globus xio gsi driver

2.4

Generated by Doxygen 1.8.3.1

Sat Nov 30 2013 19:27:16

Contents

1 Module Index **1**

1.1 Modules . . . 1

2 Module Documentation **1**

2.1 Globus XIO GSI Driver . . . 2

2.1.1 Detailed Description . . . 2

2.2 Opening/Closing . . . 3

2.3 Reading/Writing . . . 4

2.4 Server . . . 5

2.5 Env Variables . . . 6

2.6 Attributes and Cntls . . . 7

2.6.1 Detailed Description . . . 9

2.6.2 Enumeration Type Documentation . . . 9

2.6.3 Function Documentation . . . 10

2.7 Types . . . 18

2.7.1 Detailed Description . . . 18

2.7.2 Typedef Documentation . . . 18

2.7.3 Enumeration Type Documentation . . . 19

2.8 Error Types . . . 20

2.8.1 Detailed Description . . . 20

2.8.2 Enumeration Type Documentation . . . 20

1 Module Index

1.1 Modules

Here is a list of all modules:

Globus XIO GSI Driver **2**

Opening/Closing **3**

Reading/Writing **4**

Server **5**

Env Variables **6**

Attributes and Cntls **7**

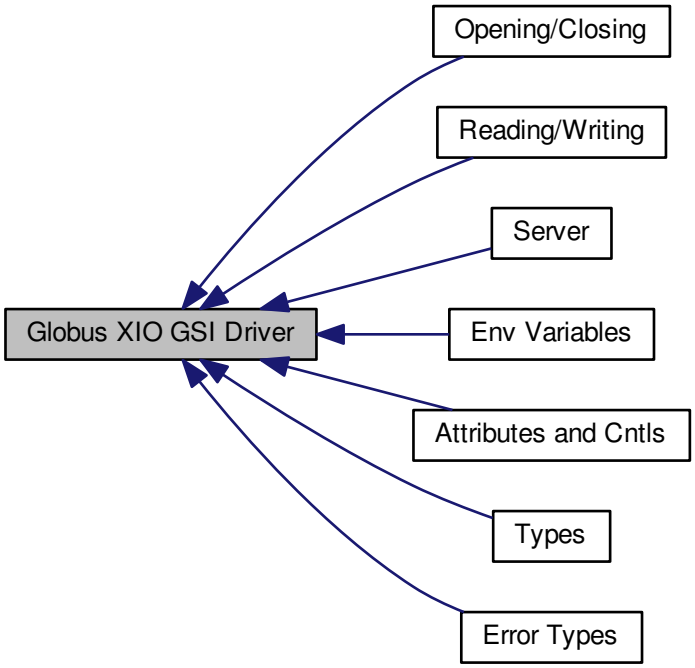
Types **18**

Error Types **20**

2 Module Documentation

2.1 Globus XIO GSI Driver

Collaboration diagram for Globus XIO GSI Driver:



Modules

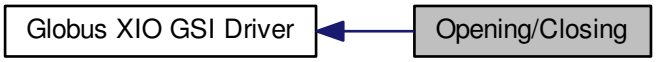
- **Opening/Closing**
- **Reading/Writing**
- **Server**
- **Env Variables**
- **Attributes and Cntls**
- **Types**
- **Error Types**

2.1.1 Detailed Description

The GSI driver.

2.2 Opening/Closing

Collaboration diagram for Opening/Closing:

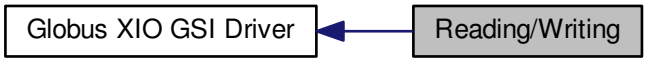


An XIO handle with the gsi driver can be created with either globus_xio_handle_create () or globus_xio_server_-register_accept (). If the handle is created with globus_xio_server_register_accept (), the globus_xio_register_open () call will proceed to accept a GSSAPI security context. Upon successful 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

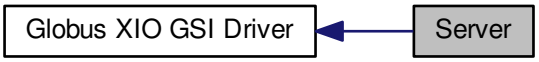
Collaboration diagram for Reading/Writing:



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

Collaboration diagram for Server:

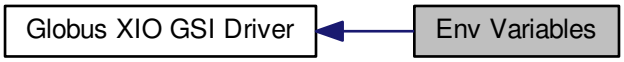


globus_xio_server_create() causes a new transport-specific listener socket to be created to handle new GSI connections. **globus_xio_server_register_accept()** will accept a new connection for processing. **globus_xio_server_register_close()** cleans up the internal resources associated with the http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

All accepted handles inherit all gsi specific attributes set in the attr to **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 overriden during the **globus_xio_register_open()** call (GLOBUS_XIO_GSI_FORCE_SERVER_MODE).

