

# globus gss assist Reference Manual

## 4.0

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## 1 Globus GSI GSS Assist

The GSS Assist code provides convenience functions for using the Globus GSS-API.

## 2 globus gss assist Module Index

### 2.1 globus gss assist Modules

Here is a list of all modules:

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## 3 globus gss assist Module Documentation

### 3.1 Activation

Globus GSI GSS Assist uses standard Globus module activation and deactivation.

De nes

- #define [GLOBUS\\_GSI\\_GSS\\_ASSIST\\_MODULE](#)

#### 3.1.1 Detailed Description

Globus GSI GSS Assist uses standard Globus module activation and deactivation.

Before any Globus GSS Assist functions are called, the following function must be called:

```
globus_module_activate(GLOBUS_GSI_GSS_ASSIST_MODULE);
```

This function returns `GLOBUS_SUCCESS` if Globus GSI GSS Assist was successfully initialized, and you are therefore allowed to call GSS Assist functions. Otherwise, an error code is returned, and GSS Assist functions should not be subsequently called. This function may be called multiple times.

To deactivate Globus GSS Assist, the following function must be called:

```
globus_module_deactivate(GLOBUS_GSI_GSS_ASSIST_MODULE)
```

This function should be called once for each time Globus GSI GSS Assist was activated.

### 3.1.2 De ne Documentation

#### 3.1.2.1 #de ne GLOBUS\_GSI\_GSS\_ASSIST\_MODULE

Module descriptor.

## 3.2 Utility Functions

Utility functions for GSSAPI.

### Accept Security Context

- OM\_uint32 [globus\\_gss\\_assist\\_accept\\_sec\\_context](#)(OM\_uint32 minor\_status, gss\_ctx\_id\_t context\_handle, const gss\_cred\_id\_t cred\_handle, char src\_name\_char, OM\_uint32 ret\_ags, int user\_to\_user\_ag, int token\_status, gss\_cred\_id\_t delegated\_cred\_handle, int gss\_assist\_get\_token)(void void , size\_t ), void gss\_assist\_get\_context, int gss\_assist\_send\_token)(void void , size\_t), void gss\_assist\_send\_context)

### Accept Security Context Asynchronous

- OM\_uint32 [globus\\_gss\\_assist\\_accept\\_sec\\_context\\_async](#)(OM\_uint32 minor\_status, gss\_ctx\_id\_t context\_handle, const gss\_cred\_id\_t cred\_handle, char src\_name\_char, OM\_uint32 ret\_ags, int user\_to\_user\_ag, void input\_buffer, size\_t input\_buffer\_len, void output\_bufferp, size\_t output\_buffer\_lenp, gss\_cred\_id\_t delegated\_cred\_handle)

### Acquire Credential

- OM\_uint32 [globus\\_gss\\_assist\\_acquire\\_cred](#)(OM\_uint32 minor\_status, gss\_cred\_usage\_t cred\_usage, gss\_cred\_id\_t output\_cred\_handle)

### Acquire Credential Extension

- OM\_uint32 [globus\\_gss\\_assist\\_acquire\\_cred\\_extn](#)(OM\_uint32 minor\_status, char desired\_name\_char, OM\_uint32 time\_req, const gss\_OID\_set desired\_mechs, gss\_cred\_usage\_t cred\_usage, gss\_cred\_id\_t output\_cred\_handle, gss\_OID\_set actual\_mechs, OM\_uint32 time\_rec)

### Display Status

- OM\_uint32 [globus\\_gss\\_assist\\_display\\_status](#)(FILE fp, char comment, OM\_uint32 major\_status, OM\_uint32 minor\_status, int token\_status)

## Display Status String

- OM\_uint32 [globus\\_gss\\_assist\\_display\\_status](#)(char str, char comment, OM\_uint32 major\_status, OM\_uint32 minor\_status, int token\_status)

## Gridmap

- int [globus\\_gss\\_assist\\_gridmap](#)(char globusidp, char useridp)

## User OK

- int [globus\\_gss\\_assist\\_userok](#)(char globusid, char userid)

## Map Local User

- int [globus\\_gss\\_assist\\_map\\_local\\_user](#)(char local\_user, char globusidp)

## [NOHEADER]

- OM\_uint32 [globus\\_gss\\_assist\\_import\\_sec\\_context](#)(OM\_uint32 minor\_status, gss\_ctx\_id\_t context\_handle, int token\_status, int fdp, FILE fperr)

