

globus xio gsi driver Reference Manual

0.6

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1 globus xio gsi driver Module Index

1.1 globus xio gsi driver Modules

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2.1 Globus XIO GSI Driver

The GSI driver.

Modules

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2.1.1 Detailed Description

The GSI driver.

2.2 Opening/Closing

An XIO handle with the gsi driver can be created with either `globus_handlecreate()` or `globus_xio_serverregisteraccept()`.

If the handle is created with `globus_xio_serverregisteraccept()`, the `globus_xio_registeropen()` call will proceed to accept a GSSAPI security context. Upon successful completion of the open, ie after the open callback has been called, the application may proceed to read or write data associated with the GSI session.

If the handle is created with `globus_handlecreate()`, then the XIO handle will implement the client-side (init) of the GSSAPI call sequence and establish a security context with the accepting side indicated by the string passed to `globus_xio_registeropen()`.

2.3 Reading/Writing

The GSI driver behaves similar to the underlying transport driver with respect to reads and writes, except for the try-read and try-write operations (ie. `waitforbytes == 0`) which always return immediately. This is due to the fact that the security layer needs to read and write tokens of a certain minimal size and thus needs to rely on the underlying transport to handle greater than 0 reads/write which is not possible in "try" mode.

2.4 Server

`globus_xio_servercreate()` causes a new transport-specific listener socket to be created to handle new GSI connections. `globus_xio_serverregisteraccept()` will accept a new connection for processing. `globus_xio_serverregisterclose()` cleans up the internal resources associated with the http server and calls close on the listener.

All accepted handles inherit all gsi specific attributes set in the attr to `globus_xio_servercreate()`, but can be overridden with the attr to `globus_xio_registeropen()`. Furthermore, accepted handles will use the GSSAPI accept security context call unless explicitly overridden during the `globus_xio_registeropen()` call ([Attributes and Cntl](#)).

2.5 Env Variables

The gsi driver uses the following environment variables

```
X509.USER.PROXY
X509.USER.CERT
X509.USER.KEY
X509.CERT.DIR
```

For details see [Globus: GSI Environment Variables](#)

2.6 Attributes and Cntl

Enumerations

```
enum globus_xio_gsi_cmd_t { GLOBUS_XIO_GSISET_CREDENTIAL, GLOBUS_XIO_GSISET_GET_CREDENTIAL,
GLOBUS_XIO_GSISET_GSSAPIREQ_FLAGS, GLOBUS_XIO_GSISET_GET_GSSAPIREQ_FLAGS,
GLOBUS_XIO_GSISET_PROXY_MODE, GLOBUS_XIO_GSISET_GET_PROXY_MODE,
GLOBUS_XIO_GSISET_AUTHORIZATION_MODE, GLOBUS_XIO_GSISET_GET_AUTHORIZATION_MODE,
GLOBUS_XIO_GSISET_DELEGATION_MODE, GLOBUS_XIO_GSISET_GET_DELEGATION_MODE,
GLOBUS_XIO_GSISET_SSL_COMPATIBLE, GLOBUS_XIO_GSISET_ANON, GLOBUS_XIO_GSISET_GET_SSL_COMPATIBLE,
GLOBUS_XIO_GSISET_GET_ANON, GLOBUS_XIO_GSISET_GET_AUTHORIZATION_MODE,
GLOBUS_XIO_GSISET_GET_DELEGATION_MODE, GLOBUS_XIO_GSISET_GET_SSL_COMPATIBLE,
GLOBUS_XIO_GSISET_GET_ANON }
```

