

# globus xio gsi driver Reference Manual

## 0.6

Generated by Doxygen 1.3.5

Sat Feb 6 11:20:26 2010

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## 1 globus xio gsi driver Module Index

### 1.1 globus xio gsi driver Modules

Here is a list of all modules:

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## 2 globus xio gsi driver Module Documentation

### 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_xio_handle_create()` or `globus_xio_server_register_accept()`.

If the handle is created with `globus_xio_server_register_accept()`, the `globus_xio_register_open()` 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_xio_handle_create()`, 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 `contact_string` passed to `globus_xio_register_open()`.

## 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_server_create()` causes a new transport-specific listener socket to be created to handle new GSI connections. `globus_xio_server_register_accept()` will accept a new connection for processing. `globus_xio_server_register_close()` 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 `globus_xio_server_create()`, but can be overridden with the attr to `globus_xio_register_open()`. Furthermore, accepted handles will use the GSSAPI accept security context call unless explicitly overridden during the `globus_xio_register_open()` call ([GLOBUS\\_XIO\\_GSI\\_FORCE\\_SERVER\\_MODE](#)).

## 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 Cntls

Enumerations

- enum `globus_xio_gsi_cmd_t`
  - [GLOBUS\\_XIO\\_GSI\\_SET\\_CREDENTIAL](#)
  - [GLOBUS\\_XIO\\_GSI\\_GET\\_CREDENTIAL](#)

GLOBUS\_XIO\_GSI\_SET\_GSSAPI\_REQ\_FLAGS  
 GLOBUS\_XIO\_GSI\_GET\_GSSAPI\_REQ\_FLAGS  
 GLOBUS\_XIO\_GSI\_SET\_PROXY\_MODE  
 GLOBUS\_XIO\_GSI\_GET\_PROXY\_MODE  
 GLOBUS\_XIO\_GSI\_SET\_AUTHORIZATION\_MODE  
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 GLOBUS\_XIO\_GSI\_GET\_WRAP\_MODE  
 GLOBUS\_XIO\_GSI\_SET\_BUFFER\_SIZE  
 GLOBUS\_XIO\_GSI\_GET\_BUFFER\_SIZE  
 GLOBUS\_XIO\_GSI\_SET\_PROTECTION\_LEVEL  
 GLOBUS\_XIO\_GSI\_GET\_PROTECTION\_LEVEL  
 GLOBUS\_XIO\_GSI\_GET\_TARGET\_NAME  
 GLOBUS\_XIO\_GSI\_SET\_TARGET\_NAME  
 GLOBUS\_XIO\_GSI\_GET\_CONTEXT  
 GLOBUS\_XIO\_GSI\_GET\_DELEGATED\_CRED  
 GLOBUS\_XIO\_GSI\_GET\_PEER\_NAME  
 GLOBUS\_XIO\_GSI\_GET\_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

