CLIENT_THROUGHPUT_NL_PLUGIN_MODULE (&globus_i_ftp_client_throughput_nl_plugin_module)

Functions

- globus_result_t globus_ftp_client_throughput_nl_plugin_init (globus_ftp_client_plugin_t plugin, const char nl_url, const char prog_name, const char opaque_string)
- globus_result_t globus_ftp_client_throughput_nl_plugin_init_with_handle (globus_ftp_client_plugin_t plugin, NLhandle nl_handle, const char opaque_string)
- globus_result_t globus_ftp_client_throughput_nl_plugin_destroy (globus_ftp_client_plugin_t plugin)
- globus_result_t globus_ftp_client_throughput_nl_plugin_set_callbacks (globus_ftp_client_plugin_t plugin, globus_ftp_client_throughput_plugin_begin_cb_t begin_cb, globus_ftp_client_throughput_plugin_stripe_cb_t per_stripe_cb, globus_ftp_client_throughput_plugin_total_cb_t total_cb, globus_ftp_client_throughput_plugin_complete_cb_t complete_cb, void user_speci c)

5.13.1 Detailed Description

This plugin allows a user to easily use the throughput plugin to log performance data vi Netlogger.

The plugin will log the following Event Types with its coressponding info

TransferPerfTotal : This event type will be sent everytime a throughput plugin total callback is received.

- URL.SOURCE Source url of transfer
- URL.DEST Dest url of transfer
- BYTES Total bytes transfered thus far
- BW.CURRENT Current (instantaneous) bandwidth
- BW.AVG Average (instantaneous) bandwidth

TransferPerfStripe : This event type will be sent everytime a throughput plugin stripe callback is received.

- URL.SOURCE Source url of transfer
- URL.DEST Dest url of transfer
- INDEX The stripe index the event applies to
- BYTES Total bytes transfered thus far on this stripe
- BW.CURRENT Current (instantaneous) bandwidth on this stripe
- BW.AVG Average (instantaneous) bandwidth on this stripe

TransferBegin : This event type will be sent everytime a throughput plugin begin callback is received.

- URL.SOURCE Source url of transfer
- URL.DEST Dest url of transfer

TransferEnd : This event type will be sent everytime a throughput plugin complete callback is received.

- SUCCESS Completion status

5.13.2 De ne Documentation

5.13.2.1 #de ne GLOBUS_FTP_CLIENT_THROUGHPUT_NL_PLUGIN_MODULE (&globus_i_ftp_client_throughput_nl_plugin_module)

Module descriptor.

5.13.3 Function Documentation

5.13.3.1 globus_result_t globus_ftp_client_throughput_nl_plugin_init (globus_ftp_client_plugin_t plugin, const char nl_url, const char prog_name, const char opaque_string)

Initialize netlogger wrapped throughput plugin.

This will initialize a netlogger wrapped throughput plugin. Note that the nl_url may be NULL. Regardless of what nl_host is set to, if the env variable NL_DEST_ENV is set, logging will always occur to that location.

Parameters:

plugin a plugin to be initialized

nl_url the url to log to (May be NULL) Valid urls are: file://tmp/netlog.log x-netlog://host[:port] x-syslog://localhost

prog_name This is used as the prog name in the NetLoggerOpen call

opaque_string this is an opaque string that will be inserted into all logged statements. (may be NULL)

Returns:

- Error on NULL plugin or failure to init throughput plugin
- Error on NetLogger open
- GLOBUS_SUCCESS

5.13.3.2 globus_result_t globus_ftp_client_throughput_nl_plugin_init_with_handle (globus_ftp_client_plugin_t plugin, NLhandle nl_handle, const char opaque_string)

Initialize netlogger wrapped throughput plugin.

This will initialize a netlogger wrapped throughput plugin. Instead of passing a NetLogger url as in the plain init func, you can pass in a previously 'Open'ed NLhandle. This handle will not be destroyed by this plugin.