XIO_GSISET_WRAP_MODE, GLOBUS_XIO_GSI_GET_WRAP_MODE, GLOBUS_XIO_GSISET_BUFFER_SIZE, GLOBUS_XIO_GSI_GET_BUFFER_SIZE, GLOBUS_XIO_GSISET_PROTECTION_LEVEL, GLOBUS_XIO_GSI_GET_PROTECTION_LEVEL, GLOBUS_XIO_GSISET_TARGET_NAME, GLOBUS_XIO_GSI_GET_TARGET_NAME, GLOBUS_XIO_GSISET_CONTEXT, GLOBUS_XIO_GSI_GET_CONTEXT, GLOBUS_XIO_GSISET_DELEGATED_CRED, GLOBUS_XIO_GSI_GET_PEERNAME, GLOBUS_XIO_GSISET_LOCAL_NAME, GLOBUS_XIO_GSI_INIT_DELEGATION, GLOBUS_XIO_GSI_REGISTER_INIT_DELEGATION, GLOBUS_XIO_GSI_ACCEPT_DELEGATION, GLOBUS_XIO_GSI_REGISTER_ACCEPT_DELEGATION, GLOBUS_XIO_GSI_FORCE_SERVER_MODE g

Functions

globus_result_t [globus_xio_attr_cntl](#) (attr, driver, GLOBUS_XIO_GSISET_CREDENTIAL, gss_cred_id_t credential)

globus_result_t [globus_xio_handle_cntl](#) (handle, driver, GLOBUS_XIO_GSISET_CREDENTIAL, gss_cred_id_t credential)

globus_result_t [globus_xio_attr_cntl](#) (attr, driver, GLOBUS_XIO_GSI_GET_CREDENTIAL, gss_cred_id_t credential)

globus_result_t [globus_xio_handle_cntl](#) (handle, driver, GLOBUS_XIO_GSI_GET_CREDENTIAL, gss_cred_id_t credential)

globus_result_t [globus_xio_attr_cntl](#) (attr, driver, GLOBUS_XIO_GSISET_GSSAPI_REQ_FLAGS, OM_uint32 req_ags)

globus_result_t [globus_xio_attr_cntl](#) (attr, driver, GLOBUS_XIO_GSI_GET_GSSAPI_REQ_FLAGS, OM_uint32 req_ags)

globus_result_t [globus_xio_attr_cntl](#) (attr, driver, GLOBUS_XIO_GSISET_PROXY_MODE, [globus_xio_gsi_proxy_mode_t](#) proxy_mode)

globus_result_t [globus_xio_attr_cntl](#) (attr, driver, GLOBUS_XIO_GSI_GET_PROXY_MODE, [globus_xio_gsi_proxy_mode_t](#) proxy_mode)

globus_result_t [globus_xio_attr_cntl](#) (attr, driver, GLOBUS_XIO_GSISET_AUTHORIZATION_MODE, [globus_xio_gsi_authorization_mode_t](#) authz_mode)

globus_result_t [globus_xio_attr_cntl](#) (attr, driver, GLOBUS_XIO_GSI_GET_AUTHORIZATION_MODE, [globus_xio_gsi_authorization_mode_t](#) authz_mode)

globus_result_t [globus_xio_attr_cntl](#) (attr, driver, GLOBUS_XIO_GSISET_DELEGATION_MODE, [globus_xio_gsi_delegation_mode_t](#) delegation_mode)

globus_result_t [globus_xio_attr_cntl](#) (attr, driver, GLOBUS_XIO_GSI_GET_DELEGATION_MODE, [globus_xio_gsi_delegation_mode_t](#) delegation_mode)

globus_result_t [globus_xio_attr_cntl](#) (attr, driver, GLOBUS_XIO_FILE_SET_BLOCKING_IO, globus_bool_t use_blocking_io)

globus_result_t [globus_xio_attr_cntl](#) (attr, driver, GLOBUS_XIO_GSISET_WRAP_MODE, globus_boolean_t wrap_mode)

globus_result_t [globus_xio_attr_cntl](#) (attr, driver, GLOBUS_XIO_GSI_GET_WRAP_MODE, globus_boolean_t wrap_mode)

globus_result_t [globus_xio_attr_cntl](#) (attr, driver, GLOBUS_XIO_GSISET_BUFFER_SIZE, globus_size_t buffer_size)

globus_result_t [globus_xio_attr_cntl](#) (attr, driver, GLOBUS_XIO_GSI_GET_BUFFER_SIZE, globus_size_t buffer_size)

globus_result_t [globus_xio_attr_cntl](#) (attr, driver, GLOBUS_XIO_GSISET_PROTECTION_LEVEL, [globus_xio_gsi_protection_level_t](#) protection_level)