## Functions

- globus\_result\_t globus\_xio\_attr\_cntl(attr, driver, GLOBUS\_XIO\_GSI\_SET\_CREDENTIAL, gss\_cred\_id\_t credential)
- globus\_result\_t globus\_xio\_handle\_cntl(handle, driver, GLOBUS\_XIO\_GSI\_SET\_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\_GSI\_SET\_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\_GSI\_SET\_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\_GSI\_SET\_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\_GSI\_SET\_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\_GSI\_SET\_SSL\_COMPATIBLE, globus\_bool\_t ssl\_mode)
- globus\_result\_t [globus\\_xio\\_attr\\_cntl](#)(attr, driver, GLOBUS\_XIO\_GSI\_SET\_ANON, globus\_bool\_t anon\_mode)
- globus\_result\_t [globus\\_xio\\_attr\\_cntl](#)(attr, driver, GLOBUS\_XIO\_GSI\_SET\_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\_GSI\_SET\_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\_GSI\_SET\_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)
- globus\_result\_t [globus\\_xio\\_attr\\_cntl](#)(attr, driver, GLOBUS\_XIO\_GSI\_SET\_TARGET\_NAME, gss\_name\_t target\_name)
- globus\_result\_t [globus\\_xio\\_handle\\_cntl](#)(handle, driver, GLOBUS\_XIO\_GSI\_GET\_CONTEXT, gss\_ctx\_id\_t context)
- globus\_result\_t [globus\\_xio\\_handle\\_cntl](#)(handle, driver, GLOBUS\_XIO\_GSI\_GET\_DELEGATED\_CRED, gss\_cred\_id\_t credential)
- globus\_result\_t [globus\\_xio\\_handle\\_cntl](#)(handle, driver, GLOBUS\_XIO\_GSI\_GET\_PEER\_NAME, gss\_name\_t peer\_name)
- globus\_result\_t [globus\\_xio\\_handle\\_cntl](#)(handle, driver, GLOBUS\_XIO\_GSI\_GET\_LOCAL\_NAME, gss\_name\_t local\_name)
- globus\_result\_t [globus\\_xio\\_handle\\_cntl](#)(handle, driver, GLOBUS\_XIO\_GSI\_INIT\_DELEGATION, gss\_cred\_id\_t credential, gss\_OID\_set restriction\_oids, gss\_buffer\_set\_t restriction\_buffers, OM\_uint32 time\_req)
- 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, gss\_buffer\_set\_t restriction\_buffers, OM\_uint32 time\_req, [globus\\_xio\\_gsi\\_delegation\\_init\\_callback\\_t](#) callback, void callback\_arg)
- globus\_result\_t [globus\\_xio\\_handle\\_cntl](#)(handle, driver, GLOBUS\_XIO\_GSI\_ACCEPT\_DELEGATION, gss\_cred\_id\_t credential, gss\_OID\_set restriction\_oids, gss\_buffer\_set\_t restriction\_buffers, OM\_uint32 time\_req)
- globus\_result\_t [globus\\_xio\\_handle\\_cntl](#)(handle, driver, GLOBUS\_XIO\_GSI\_REGISTER\_ACCEPT\_DELEGATION, gss\_OID\_set restriction\_oids, gss\_buffer\_set\_t restriction\_buffers, OM\_uint32 time\_req, [globus\\_xio\\_gsi\\_delegation\\_accept\\_callback\\_t](#) callback, void callback\_arg)
- globus\_result\_t [globus\\_xio\\_attr\\_cntl](#)(attr, driver, GLOBUS\_XIO\_GSI\_FORCE\_SERVER\_MODE, globus\_bool\_t server\_mode)

### 2.6.1 Detailed Description

GSI driver specific attrs and cntls.

See also:

[globus\\_xio\\_attr\\_cntl\(\)](#)  
[globus\\_xio\\_handle\\_cntl\(\)](#)

### 2.6.2 Enumeration Type Documentation

#### 2.6.2.1 enum [globus\\_xio\\_gsi\\_cmd\\_t](#)

GSI driver specific cntls.

Enumeration values:

[GLOBUS\\_XIO\\_GSI\\_SET\\_CREDENTIAL](#) See usage for [globus\\_xio\\_attr\\_cntl](#)/[globus\\_xio\\_handle\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_GET\\_CREDENTIAL](#) See usage for [globus\\_xio\\_attr\\_cntl](#)/[globus\\_xio\\_handle\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_SET\\_GSSAPI\\_REQ\\_FLAGS](#) See usage for [globus\\_xio\\_attr\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_GET\\_GSSAPI\\_REQ\\_FLAGS](#) See usage for [globus\\_xio\\_attr\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_SET\\_PROXY\\_MODE](#) See usage for [globus\\_xio\\_attr\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_GET\\_PROXY\\_MODE](#) See usage for [globus\\_xio\\_attr\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_SET\\_AUTHORIZATION\\_MODE](#) See usage for [globus\\_xio\\_attr\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_GET\\_AUTHORIZATION\\_MODE](#) See usage for [globus\\_xio\\_attr\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_SET\\_DELEGATION\\_MODE](#) See usage for [globus\\_xio\\_attr\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_GET\\_DELEGATION\\_MODE](#) See usage for [globus\\_xio\\_attr\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_SET\\_SSL\\_COMPATIBLE](#) See usage for [globus\\_xio\\_attr\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_SET\\_ANON](#) See usage for [globus\\_xio\\_attr\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_SET\\_WRAP\\_MODE](#) See usage for [globus\\_xio\\_attr\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_GET\\_WRAP\\_MODE](#) See usage for [globus\\_xio\\_attr\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_SET\\_BUFFER\\_SIZE](#) See usage for [globus\\_xio\\_attr\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_GET\\_BUFFER\\_SIZE](#) See usage for [globus\\_xio\\_attr\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_SET\\_PROTECTION\\_LEVEL](#) See usage for [globus\\_xio\\_attr\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_GET\\_PROTECTION\\_LEVEL](#) See usage for [globus\\_xio\\_attr\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_GET\\_TARGET\\_NAME](#) See usage for [globus\\_xio\\_attr\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_SET\\_TARGET\\_NAME](#) See usage for [globus\\_xio\\_attr\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_GET\\_CONTEXT](#) See usage for [globus\\_xio\\_handle\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_GET\\_DELEGATED\\_CRED](#) See usage for [globus\\_xio\\_handle\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_GET\\_PEER\\_NAME](#) See usage for [globus\\_xio\\_handle\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_GET\\_LOCAL\\_NAME](#) See usage for [globus\\_xio\\_handle\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_INIT\\_DELEGATION](#) See usage for [globus\\_xio\\_handle\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_REGISTER\\_INIT\\_DELEGATION](#) See usage for [globus\\_xio\\_handle\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_ACCEPT\\_DELEGATION](#) See usage for [globus\\_xio\\_handle\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_REGISTER\\_ACCEPT\\_DELEGATION](#) See usage for [globus\\_xio\\_handle\\_cntl](#)  
[GLOBUS\\_XIO\\_GSI\\_FORCE\\_SERVER\\_MODE](#) See usage for [globus\\_xio\\_attr\\_cntl](#)