2.5 Env Variables

Collaboration diagram for 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

Collaboration diagram for 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,
  GLOBUS_XIO_GSI_GET_AUTHORIZATION_MODE,
  GLOBUS_XIO_GSI_SET_DELEGATION_MODE,
  GLOBUS_XIO_GSI_GET_DELEGATION_MODE,
  GLOBUS_XIO_GSI_SET_SSL_COMPATIBLE,
  GLOBUS_XIO_GSI_SET_ANON,
  GLOBUS_XIO_GSI_SET_WRAP_MODE,
  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,
  GLOBUS_XIO_GSI_SET_ALLOW_MISSING_SIGNING_POLICY,
  GLOBUS_XIO_GSI_GET_ALLOW_MISSING_SIGNING_POLICY }

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_flags)
- globus_result_t **globus_xio_attr_cntl** (attr, driver, **GLOBUS_XIO_GSI_GET_GSSAPI_REQ_FLAGS**, OM_uint32 *req_flags)
- 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)
- globus_result_t **globus_xio_attr_cntl** (attr, driver, **GLOBUS_XIO_GSI_SET_ALLOW_MISSING_SIGNING_POLICY**, globus_bool_t allow)
- globus_result_t **globus_xio_attr_cntl** (attr, driver, **GLOBUS_XIO_GSI_GET_ALLOW_MISSING_SIGNING_POLICY**, globus_bool_t *allow)

2.6.1 Detailed Description

GSI driver specific attrs and cntls.

See Also

globus_xio_attr_cntl (p. 17) ()
globus_xio_handle_cntl (p. 17) ()

2.6.2 Enumeration Type Documentation

2.6.2.1 enum globus_xio_gsi_cmd_t

doxygen varargs filter stuff

GSI driver specific cntls

Enumerator

GLOBUS_XIO_GSI_SET_CREDENTIAL See usage for: **globus_xio_attr_cntl** (p. 10), **globus_xio_handle_cntl** (p. 10).

GLOBUS_XIO_GSI_GET_CREDENTIAL See usage for: **globus_xio_attr_cntl** (p. 11), **globus_xio_handle_cntl** (p. 11).

GLOBUS_XIO_GSI_SET_GSSAPI_REQ_FLAGS See usage for: **globus_xio_attr_cntl** (p. 11).

GLOBUS_XIO_GSI_GET_GSSAPI_REQ_FLAGS See usage for: **globus_xio_attr_cntl** (p. 11).

GLOBUS_XIO_GSI_SET_PROXY_MODE See usage for: **globus_xio_attr_cntl** (p. 11).

GLOBUS_XIO_GSI_GET_PROXY_MODE See usage for: **globus_xio_attr_cntl** (p. 12).

GLOBUS_XIO_GSI_SET_AUTHORIZATION_MODE See usage for: **globus_xio_attr_cntl** (p. 12).

GLOBUS_XIO_GSI_GET_AUTHORIZATION_MODE See usage for: **globus_xio_attr_cntl** (p. 12).

GLOBUS_XIO_GSI_SET_DELEGATION_MODE See usage for: **globus_xio_attr_cntl** (p. 12).

GLOBUS_XIO_GSI_GET_DELEGATION_MODE See usage for: **globus_xio_attr_cntl** (p. 13).

GLOBUS_XIO_GSI_SET_SSL_COMPATIBLE See usage for: **globus_xio_attr_cntl** (p. 13).

GLOBUS_XIO_GSI_SET_ANON See usage for: **globus_xio_attr_cntl** (p. 13).

GLOBUS_XIO_GSI_SET_WRAP_MODE See usage for: **globus_xio_attr_cntl** (p. 13).

GLOBUS_XIO_GSI_GET_WRAP_MODE See usage for: **globus_xio_attr_cntl** (p. 14).

GLOBUS_XIO_GSI_SET_BUFFER_SIZE See usage for: **globus_xio_attr_cntl** (p. 14).