Parameters:

plugin a plugin to be initialized

nl_handle a previously opened NetLogger handle

opaque_string this is an opaque string that will be inserted into all logged statements. (may be NULL)

Returns:

- Error on NULL plugin or failure to init throughput plugin
- Error on NetLogger open
- GLOBUS_SUCCESS

5.13.3.3 globus_result_t globus_ftp_client_throughput_nl_plugin_destroy(globus_ftp_client_plugin_t plugin)

Destroy netlogger wrapped throughput plugin.

Frees up memory associated with plugin

Parameters:
plugin plugin previously initialized with init (above)

Returns:
- GLOBUS_SUCCESS
- Error on NULL plugin

5.13.3.4 globus_result_t globus_ftp_client_throughput_nl_plugin_set_callbacks(globus_ftp_client_plugin_t plugin, globus_ftp_client_throughput_plugin_begin_cb_t begin_cb, globus_ftp_client_throughput_plugin_stripe_cb_t per_stripe_cb, globus_ftp_client_throughput_plugin_total_cb_t total_cb, globus_ftp_client_throughput_plugin_complete_cb_t complete_cb, void user_speci c)

Receive throughput callbacks.

You can still get the automatic netlogging of throughput along with receiving the same throughput callbacks that the throughput plugin provides by using this function to set these callbacks. Note that the callbacks are de ned the same as in the throughput plugin

Parameters:
plugin
begin_cb the callback to be called upon the start of a transfer
per_stripe_cb the callback to be called every time updated throughput info is available for a given stripe
total_cb the callback to be called every time updated throughput info is available for any stripe
complete_cb the callback to be called to indicate transfer completion
user_speci c a pointer to some user speci c data that will be provided to all callbacks

Returns:
- Error on NULL or invalid plugin
- GLOBUS_SUCCESS

See also:
globus_ftp_client_throughput_plugin

5.14 Throughput Performance Plugin

De nes

- #de ne GLOBUS_FTP_CLIENT_THROUGHPUT_PLUGIN_MODULE (&globus_i_ftp_client_throughput_plugin_module)

Typedefs

- typedef void(globus_ftp_client_throughput_plugin_begin_cb_t)(void user_speci c, globus_ftp_client_handle_t handle, const char source_url, const char dest_url)
- typedef void(globus_ftp_client_throughput_plugin_stripe_cb_t)(void user_speci c, globus_ftp_client_handle_t handle, int stripe_ndx, globus_off_t bytes, oat instantaneous_throughput, oat avg_throughput)
- typedef void(globus_ftp_client_throughput_plugin_total_cb_t)(void user_speci c, globus_ftp_client_handle_t handle, globus_off_t bytes, oat instantaneous_throughput, oat avg_throughput)
- typedef void(globus_ftp_client_throughput_plugin_complete_cb_t)(void user_speci c, globus_ftp_client_handle_t handle, globus_bool_t success)
- typedef void (globus_ftp_client_throughput_plugin_user_copy_cb_t)(void user_speci c)
- typedef void(globus_ftp_client_throughput_plugin_user_destroy_cb_t)(void user_speci c)

Functions

- globus_result_t globus_ftp_client_throughput_plugin_init(globus_ftp_client_plugin_t plugin, globus_ftp_client_throughput_plugin_begin_cb_t begin_cb, globus_ftp_client_throughput_plugin_stripe_cb_t stripe_cb, globus_ftp_client_throughput_plugin_total_cb_t total_cb, globus_ftp_client_throughput_plugin_complete_cb_t complete_cb, void user_speci c)
- globus_result_t globus_ftp_client_throughput_plugin_set_copy_destroy(globus_ftp_client_plugin_t plugin, globus_ftp_client_throughput_plugin_user_copy_cb_t copy_cb, globus_ftp_client_throughput_plugin_user_destroy_cb_t destroy_cb)
- globus_result_t globus_ftp_client_throughput_plugin_destroy(globus_ftp_client_plugin_t plugin)
- globus_result_t globus_ftp_client_throughput_plugin_get_user_speci c(globus_ftp_client_plugin_t plugin, void user_speci c)

5.14.1 Detailed Description

The FTP Throughput Performance plugin allows the user to obtain calculated performance information for all types of transfers except a third party transfer in which Extended Block mode is not enabled.