### 2.6.3 Function Documentation

2.6.3.1 `globus_result_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_SET_CREDENTIAL, gss_cred_id_t credential)`

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

Set the credential to be used

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 `handle_cntl`, there must be no outstanding operations on the handle.

2.6.3.2 `globus_result_t globus_xio_handle_cntl (handle, driver, GLOBUS_XIO_GSI_SET_CREDENTIAL, gss_cred_id_t credential)`

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

Set the credential to be used

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 `handle_cntl`, there must be no outstanding operations on the handle.

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

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

Get the credential to be used

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 `globus_result_t globus_xio_handle_cntl (handle, driver, GLOBUS_XIO_GSI_GET_CREDENTIAL, gss_cred_id_t credential)`

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

Get the credential to be used

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 `globus_result_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_SET_GSSAPI_REQ_FLAGS, OM_uint32 req_ags)`

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

Set the GSSAPI req\_ags to be used

Parameters:

req\_ags The req\_ags to set

2.6.3.6 `globus_result_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_GET_GSSAPI_REQ_FLAGS, OM_uint32 req_ags)`

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

Get the GSSAPI req\_ags to be used

Parameters:

req\_ags The req\_ags currently in effect

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

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

Set the proxy mode

Parameters:

proxy\_mode The proxy mode to set

Note:

Changing the proxy mode changes the req\_ags

2.6.3.8 `globus_result_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_GET_PROXY_MODE, globus_xio_gsi_proxy_mode_t proxy_mode)`

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

Get the proxy mode

Parameters:

proxy\_mode The proxy mode that is currently in effect

Note:

Changing the proxy mode changes the req\_ags



2.6.3.9 `globus_result_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_SET_AUTHORIZATION_MODE, globus\_xio\_gsi\_authorization\_mode\_t authz_mode)`

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

Set the authorization mode

Parameters:

`authz_mode` The authorization mode to set

2.6.3.10 `globus_result_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_GET_AUTHORIZATION_MODE, globus\_xio\_gsi\_authorization\_mode\_t authz_mode)`

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

Get the authorization mode

Parameters:

`authz_mode` The authorization mode that is currently in effect

2.6.3.11 `globus_result_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_SET_DELEGATION_MODE, globus\_xio\_gsi\_delegation\_mode\_t delegation_mode)`

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

Set the delegation mode

Parameters:

`delegation_mode` The delegation mode to use

Note:

Changing the delegation mode changes the `req_ag`s

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)`

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

Get the delegation mode

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_SSL_COMPATIBLE, globus_bool_t ssl_mode)`

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

Make the on the wire protocol SSL compatible.

This implies no wrapping of security tokens and no delegation

Parameters:

ssl\_mode The ssl compatibility mode to use

Note:

Changing the ssl compatibility mode changes the req\_ags

2.6.3.14 globus\_result\_t globus\_xio\_attr\_cntl (attr, driver, GLOBUS\_XIO\_GSI\_SET\_ANON, globus\_bool\_t anon\_mode)

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

Do anonymous authentication

Parameters:

anon\_mode The ssl compatibility mode to use

Note:

Changing the ssl compatibility mode changes the req\_ags and the wrapping mode

2.6.3.15 globus\_result\_t globus\_xio\_attr\_cntl (attr, driver, GLOBUS\_XIO\_GSI\_SET\_WRAP\_MODE, globus\_boolean\_t wrap\_mode)

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

Set the wrapping mode

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

Parameters:

wrap\_mode The wrapping mode to use

2.6.3.16 globus\_result\_t globus\_xio\_attr\_cntl (attr, driver, GLOBUS\_XIO\_GSI\_GET\_WRAP\_MODE, globus\_boolean\_t wrap\_mode)

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

Get the wrapping mode

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.