globus_result_t [globus_xio_attr_cntl](#) (attr, driver, GLOBUS_XIO_GSI_GET_PROTECTION_LEVEL, [globus_xio_gsi_protection_level_t](#) protection_level)

globus_result_t [globus_xio_attr_cntl](#) (attr, driver, GLOBUS_XIO_GSI_GET_TARGET_NAME, gss_name_t target_name)

```

globusresultt globusxio\_attr\_cntl (attr, driver, GLOBUSXIO_GSISET.TARGET.NAME, gssname_t targetname)
globusresultt globusxio\_handlecntl (handle, driver, GLOBUSXIO_GSISET.CONTEXT, gssctx_id_t context)
globusresultt globusxio\_handlecntl (handle, driver, GLOBUSXIO_GSISET.PEERNAME, gssname_t peername)
globusresultt globusxio\_handlecntl (handle, driver, GLOBUSXIO_GSISET.DELEGATION, gsscred_id_t credential, gssOID_set restrictionoids, gssbuffer_set_t restrictionbuffers, OM_uint32 timereq)
globusresultt globusxio\_handlecntl (handle, driver, GLOBUSXIO_GSISET.REGISTERINIT.DELEGATION, gsscred_id_t credential, gssOID_set restrictionoids, gssbuffer_set_t restrictionbuffers, OM_uint32 timereq, globusxio\_gsi\_delegationinit\_callback\_t callback, void callbackarg)
globusresultt globusxio\_handlecntl (handle, driver, GLOBUSXIO_GSISET.ACCEPT.DELEGATION, gsscred_id_t credential, gssOID_set restrictionoids, gssbuffer_set_t restrictionbuffers, OM_uint32 timereq)
globusresultt globusxio\_handlecntl (handle, driver, GLOBUSXIO_GSISET.REGISTERACCEPT.DELEGATION, gssOID_set restrictionoids, gssbuffer_set_t restrictionbuffers, OM_uint32 timereq, globusxio\_gsi\_delegationaccept\_callback\_t callback, void callbackarg)

```

2.6.1 Detailed Description

GSI driver specific attrs and cntls.

See also:

[globusxio_attr_cntl\(\)](#) , [globusxio_handlecntl\(\)](#)

2.6.2 Enumeration Type Documentation

2.6.2.1 enum globusxio_gsi_cmd_t

GSI driver specific cntls.

Enumeration values:

```

GLOBUS_XIO_GSI_SET_CREDENTIAL    See usage for globusxio\_attr\_cntl, globusxio\_handlecntl.
GLOBUS_XIO_GSI_GET_CREDENTIAL    See usage for globusxio\_attr\_cntl, globusxio\_handlecntl.
GLOBUS_XIO_GSI_SET_GSSAPIREQ_FLAGS See usage for globusxio\_attr\_cntl.
GLOBUS_XIO_GSI_GET_GSSAPIREQ_FLAGS See usage for globusxio\_attr\_cntl.
GLOBUS_XIO_GSI_SET_PROXY_MODE    See usage for globusxio\_attr\_cntl.
GLOBUS_XIO_GSI_GET_PROXY_MODE    See usage for globusxio\_attr\_cntl.
GLOBUS_XIO_GSI_SET_AUTHORIZATION _MODE See usage for globusxio\_attr\_cntl.
GLOBUS_XIO_GSI_GET_AUTHORIZATION _MODE See usage for globusxio\_attr\_cntl.
GLOBUS_XIO_GSI_SET_DELEGATION _MODE See usage for globusxio\_attr\_cntl.
GLOBUS_XIO_GSI_GET_DELEGATION _MODE See usage for globusxio\_attr\_cntl.
GLOBUS_XIO_GSI_SET_SSL_COMPATIBLE See usage for globusxio\_attr\_cntl.
GLOBUS_XIO_GSI_SET_ANON          See usage for globusxio\_attr\_cntl.
GLOBUS_XIO_GSI_SET_WRAP_MODE     See usage for globusxio\_attr\_cntl.
GLOBUS_XIO_GSI_GET_WRAP_MODE     See usage for globusxio\_attr\_cntl.
GLOBUS_XIO_GSI_SET_BUFFER_SIZE   See usage for globusxio\_attr\_cntl.
GLOBUS_XIO_GSI_GET_BUFFER_SIZE   See usage for globusxio\_attr\_cntl.