Note: Since this plugin is built on top of the Performance Marker Plugin, it is not possible to associate both plugins with a handle

5.14.2 De ne Documentation

5.14.2.1 #de ne GLOBUS_FTP_CLIENT_THROUGHPUT_PLUGIN_MODULE (&globus_i_ftp_client_throughput_plugin_module)

Module descriptor.

5.14.3 Typedef Documentation

5.14.3.1 typedef void(globus_ftp_client_throughput_plugin_begin_cb_t)(void user_speci c, globus_ftp_client_handle_t handle, const char source_url, const char dest_url)

Transfer begin callback.

This callback will be called when a transfer begins

Parameters:

handle The client handle associated with this transfer

user_speci c User argument passed to globus_ftp_client_throughput_plugin_init

source_url source of the transfer (GLOBUS_NULL if 'put')

dest_url dest of the transfer (GLOBUS_NULL if 'get')

Returns:

- n/a

5.14.3.2 typedef void(globus_ftp_client_throughput_plugin_stripe_cb_t)(void user_speci c, globus_ftp_client_handle_t handle, int stripe_ndx, globus_off_t bytes, oat instantaneous_throughput, oat avg_throughput)

Stripe performace throughput callback.

This callback will be called with every performance callback that is received by the perf plugin. The rst callback for each stripe_ndx will have an instantaneous_throughput based from the time the command was sent.

Parameters:

handle The client handle associated with this transfer

user_speci c User argument passed to globus_ftp_client_throughput_plugin_init

bytes The total number of bytes received on this stripe

instantaneous_throughput Instanteous throughput on this stripe (bytes / sec)

avg_throughput Average throughput on this stripe (bytes / sec)

stripe_ndx This stripe's index

5.14.3.3 typedef void(globus_ftp_client_throughput_plugin_total_cb_t)(void user_speci c, globus_ftp_client_handle_t handle, globus_off_t bytes, oat instantaneous_throughput, oat avg_throughput)

Total performace throughput callback.

This callback will be called with every performance callback that is received by the perf plugin. The rst callback for will have an instantaneous_throughput based from the time the command was sent. This callback will be called after the per_stripe_cb

Parameters:

handle The client handle associated with this transfer

user_speci c User argument passed to globus_ftp_client_throughput_plugin_init

bytes The total number of bytes received on all stripes

instantaneous_throughput Total instanteous throughput on all stripes (bytes / sec)

avg_throughput Average total throughput on all stripes (bytes / sec)

5.14.3.4 typedef void(globus_ftp_client_throughput_plugin_complete_cb_t)(void user_speci c, globus_ftp_client_handle_t handle, globus_bool_t success)

Transfer complete callback.

This callback will be called upon transfer completion (successful or otherwise)

Parameters:

handle The client handle associated with this transfer

user_speci c User argument passed to globus_ftp_client_throughput_plugin_init

successindicates whether this transfer completed successfully or was interrupted (by error or abort)

Returns:

- n/a

5.14.3.5 typedef void(globus_ftp_client_throughput_plugin_user_copy_cb_t)(void user_speci c)

Copy constructor.

This callback will be called when a copy of this plugin is made, it is intended to allow initialization of a new user_-speci c data

Parameters:

user_speci c this is user speci c data either created by this copy method, or the value passed to init

Returns:

- a pointer to a user speci c piece of data
- GLOBUS_NULL (does not indicate error)

5.14.3.6 typedef void(globus_ftp_client_throughput_plugin_user_destroy_cb_t)(void user_speci c)

Destructor.