2.6.3.17 globus\_result\_t globus\_xio\_attr\_cntl (attr, driver, GLOBUS\_XIO\_GSI\_SET\_BUFFER\_SIZE, globus\_size\_t buffer\_size)

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

Set the read buffer size

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

2.6.3.18 globus\_result\_t globus\_xio\_attr\_cntl (attr, driver, GLOBUS\_XIO\_GSI\_GET\_BUFFER\_SIZE, globus\_size\_t buffer\_size)

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

Get the read buffer size

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

2.6.3.19 globus\_result\_t globus\_xio\_attr\_cntl (attr, driver, GLOBUS\_XIO\_GSI\_SET\_PROTECTION\_LEVEL, globus\_xio\_gsi\_protection\_level\_t protection\_level)

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

Set the protection level

Parameters:

protection\_level The protection level to set

Note:

Changing the proxy mode changes the req\_ags

2.6.3.20 globus\_result\_t globus\_xio\_attr\_cntl (attr, driver, GLOBUS\_XIO\_GSI\_GET\_PROTECTION\_LEVEL, globus\_xio\_gsi\_protection\_level\_t protection\_level)

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

Get the protection level

Parameters:

protection\_level The current protection level

2.6.3.21 globus\_result\_t globus\_xio\_attr\_cntl (attr, driver, GLOBUS\_XIO\_GSI\_GET\_TARGET\_NAME, gss\_name\_t target\_name)

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

Set the expected peer name

Parameters:

target\_name The expected peer name

2.6.3.22 `globus_result_t globus_xio_attr_cntl (attr, driver, GLOBUS_XIO_GSI_SET_TARGET_NAME, gss_name_target_name)`

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

Get the expected peer name

Parameters:

`target_name` The expected peer name

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

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

Get the GSS context

Parameters:

`context` The GSS context

2.6.3.24 `globus_result_t globus_xio_handle_cntl (handle, driver, GLOBUS_XIO_GSI_GET_DELEGATED_CRED, gss_cred_id_t credential)`

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

Get the delegated credential

Parameters:

`credential` The delegated credential

2.6.3.25 `globus_result_t globus_xio_handle_cntl (handle, driver, GLOBUS_XIO_GSI_GET_PEER_NAME, gss_name_t peer_name)`

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

Get the name of the peer

Parameters:

`peer_name` The GSS name of the peer.

2.6.3.26 `globus_result_t globus_xio_handle_cntl (handle, driver, GLOBUS_XIO_GSI_GET_LOCAL_NAME, gss_name_t local_name)`

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

Get the GSS name associated with the local credentials

Parameters:

`local_name` The GSS name of the local credentials

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

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

Initialize delegation-at-any-time process

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

2.6.3.28 `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, gss_buffer_set_t restriction_buffers, OM_uint32 time_req, globus_xio_gsi_delegation_init_callback_t callback, void * callback_arg)`

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

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

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

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

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

Accept delegation-at-any-time process

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

2.6.3.30 `globus_result_t globus_xio_handle_cntl` (`handle`, `driver`, `GLOBUS_XIO_GSI_REGISTER_ACCEPT_DELEGATION`, `gss_OID_set restriction_oids`, `gss_buffer_set_t restriction_buffers`, `OM_uint32 time_req`, `globus_xio_gsi_delegation_accept_callback`, `void callback_arg`)

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

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

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

2.6.3.31 `globus_result_t globus_xio_attr_cntl` (`attr`, `driver`, `GLOBUS_XIO_GSI_FORCE_SERVER_MODE`, `globus_bool_t server_mode`)

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

Force the server mode setting.

This explicitly sets the directionality of context establishment and delegation.

Parameters:

- `server_mode` The server mode.

## 2.7 Types

Typedefs

- typedef void( [globus\\_xio\\_gsi\\_delegation\\_init\\_callback](#))(`globus_result_t result`, `void user_arg`)
- typedef void( [globus\\_xio\\_gsi\\_delegation\\_accept\\_callback](#))(`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\\_PROTECTION\\_LEVEL\\_NONE](#)  
[GLOBUS\\_XIO\\_GSI\\_PROTECTION\\_LEVEL\\_INTEGRITY](#)  
[GLOBUS\\_XIO\\_GSI\\_PROTECTION\\_LEVEL\\_PRIVACY](#)
- 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](#)