## Init Security Context

- OM\_uint32 [globus\\_gss\\_assist\\_init\\_sec\\_context](#)(OM\_uint32 minor\_status, const gss\_cred\_id\_t cred\_handle, gss\_ctx\_id\_t context\_handle, char target\_name\_char, OM\_uint32 req\_ags, OM\_uint32 ret\_ags, int token\_status, int (gss\_assist\_get\_token)(void void , size\_t ), void gss\_assist\_get\_context, int (gss\_assist\_send\_token)(void void , size\_t ), void gss\_assist\_send\_context)

## Init Security Context Async

- OM\_uint32 [globus\\_gss\\_assist\\_init\\_sec\\_context\\_async](#)(OM\_uint32 minor\_status, const gss\_cred\_id\_t cred\_handle, gss\_ctx\_id\_t context\_handle, char target\_name\_char, OM\_uint32 req\_ags, OM\_uint32 ret\_ags, void input\_buffer, size\_t input\_buffer\_len, void output\_bufferp, size\_t output\_buffer\_lenp)

## Will Handle Restrictions

- OM\_uint32 [globus\\_gss\\_assist\\_will\\_handle\\_restrictions](#)(OM\_uint32 minor\_status, gss\_ctx\_id\_t context\_handle)

## Get Unwrap

- OM\_uint32 [globus\\_gss\\_assist\\_get\\_unwrap](#)(OM\_uint32 minor\_status, const gss\_ctx\_id\_t context\_handle, char data, size\_t length, int token\_status, int (gss\_assist\_get\_token)(void void , size\_t ), void gss\_assist\_get\_context, FILE fperr)

## Wrap

- `OM_uint32 globus_gss_assist_wrap_send(OM_uint32 minor_status, const gss_ctx_id_t context_handle, char data, size_t length, int token_status, int gss_assist_send_token)(void, void, size_t), void gss_assist_send_context, FILE fperr)`

## Defines

- `#define NI_MAXHOST 255`

## 3.2.1 Detailed Description

Utility functions for GSSAPI.

## 3.2.2 Define Documentation

3.2.2.1 `#define NI_MAXHOST 255`

Create a GSS Name structure from the given hostname. This function tries to resolve the given host name string to the canonical DNS name for the host.

## Parameters:

`hostname` The host name or numerical address to be resolved and transform into a GSS Name  
`authorization_hostname` The resulting GSS Name

## Returns:

`GLOBUS_SUCCESS` on successful completion, a error object otherwise

## 3.2.3 Function Documentation

3.2.3.1 `OM_uint32 globus_gss_assist_accept_sec_context(OM_uint32 minor_status, gss_ctx_id_t context_handle, const gss_cred_id_t cred_handle, char src_name_char, OM_uint32 ret_ag, int user_to_user_ag, int token_status, gss_cred_id_t delegated_cred_handle, int gss_assist_get_token, void, void, size_t), void gss_assist_get_context, int gss_assist_send_token, void, void, size_t), void gss_assist_send_context`

This routine accepts a GSSAPI security context and is called by the `gram_gatekeeper`. It isolates the GSSAPI from the rest of the `gram` code.

Initialize a gssapi security connection. Used by the server. The `context_handle` is returned, and there is one for each connection. This routine will take care of the looping and token processing, using the supplied `get_token` and `send_token` routines.

## Parameters:

`minor_status` gssapi return code  
`context_handle` pointer to returned context.  
`cred_handle` the cred handle obtained by `acquire_cred`.  
`src_name_char` Pointer to char string representation of the client which contacted the server. Maybe NULL if not wanted. Should be freed when done.  
`ret_ag` Pointer to which services are available after the connection is established. Maybe NULL if not wanted. We will also use this to pass in `ags` to the `globus` version of `gssapi_ssleay`

user\_to\_user\_ag Pointer to ag to be set if the src\_name is the same as our name. (Following are particular to this assist routine)

token\_status assist routine get/send token status

delegated\_cred\_handle Pointer to be set to the credential delegated by the client if delegation occurs during the security handshake

gss\_assist\_get\_token a get token routine

gss\_assist\_get\_context arg for the get token routine

gss\_assist\_send\_token a send token routine

gss\_assist\_send\_context arg for the send token routine

Returns:

GSS\_S\_COMPLETE on success Other gss errors on failure.