```

GLOBUS_XIO_GSI.SET_PROTECTION_LEVEL See usage for [globusxio_attr_cntl](#).
 GLOBUS_XIO_GSI.GET_PROTECTION_LEVEL See usage for [globusxio_attr_cntl](#).
 GLOBUS_XIO_GSI.GET_TARGET_NAME See usage for [globusxio_attr_cntl](#).
 GLOBUS_XIO_GSI.SET_TARGET_NAME See usage for [globusxio_attr_cntl](#).
 GLOBUS_XIO_GSI.GET_CONTEXT See usage for [globusxio_handlecntl](#).
 GLOBUS_XIO_GSI.GET_DELEGATED_CRED See usage for [globusxio_handlecntl](#).
 GLOBUS_XIO_GSI.GET_PEER_NAME See usage for [globusxio_handlecntl](#).
 GLOBUS_XIO_GSI.GET_LOCAL_NAME See usage for [globusxio_handlecntl](#).
 GLOBUS_XIO_GSI.INIT_DELEGATION See usage for [globusxio_handlecntl](#).
 GLOBUS_XIO_GSI.REGISTER_INIT_DELEGATION See usage for [globusxio_handlecntl](#).
 GLOBUS_XIO_GSI.ACCEPT_DELEGATION See usage for [globusxio_handlecntl](#).
 GLOBUS_XIO_GSI.REGISTER_ACCEPT_DELEGATION See usage for [globusxio_handlecntl](#).
 GLOBUS_XIO_GSI.FORCE_SERVER_MODE See usage for [globusxio_attr_cntl](#).

2.6.3 Function Documentation

2.6.3.1 `globusresult_t globus.xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI.SET_CREDENTIAL, gss_cred_id_t credential)`

Set the credential to be used.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

`credential` The credential to set. The credential structure needs to remain valid for the lifetime of any xio data-structure it is used by.

Note:

If this is called with the `handlecntl`, there must be no outstanding operations on the handle.

2.6.3.2 `globusresult_t globus.xio_handle_cntl (handle, driver, GLOBUS_XIO_GSI.SET_CREDENTIAL, gss_cred_id_t credential)`

Set the credential to be used.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

`credential` The credential to set. The credential structure needs to remain valid for the lifetime of any xio data-structure it is used by.

Note:

If this is called with the `handlecntl`, there must be no outstanding operations on the handle.

2.6.3.3 `globusresult_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_GET_CREDENTIAL, gss_cred_id_t credential)`

Get the credential to be used.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

`credential` The credential that is currently set. This will only return a credential if a credential was explicitly set prior to this call. It will not return any credential automatically acquired during context initialization.

2.6.3.4 `globusresult_t globus_xio_handle_cntl (handle, driver, GLOBUS_XIO_GSI_GET_CREDENTIAL, gss_cred_id_t credential)`

Get the credential to be used.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

`credential` The credential that is currently set. This will only return a credential if a credential was explicitly set prior to this call. It will not return any credential automatically acquired during context initialization.

2.6.3.5 `globusresult_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_SET_GSSAPIREQ_FLAGS, OM_uint32 req_ags)`

Set the GSSAPI req_ags to be used.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

`req_ags` The req_ags to set

2.6.3.6 `globusresult_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_GET_GSSAPIREQ_FLAGS, OM_uint32 req_ags)`

Get the GSSAPI req_ags to be used.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

`req_ags` The req_ags currently in effect

2.6.3.7 `globusresult_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_SET_PROXY_MODE, globus_xio_gsi_proxy_mode_t proxy_mode)`

Set the proxy mode.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

proxy_mode The proxy mode to set

Note:

Changing the proxy mode changes the `args`

2.6.3.8 `globusresult_t globus.xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_GET_PROXY_MODE, globus.xio_gsi_proxy_mode_t proxy_mode)`

Get the proxy mode.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

proxy_mode The proxy mode that is currently in effect

Note:

