

globus gss assist
8.7

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1 Globus GSI GSS Assist

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

2 Module Index

2.1 Modules

Here is a list of all modules:

Activation	1
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3 Module Documentation

3.1 Activation

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

Defines

- `#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 Define Documentation

3.1.2.1 `#define GLOBUS_GSI_GSS_ASSIST_MODULE`

Module descriptor.

3.2 Utility Functions

Utility functions for GSSAPI.

Defines

- `#define GlobusGssAssistFreeDNArray(dn_a)`
- `#define NI_MAXHOST 255`

Functions

- `int globus_gss_assist_gridmap` (char *globusidp, char **useridp)
- `int globus_gss_assist_userok` (char *globusid, char *userid)
- `int globus_gss_assist_map_local_user` (char *local_user, char **globusidp)
- `globus_result_t globus_gss_assist_lookup_all_globusid` (char *username, char **dns[], int *dn_count)
- `globus_result_t globus_gss_assist_map_and_authorize` (gss_ctx_id_t context, char *service, char *desired_identity, char *identity_buffer, unsigned int identity_buffer_length)

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_flags, int *user_to_user_flag, 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_flags, int *user_to_user_flag, 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_ext** (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_str** (char **str, char *comment, OM_uint32 major_status, OM_uint32 minor_status, int token_status)
- 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_flags, OM_uint32 *ret_flags, 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_flags, OM_uint32 *ret_flags, 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)

3.2.1 Detailed Description

Utility functions for GSSAPI.

3.2.2 Define Documentation

3.2.2.1 #define GlobusGssAssistFreeDNArray(dn_a)

Free array of distinguished names. Free the contents of a name array created during a successful call to **globus_gss_assist_lookup_all_globusid()** (p. 9)

Parameters:

dn_a Array of names to free.

Return values:

void

3.2.2.2 #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_flags*, int * *user_to_user_flag*, int * *token_status*, gss_cred_id_t * *delegated_cred_handle*, int(*) (void *, void **, size_t *) *gss_assist_get_token*, void * *gss_assist_get_context*, int(*) (void *, void *, size_t) *gss_assist_send_token*, 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_flags Pointer to which services are available after the connection is established. Maybe NULL if not wanted. We will also use this to pass in flags to the globus version of gssapi_ssleay

user_to_user_flag Pointer to flag 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 first arg for the get token routine

gss_assist_send_token a send token routine

gss_assist_send_context first 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_flags*, int * *user_to_user_flag*, 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 an asynchronous version of the **globus_gss_assist_accept_sec_context()** (p. 5) function. 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_flags Pointer to which services are available after the connection is established. Maybe NULL if not wanted. We will also use this to pass in flags to the globus version of gssapi_ssleay

user_to_user_flag Pointer to flag 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_mechs, gss_cred_usage_t cred_usage, gss_cred_id_t * output_cred_handle, gss_OID_set * actual_mechs, OM_uint32 * time_rec)

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*)

Look up the default mapping for a Grid identity in a gridmap file. The **globus_gss_assist_gridmap()** (p. 8) function parses the default gridmap file and modifies its *useridp* parameter to point to a copy of the string containing the default local identity that the grid identity is mapped to. If successful, the caller is responsible for freeing the string pointed to by *useridp*.

By default, **globus_gss_assist_gridmap()** (p. 8) looks for the default gridmap file defined by the value of the GRIDMAP environment variable. If that is not set, it falls back to \$HOME/.gridmap.

Parameters:

globusidp The GSSAPI name string of the identity who requested authorization

useridp A pointer to a string to be set to the default user ID for the local system. No validation is done to check that such a user exists.

Returns:

On success, **globus_gss_assist_gridmap()** (p. 8) returns 0 and modifies the the string pointed to by the *useridp* parameter. If an error occurs, a non-zero value is returned and the value pointed to by *useridp* is undefined.

Return values:

GLOBUS_SUCCESS Success

1 Error

3.2.3.8 int globus_gss_assist_userok (char * *globusid*, char * *userid*)

Gridmap entry existence check. The **globus_gss_assist_userok()** (p. 8) function parses the default gridmap file and checks whether any mapping exists for the grid identity passed as the *globusid* parameter and the local user identity passed as the @ *userid* parameter.

By default, **globus_gss_assist_userok()** (p. 8) looks for the default gridmap file defined by the value of the GRIDMAP environment variable. If that is not set, it falls back to \$HOME/.gridmap.

Parameters:

globusid The GSSAPI name string of the identity who requested authorization

userid The local account name that access is sought for.