3.2.3.2 OM\_uint32 globus\_gss\_assist\_accept\_sec\_context\_async (OM\_uint32 minor\_status gss\_ctx\_id\_t context\_handle const gss\_cred\_id\_t cred\_handle char src\_name\_char OM\_uint32 ret\_ag, int user\_to\_user\_ag void input\_buffer, size\_t input\_buffer\_len, void output\_bufferp, size\_t output\_buffer\_lenp gss\_cred\_id\_t delegated\_cred\_handle

This is a asynchronous version of [globus\\_gss\\_assist\\_accept\\_sec\\_context\(\)](#). Instead of looping itself it passes in and out the read and written buffers and the calling application is responsible for doing the I/O directly.

Parameters:

minor\_status gssapi return code

context\_handle pointer to returned context.

cred\_handle the cred handle obtained by acquire\_cred.

src\_name\_char Pointer to char string representation of the client which contacted the server. Maybe NULL if not wanted. Should be freed when done.

ret\_ag Pointer to which services are available after the connection is established. Maybe NULL if not wanted. We will also use this to pass in ags to the globus version of gssapi\_ssleay

user\_to\_user\_ag Pointer to ag to be set if the src\_name is the same as our name.

input\_buffer pointer to a buffer received from peer.

input\_buffer\_len length of the buffer input\_buffer.

output\_bufferp pointer to a pointer which will be filled in with a pointer to a allocated block of memory. If non-NULL the contents of this block should be written to the peer where they will be fed into the gss\_assist\_init\_sec\_context\_async() function.

output\_buffer\_lenp pointer to an integer which will be filled in with the length of the allocated output buffer pointed to by output\_bufferp.

delegated\_cred\_handle pointer to be set to the credential delegated by the client if delegation occurs during the security handshake

Returns:

GSS\_S\_COMPLETE on successful completion when this function does not need to be called again.

GSS\_S\_CONTINUE\_NEEDED when output\_bufferp should be sent to the peer and a new input\_buffer read and this function called again.

Other gss errors on failure.

3.2.3.3 `OM_uint32 globus_gss_assist_acquire_cred (OM_uint32 minor_status, gss_cred_usage_t cred_usage, gss_cred_id_t output_cred_handle)`

Called once at the start of the process, to obtain the credentials the process is running under. The

Parameters:

minor\_status pointer for return code

cred\_usage GSS\_C\_INITIATE, GSS\_C\_ACCEPT, or GSS\_C\_BOTH

output\_cred\_handle Pointer to the returned handle. This needs to be passed to many gss routines.

Returns:

GSS\_S\_COMPLETE on success Other GSS return codes

3.2.3.4 `OM_uint32 globus_gss_assist_acquire_cred_ext (OM_uint32 minor_status, char desired_name, char, OM_uint32 time_req, const gss_OID_set desired_mech, gss_cred_usage_t cred_usage, gss_cred_id_t output_cred_handle, gss_OID_set actual_mechs, OM_uint32 time_req)`

Called once at the start of the process, to obtain the credentials the process is running under. All the parameters of the `gss_acquire_cred`, except the `desired_name` is a string of the form: `[type:]name`. This will be imported with the type.

Returns:

GSS\_S\_COMPLETE on success Other GSS return codes

See also:

`globus_gsi_gss_acquire_cred`

3.2.3.5 `OM_uint32 globus_gss_assist_display_status (FILE fp, char comment, OM_uint32 major_status, OM_uint32 minor_status, int token_status)`

Display the messages for the major and minor status on the file pointed at by `fp`. Takes care of the overloaded `major_status` if there was a problem with the `get_token` or `send_token` routines.

Parameters:

`fp` a file pointer

`comment` String to print out before other error messages.

`major_status` The major status to display

`minor_status` The minor status to display

`token_status` token status to display

Returns:

0

3.2.3.6 `OM_uint32 globus_gss_assist_display_status_str (char str, char comment, OM_uint32 major_status, OM_uint32 minor_status, int token_status)`

Display the messages for the major and minor status and return a string with the messages. Takes care of the overloaded `major_status` if there was a problem with the `get_token` or `send_token` routines.