GLOBUS_XIO_GSI_GET_BUFFER_SIZE See usage for: **globus_xio_attr_cntl** (p. 14).

GLOBUS_XIO_GSI_SET_PROTECTION_LEVEL See usage for: **globus_xio_attr_cntl** (p. 14).

GLOBUS_XIO_GSI_GET_PROTECTION_LEVEL See usage for: **globus_xio_attr_cntl** (p. 14).

GLOBUS_XIO_GSI_GET_TARGET_NAME See usage for: **globus_xio_attr_cntl** (p. 15).

GLOBUS_XIO_GSI_SET_TARGET_NAME See usage for: **globus_xio_attr_cntl** (p. 15).

GLOBUS_XIO_GSI_GET_CONTEXT See usage for: **globus_xio_handle_cntl** (p. 15).

GLOBUS_XIO_GSI_GET_DELEGATED_CRED See usage for: **globus_xio_handle_cntl** (p. 15).

GLOBUS_XIO_GSI_GET_PEER_NAME See usage for: **globus_xio_handle_cntl** (p. 15).

GLOBUS_XIO_GSI_GET_LOCAL_NAME See usage for: **globus_xio_handle_cntl** (p. 16).

GLOBUS_XIO_GSI_INIT_DELEGATION See usage for: **globus_xio_handle_cntl** (p. 16).

GLOBUS_XIO_GSI_REGISTER_INIT_DELEGATION See usage for: **globus_xio_handle_cntl** (p. 16).

GLOBUS_XIO_GSI_ACCEPT_DELEGATION See usage for: **globus_xio_handle_cntl** (p. 16).

GLOBUS_XIO_GSI_REGISTER_ACCEPT_DELEGATION See usage for: **globus_xio_handle_cntl** (p. 17).

GLOBUS_XIO_GSI_FORCE_SERVER_MODE See usage for: **globus_xio_attr_cntl** (p. 17).

GLOBUS_XIO_GSI_SET_ALLOW_MISSING_SIGNING_POLICY See usage for: **globus_xio_attr_cntl** (p. 17).

GLOBUS_XIO_GSI_GET_ALLOW_MISSING_SIGNING_POLICY See usage for: **globus_xio_attr_cntl** (p. 17).

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 datastructure 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 datastructure 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 initization.

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 initization.

2.6.3.5 globus_result_t globus_xio_attr_cntl (attr , driver , GLOBUS_XIO_GSI_SET_GSSAPI_REQ_FLAGS , OM_uint32 *req_flags*)

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_flags to be used.

Parameters

req_flags	The req_flags 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_flags*)

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_flags to be used.

Parameters

req_flags	The req flags 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_flags

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_flags

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_flags

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_flags

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_flags 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_flags

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_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. 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_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. 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.

2.6.3.32 globus_result_t globus_xio_attr_cntl (attr , driver , GLOBUS_XIO_GSI_SET_ALLOW_MISSING_SIGNING_POLICY , globus_bool_t *allow*)

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

Parameters

allow	The flag setting to use

Note

Changing this flag changes the req_flags

2.6.3.33 globus_result_t globus_xio_attr_cntl (attr , driver , GLOBUS_XIO_GSI_GET_ALLOW_MISSING_SIGNING_POLICY , globus_bool_t * *allow*)

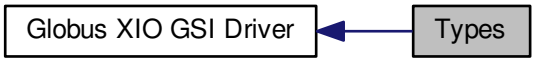
This is an overloaded member function, provided for convenience. It differs from the above function only in what argument(s) it accepts. Get the allow missing signing policy flag.

Parameters

allow	The flag currently set

2.7 Types

Collaboration diagram for Types:



Typedefs

- typedef void(∗ **globus_xio_gsi_delegation_init_callback_t**)(globus_result_t result, void ∗user_arg)
- typedef void(∗ **globus_xio_gsi_delegation_accept_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_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** {
  GLOBUS_XIO_GSI_PROXY_MODE_FULL,
  GLOBUS_XIO_GSI_PROXY_MODE_LIMITED,
  GLOBUS_XIO_GSI_PROXY_MODE_MANY }
- 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 }

2.7.1 Detailed Description

2.7.2 Typedef Documentation

2.7.2.1 typedef void(∗ globus_xio_gsi_delegation_init_callback_t)(globus_result_t result, void ∗user_arg)

Globus XIO GSI init delegation callback.