Changing the proxy mode changes the `args`

2.6.3.9 `globusresult_t globus.xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_SET_AUTHORIZATION_MODE, globus.xio_gsi_authorization_mode_t authz_mode)`

Set the authorization mode.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

authz_mode The authorization mode to set

2.6.3.10 `globusresult_t globus.xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_GET_AUTHORIZATION_MODE, globus.xio_gsi_authorization_mode_t authz_mode)`

Get the authorization mode.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

authz_mode The authorization mode that is currently in effect

2.6.3.11 `globusresult_t globus.xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_SET_DELEGATION_MODE, globus.xio_gsi_delegation_mode_t delegation_mode)`

Set the delegation mode.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

delegation_mode The delegation mode to use

Note:

Changing the delegation mode changes the `args`

2.6.3.12 `globus_result_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_GET_DELEGATION_MODE, globus_xio_gsi_delegation_mode_t delegation_mode)`

Get the delegation mode.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

`delegation_mode` The delegation mode currently in effect

2.6.3.13 `globus_result_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_SET_WRAP_MODE, globus_boolean_t wrap_mode)`

Set the wrapping mode.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

This mode determines whether tokens will be wrapped with a Globus IO style header or not.

Parameters:

`wrap_mode` The wrapping mode to use

2.6.3.14 `globus_result_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_GET_WRAP_MODE, globus_boolean_t wrap_mode)`

Get the wrapping mode.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

This mode determines whether tokens will be wrapped with a Globus IO style header or not.

Parameters:

`wrap_mode` The wrapping mode currently in use.

2.6.3.15 `globus_result_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_SET_BUFFER_SIZE, globus_size_t buffer_size)`

Set the read buffer size.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

The read buffer is used for buffering wrapped data, is initialized with a default size of 128K and scaled dynamically to always be able to fit whole tokens.

Parameters:

`buffer_size` The size of the read buffer

2.6.3.16 `globus_result_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_GET_BUFFER_SIZE, globus_size_t buffer_size)`

Get the read buffer size.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

The read buffer is used for buffering wrapped data, is initialized with a default size of 128K and scaled dynamically to always be able to t whole tokens.

Parameters:

buffer_size The size of the read buffer

2.6.3.17 `globus_result_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_SET_PROTECTION_LEVEL, globus_xio_gsi_protection_level_t protection_level)`

Set the protection level.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

protection_level The protection level to set

Note:

Changing the proxy mode changes the `args`

2.6.3.18 `globus_result_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_GET_PROTECTION_LEVEL, globus_xio_gsi_protection_level_t protection_level)`

Get the protection level.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

protection_level The current protection level

2.6.3.19 `globus_result_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_GET_TARGET_NAME, gss_name_t target_name)`

Set the expected peer name.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

target_name The expected peer name

2.6.3.20 `globus_result_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_SET_TARGET_NAME, gss_name_t target_name)`

Get the expected peer name.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

target_name The expected peer name

2.6.3.21 `globus_result_t globus_xio_handle_cntl (handle, driver, GLOBUS_XIO_GSI_GET_CONTEXT, gss_ctx_id_t context)`

Get the GSS context.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

`context` The GSS context

2.6.3.22 `globus_result_t globus_xio_handle_cntl (handle, driver, GLOBUS_XIO_GSI_GET_PEER_NAME, gss_name_t peername)`

Get the name of the peer.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

`peername` The GSS name of the peer.

2.6.3.23 `globus_result_t globus_xio_handle_cntl (handle, driver, GLOBUS_XIO_GSI_INIT_DELEGATION, gss_cred_id_t credential, gss_OID_set restriction_oids, gssbuffer_set_t restriction_buffers, OM_uint32 time_req)`

Initialize delegation-at-any-time process.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

`credential` The GSS credential to delegate

`restriction_oids` The OIDS for X.509 extensions to embed in the delegated credential