Parameters:

`str` pointer to char for returned string. Must be freed

comment String to print out before other error messages.  
 major\_status The major status to display  
 minor\_status The minor status to display  
 token\_status token status to display

Returns:

0

### 3.2.3.7 int globus\_gss\_assist\_gridmap (char globusidp char useridp)

Routines callable from globus based code to map a globusID to a local unix user

GRIDMAP environment variable pointing at the map file. Defaults to gridmap

A gridmap file is required if being run as root. if being run as a user, it is not required, and defaults to the current user who is running the command.

This is the same file used by the gssapi\_clear\_text but will be used with other gssapi implementations which do not use the gridmap file.

Parameters:

globusidp the GSSAPI name from the client who requested authentication

useridp the resulting user ID name for the local system

Returns:

0 on success -1 if bad arguments 1 on error

### 3.2.3.8 int globus\_gss\_assist\_userok (char globusid char userid)

Check to see if a particular globusid is authorized to access the given local user account.

Parameters:

globusid the globus id in string form - this should be the user's subject

userid the local account that access is sought for

Returns:

0 on success (authorization allowed) -1 if bad arguments 1 on error

### 3.2.3.9 int globus\_gss\_assist\_map\_local\_user (char local\_user char globusidp)

Routine for returning the default globus ID associated with a local user name. This is somewhat of a hack since there is not a guaranteed one-to-one mapping. What we do is look for the first entry in the gridmap file that has the local user as the default login. If the user is not a default on any entry, we find the first entry in which the user exists as a secondary mapping.

Parameters:

local\_user the local username to find the DN for

globusidp the first DN found that reverse maps from the local\_user



**Returns:**

0 on success, otherwise an error object identifier is returned. use `globus_error_get` to get the error object from the id. The resulting error object must be freed using `globus_object_free` when it is no longer needed.

**See also:**

`globus_error_get`  
`globus_object_free`

3.2.3.10 `OM_uint32 globus_gss_assist_import_sec_context (OM_uint32 minor_status, gss_ctx_id_t context_handle, int token_status, int fdp, FILE fperr)`

Import the security context from a file

**Parameters:**

`minor_status` GSSAPI return code. This is a Globus Error code (or `GLOBUS_SUCCESS`) cast to a `OM_uint32` pointer. If an error has occurred, the resulting error (from calling `globus_error_get` on this variable) needs to be freed by the caller  
`context_handle` The imported context  
`token_status` Errors that occurred while reading from the file  
`fdp` the file descriptor pointing to a file containing the security context  
`fperr` `FILE` to write error messages

**Returns:**

the major status

3.2.3.11 `OM_uint32 globus_gss_assist_init_sec_context (OM_uint32 minor_status, const gss_cred_id_t cred_handle, gss_ctx_id_t context_handle, char target_name_char, OM_uint32 req_flags, OM_uint32 ret_flags, int token_status, int( globus_gss_assist_get_token(void, void *, size_t ), void globus_gss_assist_get_context(int( globus_gss_assist_send_token(void, void *, size_t), void globus_gss_assist_send_context`

Initialize a gssapi security connection. Used by the client. The `context_handle` is returned, and there is one for each connection. This routine will take care of the looping and token processing, using the supplied `get_token` and `send_token` routines.

**Parameters:**

`minor_status` GSSAPI return code. The new `minor_status` is a `globus_result_t` cast to an `OM_uint32`. If the call was successful, the minor status is equivalent to `GLOBUS_SUCCESS`. Otherwise, it is a globus error object ID that can be passed to `globus_error_get` to get the error object. The error object needs to be freed with `globus_object_free`.  
`cred_handle` the cred handle obtained by `acquire_cred`.  
`context_handle` pointer to returned context.  
`target_name_char` char string representation of the server to be contacted.  
`req_flags` request flags, such as `GSS_C_DELEG_FLAG` for delegation and the `GSS_C_MUTUAL_FLAG` for mutual authentication.  
`ret_flags` Pointer to which services are available after the connection is established. Maybe NULL if not wanted.