Returns:

If **globus_gss_assist_userok()** (p. 8) is able to find a mapping between *globusid* and *userid*, it returns 0; otherwise it returns 1.

Return values:

GLOBUS_SUCCESS Success

1 Error

3.2.3.9 `int globus_gss_assist_map_local_user (char * local_user, char ** globusidp)`

Look up the default Grid identity associated with a local user name. The `globus_gss_assist_map_local_user()` (p. 9) function parses the gridmap file to determine if the user name passed as the *local_user* parameter is the default local user for a Grid ID in the gridmap file. If so, it modifies *globusidp* to point to a copy of that ID. Otherwise, it searches the gridmap file for a Grid ID that has a non-default mapping for *local_user* and modifies *globusidp* to point to a copy of that ID. If successful, the caller is responsible for freeing the string pointed to by the *globusidp* pointer.

By default, `globus_gss_assist_map_local_user()` (p. 9) looks for the default gridmap file defined by the value of the GRIDMAP environment variable. If that is not set, it falls back to \$HOME/.gridmap.

Parameters:

local_user The local username to find a Grid ID for

globusidp A Grid ID that maps from the *local_user*.

Returns:

On success, `globus_gss_assist_map_local_user()` (p. 9) returns 0 and modifies *globusidp* to point to a Grid ID that maps to *local_user*; otherwise, `globus_gss_assist_map_local_user()` (p. 9) returns 1 and the value pointed to by *globusidp* is undefined.

Return values:

GLOBAL_SUCCESS Success

1 Error

3.2.3.10 `globus_result_t globus_gss_assist_lookup_all_globusid (char * username, char ** dns[], int * dn_count)`

Look up all Grid IDs associated with a local user ID. The `globus_gss_assist_lookup_all_globusid()` (p. 9) function parses a gridmap file and finds all Grid IDs that map to a local user ID. The *dns* parameter is modified to point to an array of Grid ID strings from the gridmap file, and the *dn_count* parameter is modified to point to the number of Grid ID strings in the array. The caller is responsible for freeing the array using the macro **GlobusGssAssistFreeDNArray()** (p. 4).

By default, `globus_gss_assist_lookup_all_globusid()` (p. 9) looks for the default gridmap file defined by the value of the GRIDMAP environment variable. If that is not set, it falls back to \$HOME/.gridmap.

Parameters:

username The local username to look up in the gridmap file.

dns A pointer to an array of strings. This function modifies this to point to a newly allocated array of strings. The caller must use the macro **GlobusGssAssistFreeDNArray()** (p. 4) to free this memory.

dn_count A pointer to an integer that is modified to contain the number of entries in the array returned via the *dns* parameter.

Returns:

On success, `globus_gss_assist_lookup_all_globusid()` (p. 9) returns GLOBAL_SUCCESS and modifies its *dns* and *dn_count* parameters as described above. If an error occurs, `globus_gss_assist_lookup_all_globusid()` (p. 9) returns a `globus_result_t` that can be resolved to an error object and the values pointed to by *dns* and *dn_count* are undefined.

Return values:

GLOBUS_SUCCESS Success

GLOBUS_GSI_GSS_ASSIST_ERROR_WITH_ARGUMENTS Error with arguments

GLOBUS_GSI_GSS_ASSIST_ERROR_WITH_GRIDMAP Invalid path to gridmap

GLOBUS_GSI_GSS_ASSIST_ERROR_ERRNO System error

3.2.3.11 **globus_result_t globus_gss_assist_map_and_authorize(gss_ctx_id_t context, char * service, char * desired_identity, char * identity_buffer, unsigned int identity_buffer_length)**

Authorize the peer of a security context to use a service. The **globus_gss_assist_map_and_authorize()** (p. 10) function attempts to authorize the peer of a security context to use a particular service. If the *desired_identity* parameter is non-NULL, the authorization will succeed only if the peer is authorized for that identity. Otherwise, any valid authorized local user name will be used. If authorized, the local user name will be copied to the string pointed to by the *identity_buffer* parameter, which must be at least as long as the value passed as the *identity_buffer_length* parameter.

If authorization callouts are defined in the callout configuration file, **globus_gss_assist_map_and_authorize()** (p. 10) will invoke both the GLOBUS_GENERIC_MAPPING_TYPE callout and the GLOBUS_GENERIC_AUTHZ_TYPE callout; otherwise the default gridmap file will be used for mapping and no service-specific authorization will be done.