2.7.2.2 typedef void(∗ globus_xio_gsi_delegation_accept_callback_t)(globus_result_t result, gss_cred_id_t delegated_cred, OM_uint32 time_rec, void ∗user_arg)

Globus XIO GSI init delegation callback.

2.7.3 Enumeration Type Documentation

2.7.3.1 enum globus_xio_gsi_protection_level_t

Globus XIO GSI protection levels.

Enumerator

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.

2.7.3.2 enum globus_xio_gsi_delegation_mode_t

Globus XIO GSI delegation modes.

Enumerator

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.

2.7.3.3 enum globus_xio_gsi_proxy_mode_t

Globus XIO GSI proxy modes.

Enumerator

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.

2.7.3.4 enum globus_xio_gsi_authorization_mode_t

Globus XIO GSI authorization modes.

Enumerator

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.

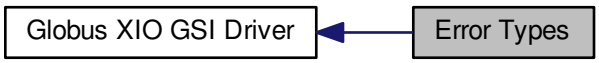
GLOBUS_XIO_GSI_SELF_AUTHORIZATION Authorize the peer if the peer has the same identity as ourselves.

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

Collaboration diagram for Error Types:



Enumerations

- enum **globus_xio_gsi_error_t** {
  GLOBUS_XIO_GSI_ERROR_INVALID_PROTECTION_LEVEL,
  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

globus_xio_driver_error_match ()
globus_error_gssapi_match ()
globus_error_match_openssl_error ()

2.8.2 Enumeration Type Documentation

2.8.2.1 enum globus_xio_gsi_error_t

GSI driver specific error types.

Enumerator

GLOBUS_XIO_GSI_ERROR_INVALID_PROTECTION_LEVEL Indicates that the established context does not meet the required protecetion 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 the token being read is too big. Usually happens when someone tries to establish a non secure session with a endpoint that expects security

Index

Attributes and Cntls, 7
    GLOBUS_XIO_GSI_ACCEPT_DELEGATION, 10
    GLOBUS_XIO_GSI_FORCE_SERVER_MODE, 10
    GLOBUS_XIO_GSI_GET_ALLOW_MISSING_SIGNING_POLICY, 10
    GLOBUS_XIO_GSI_GET_AUTHORIZATION_MODE, 9
    GLOBUS_XIO_GSI_GET_BUFFER_SIZE, 10
    GLOBUS_XIO_GSI_GET_CONTEXT, 10
    GLOBUS_XIO_GSI_GET_CREDENTIAL, 9
    GLOBUS_XIO_GSI_GET_DELEGATED_CRED, 10
    GLOBUS_XIO_GSI_GET_DELEGATION_MODE, 9
    GLOBUS_XIO_GSI_GET_GSSAPI_REQ_FLAGS, 9
    GLOBUS_XIO_GSI_GET_LOCAL_NAME, 10
    GLOBUS_XIO_GSI_GET_PEER_NAME, 10
    GLOBUS_XIO_GSI_GET_PROTECTION_LEVEL, 10
    GLOBUS_XIO_GSI_GET_PROXY_MODE, 9
    GLOBUS_XIO_GSI_GET_TARGET_NAME, 10
    GLOBUS_XIO_GSI_GET_WRAP_MODE, 9
    GLOBUS_XIO_GSI_INIT_DELEGATION, 10
    GLOBUS_XIO_GSI_REGISTER_ACCEPT_DELEGATION, 10
    GLOBUS_XIO_GSI_REGISTER_INIT_DELEGATION, 10
    GLOBUS_XIO_GSI_SET_ALLOW_MISSING_SIGNING_POLICY, 10
    GLOBUS_XIO_GSI_SET_ANON, 9
    GLOBUS_XIO_GSI_SET_AUTHORIZATION_MODE, 9
    GLOBUS_XIO_GSI_SET_BUFFER_SIZE, 9
    GLOBUS_XIO_GSI_SET_CREDENTIAL, 9
    GLOBUS_XIO_GSI_SET_DELEGATION_MODE, 9
    GLOBUS_XIO_GSI_SET_GSSAPI_REQ_FLAGS, 9
    GLOBUS_XIO_GSI_SET_PROTECTION_LEVEL, 10
    GLOBUS_XIO_GSI_SET_PROXY_MODE, 9
    GLOBUS_XIO_GSI_SET_SSL_COMPATIBLE, 9
    GLOBUS_XIO_GSI_SET_TARGET_NAME, 10
    GLOBUS_XIO_GSI_SET_WRAP_MODE, 9
    globus_xio_attr_cntl, 10–15, 17
    globus_xio_gsi_cmd_t, 9
    globus_xio_handle_cntl, 10, 11, 15, 16