The Following are particular to this assist routine:

## Parameters:

token\_status the assist routine's get/send token status  
 gss\_assist\_get\_token function pointer for getting the token  
 gss\_assist\_get\_contexts text argument passed to the gss\_assist\_get\_token function  
 gss\_assist\_send\_token function pointer for setting the token  
 gss\_assist\_send\_contexts text argument passed to the gss\_assist\_set\_token function pointer

## Returns:

The major status

3.2.3.12 OM\_uint32 globus\_gss\_assist\_init\_sec\_context\_async (OM\_uint32 minor\_status, const gss\_cred\_id\_t cred\_handle, gss\_ctx\_id\_t context\_handle, char target\_name\_char, OM\_uint32 req\_ags, OM\_uint32 ret\_ags, void input\_buffer, size\_t input\_buffer\_len, void output\_buffer, size\_t output\_buffer\_len)

This is an asynchronous version of [globus\\_gss\\_assist\\_init\\_sec\\_context\(\)](#). Instead of looping itself it passes in and out the read and written buffers and the calling application is responsible for doing the I/O directly.

## Parameters:

minor\_status GSSAPI return code. The new minor status is a globus\_result\_t cast to a OM\_uint32. If an error occurred (GSS\_ERROR(major\_status)) the minor\_status is a globus error object id. The error object can be obtained via globus\_error\_get and should be destroyed with globus\_object\_free when no longer needed. If no error occurred, the minor status is equal to GLOBUS\_SUCCESS.  
 cred\_handle the cred handle obtained by acquire\_cred.  
 context\_handle pointer to returned context.  
 target\_name\_char char string representation of the server to be contacted.  
 req\_ags request\_ags, such as GSS\_C\_DELEG\_FLAG for delegation and the GSS\_C\_MUTUAL\_FLAG for mutual authentication.  
 ret\_ags Pointer to which services are available after the connection is established. Maybe NULL if not wanted.  
 input\_buffer pointer to a buffer received from peer. Should be NULL on rst call.  
 input\_buffer\_len length of the buffer input\_buffer. Should be zero on rst call.  
 output\_buffer pointer to a pointer which will be lled in with a pointer to a allocated block of memory. If non-NULL the contents of this block should be written to the peer where they will be fed into the gss\_assist\_init\_sec\_context\_async() function.  
 output\_buffer\_len pointer to an integer which will be lled in with the length of the allocated output buffer pointed to by output\_buffer.

## Returns:

GSS\_S\_COMPLETE on successful completion when this function does not need to be called again.

GSS\_S\_CONTINUE\_NEEDED when output\_buffer should be sent to the peer and a new input\_buffer read and this function called again.

Other gss errors on failure.

3.2.3.13 OM\_uint32 globus\_gss\_assist\_will\_handle\_restrictions (OM\_uint32 minor\_status, gss\_ctx\_id\_t context\_handle)

Sets the context to handle restrictions

## Parameters:

minor\_status the resulting minor status from setting the context handle  
 context\_handle the context handle to set the minor status of

## Returns:

the major status from setting the context

3.2.3.14 OM\_uint32 globus\_gss\_assist\_get\_unwrap (OM\_uint32 minor\_status, const gss\_ctx\_id\_t context\_handle, char \*data, size\_t length, int token\_status, int (\*gss\_assist\_get\_token)(void \*, void \*, size\_t), void (\*gss\_assist\_get\_context)(FILE \*fperr))

Gets a token using the specific tokenizing functions, and performs the GSS unwrap of that token

## See also:

gss\_unwrap

## Parameters:

minor\_status GSSAPI return code,

## See also:

gss\_unwrap

## Parameters:

context\_handle the context  
 data pointer to be set to the unwrapped application data. This must be freed by the caller.  
 length pointer to be set to the length of the data byte array.  
 token\_status assist routine get/send token status  
 gss\_assist\_get\_token a detokenizing routine  
 gss\_assist\_get\_context its arg for above routine  
 fperr error stream to print to

## Returns:

GSS\_S\_COMPLETE on success Other gss errors on failure.

3.2.3.15 OM\_uint32 globus\_gss\_assist\_wrap\_send (OM\_uint32 minor\_status, const gss\_ctx\_id\_t context\_handle, char \*data, size\_t length, int token\_status, int (\*gss\_assist\_send\_token)(void \*, void \*, size\_t), void (\*gss\_assist\_send\_context)(FILE \*fperr))

## Parameters:

minor\_status GSSAPI return code. If the call was successful, the minor status is equal to GLOBUS\_SUCCESS. Otherwise, it is an error object ID for which globus\_error\_get() and globus\_object\_free() can be used to get and destroy it.  
 context\_handle the context.  
 data pointer to application data to wrap and send  
 length length of the data array  
 token\_status assist routine get/send token status  
 gss\_assist\_send\_token a send\_token routine

`gss_assist_send_context` is arg for the `send_token`  
`fperr` is handle to write error message to.