If **globus_gss_assist_map_and_authorize()** (p. 10) uses a gridmap file, it first looks for a file defined by the value of the GRIDMAP environment variable. If that is not set, it falls back to \$HOME/.gridmap.

Parameters:

context Security context to inspect for peer identity information.

service A NULL-terminated string containing the name of the service that an authorization decision is being made for.

desired_identity Optional. If non-NULL, perform an authorization to act as the local user named by this NULL-terminated string.

identity_buffer A pointer to a string buffer into which will be copied the local user name that the peer of the context is authorized to act as.

identity_buffer_length Length of the *identity_buffer* array.

Returns:

On success, **globus_gss_assist_map_and_authorize()** (p. 10) returns GLOBUS_SUCCESS and copies the authorized local identity to the *identity_buffer* parameter. If an error occurs, **globus_gss_assist_map_and_authorize()** (p. 10) returns a *globus_result_t* that can be resolved to an error object.

Return values:

GLOBUS_SUCCESS Success

GLOBUS_GSI_GSS_ASSIST_ERROR_WITH_CALLOUT_CONFIG Invalid authorization configuration file

GLOBUS_CALLOUT_ERROR_WITH_HASHTABLE Hash table operation failed.

GLOBUS_CALLOUT_ERROR_CALLOUT_ERROR The callout itself returned an error.

GLOBUS_CALLOUT_ERROR_WITH_DL Dynamic library operation failed.

GLOBUS_CALLOUT_ERROR_OUT_OF_MEMORY Out of memory

GLOBUS_GSI_GSS_ASSIST_GSSAPI_ERROR A GSSAPI function returned an error

GLOBUS_GSI_GSS_ASSIST_GRIDMAP_LOOKUP_FAILED Gridmap lookup failure

GLOBUS_GSI_GSS_ASSIST_BUFFER_TOO_SMALL Caller provided insufficient buffer space for local identity

3.2.3.12 `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

3.2.3.13 `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(*) (void *, void **, size_t *) gss_assist_get_token, void * gss_assist_get_context, int(*) (void *, void *, size_t) gss_assist_send_token, void * 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_context first argument passed to the *gss_assist_get_token* function
gss_assist_send_token function pointer for setting the token
gss_assist_send_context first argument passed to the *gss_assist_set_token* function pointer

Returns:

The major status

3.2.3.14 `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_flags, OM_uint32 *ret_flags, void *input_buffer, size_t input_buffer_len, void **output_bufferp, size_t *output_buffer_lenp)`

This is an asynchronous version of the `globus_gss_assist_init_sec_context()` (p. 11) function. 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_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.
input_buffer pointer to a buffer received from peer. Should be NULL on first call.
input_buffer_len length of the buffer *input_buffer*. Should be zero on first call.
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*.

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.

3.2.3.15 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

3.2.3.16 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(*) (void *, void **, size_t *) *gss_assist_get_token*, 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 first arg for above routine

fperr error stream to print to

Returns:

GSS_S_COMPLETE on success Other gss errors on failure.

3.2.3.17 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(*) (void *, void *, size_t) *gss_assist_send_token*, 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 first arg for the send_token

fperr file 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_ERRNO = 6,
GLOBUS_GSI_GSS_ASSIST_ERROR_WITH_INIT = 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_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.

Enumerator:

- 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*** Error querying gridmap file.
- GLOBUS_GSI_GSS_ASSIST_ERROR_INVALID_GRIDMAP_FORMAT*** Invalid gridmap file 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_CALLOUT_ERROR*** Error invoking callout.
- GLOBUS_GSI_GSS_ASSIST_GSSAPI_ERROR*** A GSSAPI returned an error.
- GLOBUS_GSI_GSS_ASSIST_GRIDMAP_LOOKUP_FAILED*** Gridmap lookup failure.
- GLOBUS_GSI_GSS_ASSIST_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_fd** (void *arg, void **bufp, size_t *sizep)

Token Send File Descriptor

- int **globus_gss_assist_token_send_fd** (void *arg, void *buf, size_t size)

Token Send File Descriptor Without Length

- `int globus_gss_assist_token_send_fd_without_length (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)`

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 a open file discriptor to get a token. This function provides parameter types that allow it to be passed to `globus_gss_assist_init_sec_context` (p. 11) and `globus_gss_assist_accept_sec_context` (p. 5)

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` (p. 11) and `globus_gss_assist_accept_sec_context` (p. 5)

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 bet set

buf the token buffer to send

size size of the token buffer

Returns:

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

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