Env Variables, 6
Error Types, 20
    GLOBUS_XIO_GSI_AUTHORIZATION_FAILED, 20
    GLOBUS_XIO_GSI_ERROR_EMPTY_HOST_NAME, 20
    GLOBUS_XIO_GSI_ERROR_EMPTY_TARGET_NAME, 20
    GLOBUS_XIO_GSI_ERROR_INVALID_PROTECTION_LEVEL, 20
    GLOBUS_XIO_GSI_ERROR_TOKEN_TOO_BIG, 20
    GLOBUS_XIO_GSI_ERROR_WRAP_GSSAPI, 20
    globus_xio_gsi_error_t, 20

GLOBUS_XIO_GSI_ACCEPT_DELEGATION
    Attributes and Cntls, 10
GLOBUS_XIO_GSI_AUTHORIZATION_FAILED
    Error Types, 20
GLOBUS_XIO_GSI_DELEGATION_MODE_FULL
    Types, 19
GLOBUS_XIO_GSI_DELEGATION_MODE_LIMITED
    Types, 19
GLOBUS_XIO_GSI_DELEGATION_MODE_NONE
    Types, 19
GLOBUS_XIO_GSI_ERROR_EMPTY_HOST_NAME
    Error Types, 20
GLOBUS_XIO_GSI_ERROR_EMPTY_TARGET_NAME
    Error Types, 20
GLOBUS_XIO_GSI_ERROR_INVALID_PROTECTION_LEVEL
    Error Types, 20
GLOBUS_XIO_GSI_ERROR_TOKEN_TOO_BIG
    Error Types, 20
GLOBUS_XIO_GSI_ERROR_WRAP_GSSAPI
    Error Types, 20
GLOBUS_XIO_GSI_FORCE_SERVER_MODE
    Attributes and Cntls, 10
GLOBUS_XIO_GSI_GET_ALLOW_MISSING_SIGNING_POLICY
    Attributes and Cntls, 10
GLOBUS_XIO_GSI_GET_AUTHORIZATION_MODE
    Attributes and Cntls, 9
GLOBUS_XIO_GSI_GET_BUFFER_SIZE
    Attributes and Cntls, 10
GLOBUS_XIO_GSI_GET_CONTEXT
    Attributes and Cntls, 10
GLOBUS_XIO_GSI_GET_CREDENTIAL
    Attributes and Cntls, 9
GLOBUS_XIO_GSI_GET_DELEGATED_CRED
    Attributes and Cntls, 10
GLOBUS_XIO_GSI_GET_DELEGATION_MODE
    Attributes and Cntls, 9
GLOBUS_XIO_GSI_GET_GSSAPI_REQ_FLAGS