- enum [globus\\_xio\\_gsi\\_proxy\\_mode\\_t](#)
  - GLOBALBUS\_XIO\_GSI\_PROXY\_MODE\_FULL
  - GLOBALBUS\_XIO\_GSI\_PROXY\_MODE\_LIMITED
  - GLOBALBUS\_XIO\_GSI\_PROXY\_MODE\_MANY
- enum [globus\\_xio\\_gsi\\_authorization\\_mode\\_t](#)
  - GLOBALBUS\_XIO\_GSI\_NO\_AUTHORIZATION
  - GLOBALBUS\_XIO\_GSI\_SELF\_AUTHORIZATION
  - GLOBALBUS\_XIO\_GSI\_IDENTITY\_AUTHORIZATION
  - GLOBALBUS\_XIO\_GSI\_HOST\_AUTHORIZATION

### 2.7.1 Typedef Documentation

2.7.1.1 typedef void( [globus\\_xio\\_gsi\\_delegation\\_init\\_callback](#))(globus\_result\_t result, void user\_arg)

Globus XIO GSI init delegation callback.

2.7.1.2 typedef void( [globus\\_xio\\_gsi\\_delegation\\_accept\\_callback](#))(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 [globus\\_xio\\_gsi\\_protection\\_level\\_t](#)

Globus XIO GSI protection levels.

Enumeration values:

GLOBALBUS\_XIO\_GSI\_PROTECTION\_LEVEL\_NONE No security.

GLOBALBUS\_XIO\_GSI\_PROTECTION\_LEVEL\_INTEGRITY Messages are signed.

GLOBALBUS\_XIO\_GSI\_PROTECTION\_LEVEL\_PRIVACY Messages are signed and encrypted.

2.7.2.2 enum [globus\\_xio\\_gsi\\_delegation\\_mode\\_t](#)

Globus XIO GSI delegation modes.

Enumeration values:

GLOBALBUS\_XIO\_GSI\_DELEGATION\_MODE\_NONE No delegation.

GLOBALBUS\_XIO\_GSI\_DELEGATION\_MODE\_LIMITED Delegate a limited proxy.

GLOBALBUS\_XIO\_GSI\_DELEGATION\_MODE\_FULL Delegate a full proxy.

2.7.2.3 enum [globus\\_xio\\_gsi\\_proxy\\_mode\\_t](#)

Globus XIO GSI proxy modes.

Enumeration values:

GLOBALBUS\_XIO\_GSI\_PROXY\_MODE\_FULL Accept only full proxies.

GLOBAL\_XIO\_GSI\_PROXY\_MODE\_LIMITED Accept full proxies and limited proxies if they are the only limited proxy in the cert chain.

GLOBAL\_XIO\_GSI\_PROXY\_MODE\_MANY Accept both full and limited proxies unconditionally.

#### 2.7.2.4 enumglobus\_xio\_gsi\_authorization\_mode\_t

Globus XIO GSI authorization modes.

Enumeration values:

GLOBAL\_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.

GLOBAL\_XIO\_GSI\_SELF\_AUTHORIZATION Authorize the peer if the peer has the same identity as ourselves.

GLOBAL\_XIO\_GSI\_IDENTITY\_AUTHORIZATION Authorize the peer if the peer identity matches the identity set in the target name.

GLOBAL\_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

- enumglobus\_xio\_gsi\_error\_t
  - GLOBAL\_XIO\_GSI\_ERROR\_INVALID\_PROTECTION\_LEVEL
  - GLOBAL\_XIO\_GSI\_ERROR\_WRAP\_GSSAPI
  - GLOBAL\_XIO\_GSI\_ERROR\_EMPTY\_TARGET\_NAME
  - GLOBAL\_XIO\_GSI\_ERROR\_EMPTY\_HOST\_NAME
  - GLOBAL\_XIO\_GSI\_AUTHORIZATION\_FAILED
  - GLOBAL\_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:

```
globus_xio_driver_error_match()
globus_error_gssapi_match()
globus_error_match_openssl_error()
```

### 2.8.2 Enumeration Type Documentation

#### 2.8.2.1 enumglobus\_xio\_gsi\_error\_t

GSI driver specific error types.

Enumeration values:

GLOBAL\_XIO\_GSI\_ERROR\_INVALID\_PROTECTION\_LEVEL Indicates that the established context does not meet the required protection level.



GLOBUS\_XIO\_GSI\_ERROR\_WRAP\_GSSAPWraps a GSSAPI error.

GLOBUS\_XIO\_GSI\_ERROR\_EMPTY\_TARGET\_NAMEIndicates that GLOBUS\_XIO\_GSI\_IDENTITY\_-AUTHORIZATION is set but that the target name is empty.

GLOBUS\_XIO\_GSI\_ERROR\_EMPTY\_HOST\_NAMEIndicates 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\_BIGIndicates the 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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