`restriction_buffers` The corresponding bodies for the X.509 extensions

`time_req` The lifetime of the delegated credential

2.6.3.24 `globus_result_t globus_xio_handle_cntl (handle, driver, GLOBUS_XIO_GSI_REGISTER_INIT_DELEGATION, gss_cred_id_t credential, gss_OID_set restriction_oids, gssbuffer_set_t restriction_buffers, OM_uint32 time_req, globus_xio_gsi_delegation_init_callback_t callback, void callback_arg)`

Initialize non-blocking delegation-at-any-time process.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

`credential` The GSS credential to delegate

`restriction_oids` The OIDS for X.509 extensions to embed in the delegated credential

`restriction_buffers` The corresponding bodies for the X.509 extensions

`time_req` The lifetime of the delegated credential

`callback` The callback to call when the operation completes

`callback_arg` The arguments to pass to the callback

2.6.3.25 `globus_result_t globus_xio_handle_cntl (handle, driver, GLOBUS_XIO_GSI_ACCEPT_DELEGATION, gss_cred_id_t credential, gss_OID_set restriction_oids, gssbuffer_set_t restriction_buffers, OM_uint32 time_req)`

Accept delegation-at-any-time process.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

`credential` The delegated GSS credential
`restriction_oids` The OIDS for X.509 extensions to embed in the delegated credential
`restriction_buffers` The corresponding bodies for the X.509 extensions
`time_req` The requested lifetime of the delegated credential

2.6.3.26 `globus_result_t globus_xio_handle_cntl (handle, driver, GLOBUS_XIO_GSI_REGISTER_ACCEPT_DELEGATION, gss_OID_set restriction_oids, gssbuffer_set_t restriction_buffers, OM_uint32 time_req, globus_xio_gsi_delegation_accept_callback_t callback, void callback_arg)`

Accept non-blocking delegation-at-any-time process.

This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts.

Parameters:

`restriction_oids` The OIDS for X.509 extensions to embed in the delegated credential
`restriction_buffers` The corresponding bodies for the X.509 extensions
`time_req` The lifetime of the delegated credential
`callback` The callback to call when the operation completes
`callback_arg` The arguments to pass to the callback

2.7 Types

Typedefs

```
typedef void( globus\_xio\_gsi\_delegationinit\_callback\_t )(globus_result_t result, void user_arg)
typedef void( globus\_xio\_gsi\_delegationaccept\_callback\_t )(globus_result_t result, gss_cred_id_t delegated_cred, OM_uint32 time_rec, void user_arg)
```

Enumerations

```
enum globus_xio_gsi_protection_level_t { GLOBUS_XIO_GSI_PROTECTIONLEVEL_NONE, GLOBUS_XIO_GSI_PROTECTIONLEVEL_INTEGRITY, GLOBUS_XIO_GSI_PROTECTIONLEVEL_PRIVACY } g
enum globus_xio_gsi_delegation_mode_t { GLOBUS_XIO_GSI_DELEGATION_MODE_NONE, GLOBUS_XIO_GSI_DELEGATION_MODE_LIMITED, GLOBUS_XIO_GSI_DELEGATION_MODE_FULL } g
enum globus_xio_gsi_proxy_mode_t { GLOBUS_XIO_GSI_PROXY_MODE_FULL, GLOBUS_XIO_GSI_PROXY_MODE_LIMITED, GLOBUS_XIO_GSI_PROXY_MODE_MANY } g
enum globus_xio_gsi_authorization_mode_t { GLOBUS_XIO_GSI_NO_AUTHORIZATION, GLOBUS_XIO_GSI_SELF_AUTHORIZATION, GLOBUS_XIO_GSI_IDENTITY_AUTHORIZATION, GLOBUS_XIO_GSI_HOST_AUTHORIZATION } g
```

2.7.1 Typedef Documentation

2.7.1.1 `typedef void(globus.xio_gsi.delegation.init_callback_t)(globus.result_t result, void user_arg)`

Globus XIO GSI init delegation callback.

2.7.1.2 `typedef void(globus.xio_gsi.delegation.acceptcallback_t)(globus.result_t result, gss_cred_id_t delegated_cred, OM_uint32 time_rec, void user_arg)`

Globus XIO GSI init delegation callback.

2.7.2 Enumeration Type Documentation

2.7.2.1 `enum globusxio_gsi.protection_level_t`

Globus XIO GSI protection levels.