Returns:

GSS\_S\_COMPLETE on success Other gss errors on failure.

See also:

`gss_wrap()`

### 3.3 GSI GSS Assist Constants

Enumerations

- enum `globus_gsi_gss_assist_error_t`
  - GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_SUCCESS=0,
  - GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_WITH\_ARGUMENTS=1,
  - GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_USER\_ID\_DOESNT\_MATCH=2,
  - GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_IN\_GRIDMAP\_NO\_USER\_ENTRY=3,
  - GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_WITH\_GRIDMAP=4,
  - GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_INVALID\_GRIDMAP\_FORMAT=5,
  - GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_ERROR=6,
  - GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_WITH\_IN=7,
  - GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_WITH\_WRAP=8,
  - GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_WITH\_TOKEN=9,
  - GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_EXPORTING\_CONTEXT=10,
  - GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_IMPORTING\_CONTEXT=11,
  - GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_INITIALIZING\_CALLOUT\_HANDLE=12,
  - GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_WITH\_CALLOUT\_CONFIG=13,
  - GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_CALLOUT\_ERROR=14,
  - GLOBUS\_GSI\_GSS\_ASSIST\_GSSAPI\_ERROR=15,
  - GLOBUS\_GSI\_GSS\_ASSIST\_GRIDMAP\_LOOKUP\_FAILED=16,
  - GLOBUS\_GSI\_GSS\_ASSIST\_BUFFER\_TOO\_SMALL=17,
  - GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_CANONICALIZING\_HOSTNAME=18 }

#### 3.3.1 Enumeration Type Documentation

##### 3.3.1.1 enum `globus_gsi_gss_assist_error_t`

GSI GSS Assist Error codes.

Enumeration values:

GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_SUCCESS Success.

GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_WITH\_ARGUMENTS No user entry in gridmap file.

GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_USER\_ID\_DOESNT\_MATCH Error user ID doesn't match.

GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_IN\_GRIDMAP\_NO\_USER\_ENTRY Error with arguments passed to function.  
 GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_WITH\_GRIDMAP\_INVALID le. Error querying gridmap le.  
 GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_INVALID\_GRIDMAP\_FORMAT Invalid gridmap le format.  
 GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_ERRNO System Error.  
 GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_WITH\_INIT Error during context initialization.  
 GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_WITH\_WRAP Error during message wrap.  
 GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_WITH\_TOKEN Error with token.  
 GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_EXPORTING\_CONTEXT Error exporting context.  
 GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_IMPORTING\_CONTEXT Error importing context.  
 GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_INITIALIZING\_CALLOUT\_HANDLE Error initializing callout handle.  
 GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_WITH\_CALLOUT\_CONFIG Error reading callout configuration.  
 GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_CALLING\_CALLOUT Error invoking callout.  
 GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_GSSAPI Returned an error.  
 GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_GRIDMAP\_LOOKUP\_FAILED Gridmap lookup failure.  
 GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_BUFFER\_TOO\_SMALL Caller provided insufficient buffer space for local identity.  
 GLOBUS\_GSI\_GSS\_ASSIST\_ERROR\_CANONICALIZING\_HOSTNAME Failed to obtain canonical host name.

### 3.4 Security Token Transport

Token routines using fread and fwrite.

Token Get File Descriptor

- int `globus_gss_assist_token_get`(void arg, void bufp, size\_t sizep)

Token Send File Descriptor

- int `globus_gss_assist_token_send`(void arg, void buf, size\_t size)

Token Send File Descriptor Without Length

- int `globus_gss_assist_token_send_fd_without_len`(void arg, void buf, size\_t size)

Token Send File Descriptor Flag EX

- int `globus_gss_assist_token_send_fd_ex`(void exp, void buf, size\_t size)

Token Get Nexus

- int `globus_gss_assist_token_get_nexus`(void arg, void bufp, size\_t sizep)

## Token Send Nexus

- int [globus\\_gss\\_assist\\_token\\_send\\_nexus](#)(void arg, void buf, size\_t size)

## Token Send Nexus Without Length

- int [globus\\_gss\\_assist\\_token\\_send\\_nexus\\_without\\_length](#)(void arg, void buf, size\_t size)

## Token Send Nexus EX

- int [globus\\_gss\\_assist\\_token\\_send\\_nexus\\_ex](#)(void exp, void buf, size\_t size)

## 3.4.1 Detailed Description

Token routines using fread and fwrite.