This callback will be called when a copy of this plugin is destroyed, it is intended to allow the user to free up any memory associated with the user speci c data

Parameters:

user_speci c this is user speci c data created by the copy method

Returns:

- n/a

5.14.4 Function Documentation

5.14.4.1 globus_result_t globus_ftp_client_throughput_plugin_init (globus_ftp_client_plugin_t plugin, globus_ftp_client_throughput_plugin_begin_cb_t begin_cb, globus_ftp_client_throughput_plugin_stripe_cb_-t per_stripe_cb, globus_ftp_client_throughput_plugin_total_cb_t total_cb, globus_ftp_client_throughput_-plugin_complete_cb_t complete_cb, void user_speci c)

Throughput plugin init.

Use this function to initialize a throughput plugin. The throughput plugin sits on top of the perf_plugin. The only required param is 'plugin', all others may be GLOBUS_NULL

Parameters:

plugin a pointer to a plugin type to be initialized

begin_cb the callback to be called upon the start of a transfer

per_stripe_cbthe callback to be called every time updated throughput info is available for a given stripe

total_cb the callback to be called every time updated throughput info is available for any stripe

complete_cbthe callback to be called to indicate transfer completion

user_specic a pointer to some user specic data that will be provided to all callbacks

Returns:

- GLOBUS_SUCCESS
- Error on NULL plugin
- Error on init perf plugin

5.14.4.2 globus_result_t globus_ftp_client_throughput_plugin_set_copy_destroy(globus_ftp_client_plugin_t plugin, globus_ftp_client_throughput_plugin_user_copy_cb_t copy_cb, globus_ftp_client_throughput_plugin_user_destroy_cb_t destroy_cb)

Set user copy and destroy callbacks.

Use this to have the plugin make callbacks any time a copy of this plugin is being made. This will allow the user to keep state for different handles.

Parameters:

plugin plugin previously initialized with init (above)

copy_cb func to be called when a copy is needed

destroy_cb func to be called when a copy is to be destroyed

Returns:

- Error on NULL arguments
- GLOBUS_SUCCESS

5.14.4.3 globus_result_t globus_ftp_client_throughput_plugin_destroy(globus_ftp_client_plugin_t plugin)

Destroy throughput plugin.

Frees up memory associated with plugin

Parameters:

plugin plugin previously initialized with init (above)

Returns:

- GLOBUS_SUCCESS
- Error on NULL plugin

5.14.4.4 globus_result_t globus_ftp_client_throughput_plugin_get_user_specic(globus_ftp_client_plugin_t plugin, void user_specic)

Retrieve user specic pointer.

Parameters:

plugin plugin previously initialized with init (above)

user_specic pointer to storage for user_specic pointer

Returns:

- GLOBUS_SUCCESS
- Error on NULL plugin
- Error on NULL user_specic

6 globus ftp client Data Structure Documentation

6.1 globus_ftp_client_restart_extended_block_t Struct Reference

Extended block mode restart marker.

6.1.1 Detailed Description

Extended block mode restart marker.

6.2 globus_ftp_client_restart_marker_t Union Reference

Restart marker.

6.2.1 Detailed Description

Restart marker.

This structure is may be either a stream mode transfer offset, or an extended block mode byte range.

See also:
globus_ftp_client_restart_marker_init(), globus_ftp_client_restart_marker_destroy(), globus_ftp_client_restart_marker_copy(), globus_ftp_client_restart_marker_insert_range(), globus_ftp_client_restart_marker_set_offset()

6.3 globus_ftp_client_restart_stream_t Struct Reference

Stream mode restart marker.

6.3.1 Detailed Description

Stream mode restart marker.

7 globus ftp client Page Documentation

7.1 Bug List

Global globus_ftp_client_operationattr_set_data_protection(globus_ftp_client_operationattr_t attr, globus_ftp_control_pr
Only safe and private protection levels are supported by gsiftp.

Global globus_ftp_client_operationattr_set_control_protection(globus_ftp_client_operationattr_t attr, globus_ftp_control_
The clear and safe protection levels are treated identically, with the client integrity checking all commands. The con dential and private protection levels are treated identically, with the client encrypting all commands.

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