Attributes and Cntls, 9
GLOBUS_XIO_GSI_GET_LOCAL_NAME
Attributes and Cntls, 10
GLOBUS_XIO_GSI_GET_PEER_NAME
Attributes and Cntls, 10
GLOBUS_XIO_GSI_GET_PROTECTION_LEVEL
Attributes and Cntls, 10
GLOBUS_XIO_GSI_GET_PROXY_MODE
Attributes and Cntls, 9
GLOBUS_XIO_GSI_GET_TARGET_NAME
Attributes and Cntls, 10
GLOBUS_XIO_GSI_GET_WRAP_MODE
Attributes and Cntls, 9
GLOBUS_XIO_GSI_HOST_AUTHORIZATION
Types, 19
GLOBUS_XIO_GSI_IDENTITY_AUTHORIZATION
Types, 19
GLOBUS_XIO_GSI_INIT_DELEGATION
Attributes and Cntls, 10
GLOBUS_XIO_GSI_NO_AUTHORIZATION
Types, 19
GLOBUS_XIO_GSI_PROTECTION_LEVEL_INTEGRITY
Types, 19
GLOBUS_XIO_GSI_PROTECTION_LEVEL_NONE
Types, 19
GLOBUS_XIO_GSI_PROTECTION_LEVEL_PRIVACY
Types, 19
GLOBUS_XIO_GSI_PROXY_MODE_FULL
Types, 19
GLOBUS_XIO_GSI_PROXY_MODE_LIMITED
Types, 19
GLOBUS_XIO_GSI_PROXY_MODE_MANY
Types, 19
GLOBUS_XIO_GSI_REGISTER_ACCEPT_DELEGATION
Attributes and Cntls, 10
GLOBUS_XIO_GSI_REGISTER_INIT_DELEGATION
Attributes and Cntls, 10
GLOBUS_XIO_GSI_SELF_AUTHORIZATION
Types, 19
GLOBUS_XIO_GSI_SET_ALLOW_MISSING_SIGNING_POLICY
Attributes and Cntls, 10
GLOBUS_XIO_GSI_SET_ANON
Attributes and Cntls, 9
GLOBUS_XIO_GSI_SET_AUTHORIZATION_MODE
Attributes and Cntls, 9
GLOBUS_XIO_GSI_SET_BUFFER_SIZE
Attributes and Cntls, 9
GLOBUS_XIO_GSI_SET_CREDENTIAL
Attributes and Cntls, 9
GLOBUS_XIO_GSI_SET_DELEGATION_MODE
Attributes and Cntls, 9
GLOBUS_XIO_GSI_SET_GSSAPI_REQ_FLAGS
Attributes and Cntls, 9
GLOBUS_XIO_GSI_SET_PROTECTION_LEVEL
Attributes and Cntls, 10
GLOBUS_XIO_GSI_SET_PROXY_MODE
Attributes and Cntls, 9
GLOBUS_XIO_GSI_SET_SSL_COMPATIBLE
Attributes and Cntls, 9
GLOBUS_XIO_GSI_SET_TARGET_NAME
Attributes and Cntls, 10
GLOBUS_XIO_GSI_SET_WRAP_MODE
Attributes and Cntls, 9
Globus XIO GSI Driver, 2
globus_xio_attr_cntl
Attributes and Cntls, 10–15, 17
globus_xio_gsi_authorization_mode_t
Types, 19
globus_xio_gsi_cmd_t
Attributes and Cntls, 9
globus_xio_gsi_delegation_accept_callback_t
Types, 18
globus_xio_gsi_delegation_init_callback_t
Types, 18
globus_xio_gsi_delegation_mode_t
Types, 19
globus_xio_gsi_error_t
Error Types, 20
globus_xio_gsi_protection_level_t
Types, 19
globus_xio_gsi_proxy_mode_t
Types, 19
globus_xio_handle_cntl
Attributes and Cntls, 10, 11, 15, 16

Opening/Closing, 3

Reading/Writing, 4

Server, 5

Types, 18
GLOBUS_XIO_GSI_DELEGATION_MODE_FULL, 19
GLOBUS_XIO_GSI_DELEGATION_MODE_LIMITED, 19
GLOBUS_XIO_GSI_DELEGATION_MODE_NONE, 19
GLOBUS_XIO_GSI_HOST_AUTHORIZATION, 19
GLOBUS_XIO_GSI_IDENTITY_AUTHORIZATION, 19
GLOBUS_XIO_GSI_NO_AUTHORIZATION, 19
GLOBUS_XIO_GSI_PROTECTION_LEVEL_INTEGRITY, 19
GLOBUS_XIO_GSI_PROTECTION_LEVEL_NONE, 19
GLOBUS_XIO_GSI_PROTECTION_LEVEL_PRIVACY, 19
GLOBUS_XIO_GSI_PROXY_MODE_FULL, 19

GLOBUS_XIO_GSI_PROXY_MODE_LIMITED,
19
GLOBUS_XIO_GSI_PROXY_MODE_MANY, 19
GLOBUS_XIO_GSI_SELF_AUTHORIZATION, 19
globus_xio_gsi_authorization_mode_t, 19
globus_xio_gsi_delegation_accept_callback_t, 18
globus_xio_gsi_delegation_init_callback_t, 18
globus_xio_gsi_delegation_mode_t, 19
globus_xio_gsi_protection_level_t, 19
globus_xio_gsi_proxy_mode_t, 19