Enumeration values:

`GLOBUS_XIO_GSI_PROTECTION_LEVEL_NONE` No security.

`GLOBUS_XIO_GSI_PROTECTION_LEVEL_INTEGRITY` Messages are signed.

`GLOBUS_XIO_GSI_PROTECTION_LEVEL_PRIVACY` Messages are signed and encrypted.

2.7.2.2 `enum globusxio_gsi.delegation_mode_t`

Globus XIO GSI delegation modes.

Enumeration values:

`GLOBUS_XIO_GSI_DELEGATION_MODE_NONE` No delegation.

`GLOBUS_XIO_GSI_DELEGATION_MODE_LIMITED` Delegate a limited proxy.

`GLOBUS_XIO_GSI_DELEGATION_MODE_FULL` Delegate a full proxy.

2.7.2.3 `enum globusxio_gsi.proxy_mode_t`

Globus XIO GSI proxy modes.

Enumeration values:

`GLOBUS_XIO_GSI_PROXY_MODE_FULL` Accept only full proxies.

`GLOBUS_XIO_GSI_PROXY_MODE_LIMITED` Accept full proxies and limited proxies if they are the only limited proxy in the cert chain.

`GLOBUS_XIO_GSI_PROXY_MODE_MANY` Accept both full and limited proxies unconditionally.

2.7.2.4 `enum globusxio_gsi.authorization_mode_t`

Globus XIO GSI authorization modes.

Enumeration values:

`GLOBUS_XIO_GSI_NO_AUTHORIZATION` Do not perform any authorization.

This will cause a error when used in conjunction with delegation on the init/client side.

`GLOBUS_XIO_GSI_SELF_AUTHORIZATION` Authorize the peer if the peer has the same identity as ourselves.

`GLOBUS_XIO_GSI_IDENTITY_AUTHORIZATION` Authorize the peer if the peer identity matches the identity set in the target name.

`GLOBUS_XIO_GSI_HOST_AUTHORIZATION` Authorize the peer if the identity of the peer matches the identity of the peer hostname.

2.8 Error Types

Enumerations

```
enum globusxio_gsi_error_t { GLOBUS_XIO_GSI_ERROR_INVALID_PROTECTIONLEVEL, GLOBUS_XIO_GSI_ERROR_WRAP_GSSAPI, GLOBUS_XIO_GSI_ERROR_EMPTY_TARGET_NAME, GLOBUS_XIO_GSI_ERROR_EMPTY_HOST_NAME, GLOBUS_XIO_GSI_AUTHORIZATION_FAILED, GLOBUS_XIO_GSI_ERROR_TOKEN_TOO_BIG }
```

2.8.1 Detailed Description

The GSI driver uses mostly GSSAPI calls, so it generally just wraps the underlying GSSAPI errors or uses generic xio errors.

See also:

`globusxio_driver_error_match()` , `globusxio_error_gssapi_match()` , `globusxio_error_match_openssl_error()`

2.8.2 Enumeration Type Documentation

2.8.2.1 enum globusxio_gsi_error_t

GSI driver specific error types.

Enumeration values:

`GLOBUS_XIO_GSI_ERROR_INVALID_PROTECTIONLEVEL` Indicates that the established context does not meet the required protection level.

`GLOBUS_XIO_GSI_ERROR_WRAP_GSSAPI` Wraps a GSSAPI error.

`GLOBUS_XIO_GSI_ERROR_EMPTY_TARGET_NAME` Indicates that `GLOBUS_XIO_GSI_IDENTITY_AUTHORIZATION` is set but that the target name is empty.

`GLOBUS_XIO_GSI_ERROR_EMPTY_HOST_NAME` Indicates that `GLOBUS_XIO_GSI_HOST_AUTHORIZATION` is set but that no host name is available.

`GLOBUS_XIO_GSI_AUTHORIZATION_FAILED` Indicates that the peer is not authorized.

`GLOBUS_XIO_GSI_ERROR_TOKEN_TOO_BIG` Indicates the token being read is too big.

Usually happens when someone tries to establish a non secure session with a endpoint that expects security

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