Additional code has been added to detect tokens which are sent without a length field. These can currently be only SSL tokens. This does require some knowledge of the underlying GSSAPI, by the application, but is within the guidelines of the GSSAPI specifications.

The get routine will automatically attempt this test, while a new send routine will check a flag. The old send routine will work as before, sending a 4-byte length.

## 3.4.2 Function Documentation

3.4.2.1 int [globus\\_gss\\_assist\\_token\\_get\\_fd](#)(void arg, void \*bufp, size\_t \*sizep)

Use an open file descriptor to get a token. This function provides parameter types that allow it to be passed to [globus\\_gss\\_assist\\_init\\_sec\\_context](#) and [globus\\_gss\\_assist\\_accept\\_sec\\_context](#).

Parameters:

- arg the FILE stream cast to a void pointer
- bufp the resulting token
- sizep the size (number of bytes) read into bufp

Returns:

- 0 on success
- < 0 is internal return
- > 0 is the -errno

3.4.2.2 int [globus\\_gss\\_assist\\_token\\_send\\_fd](#)(void arg, void \*buf, size\_t size)

Write a token to the open file descriptor. Will write it with a 4 byte length. This function provides parameter types that allow it to be passed to [globus\\_gss\\_assist\\_init\\_sec\\_context](#) and [globus\\_gss\\_assist\\_accept\\_sec\\_context](#).

Parameters:

- arg the FILE stream to send the token on
- buf the token
- size the size of the token in bytes

Returns:

- 0 on success
- < 0 on error
- > 0 on errno error

3.4.2.3 `int globus_gss_assist_token_send_fd_without_length (void *arg, void *buf, size_t size)`

Write a token to the open file descriptor. Will write it without a length. so as to

3.4.2.4 `int globus_gss_assist_token_send_fd_ex (void *exp, void *buf, size_t size)`

Write a token to the open file descriptor. will look at the flag to determine if the length field need to be written.

Parameters:

exp the globus\_gss\_assist\_ex variable that holds the FILE stream and flags to be set  
buf the token buffer to send  
size size of the token buffer

Returns:

0 on success  
-1 on error  
< 0 on errno error (-errno)

3.4.2.5 `int globus_gss_assist_token_get_nexus (void *arg, void *bufp, size_t *sizep)`

Use a nexus socket to get the tokens.

Additional code has been added to detect tokens which are sent without a length field. These can currently be only SSL tokens. This does require some knowledge of the underlying GSSAPI, by the application, but is within the guidelines of the GSSAPI specifications.

The get routine will automatically attempt this test, while a new send routine will check a flag. The old send routine will work as before, sending a 4-byte length.

Parameters:

arg the globus\_io\_handle\_t to get the token from  
bufp the buffer to read the token into  
sizep the size of what gets read

Returns:

0 on success  
-1 is internal return  
< 0 is the -errno returned from nexus

3.4.2.6 `int globus_gss_assist_token_send_nexus (void *arg, void *buf, size_t size)`

Write a token to the nexus io handle. This function provides parameter types that allow it to be passed to [globus\\_gss\\_assist\\_init\\_sec\\_context](#) and [globus\\_gss\\_assist\\_accept\\_sec\\_context](#)

Parameters:

arg nexus io handle to send the token on  
buf the token as a buffer  
size the size of the buffer

Returns:

0 on success  
-1 on error  
< 0 on errno error (-errno)

3.4.2.7 `int globus_gss_assist_token_send_nexus_without_length (void *arg, void *buf, size_t size)`

Send a token on a nexus IO handle. Using this function the length is not sent.

See also:

[globus\\_gss\\_assist\\_token\\_get\\_nexus\\_for\(\)](#) for further info.

3.4.2.8 `int globus_gss_assist_token_send_nexus_ex (void *exp, void *buf, size_t size)`

Write a token to the open file descriptor. Will look at the exp to determine if the length field needs to be written.

Parameters:

exp The globus\_gss\_assist\_ex that wraps the nexus IO handle to send the token on

buf the buffer holding the token

size the size of the buffer

Returns:

0 on success  
-1 on error  
< 0 on errno error (-errno)



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