globus rls client

5.1

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1 Main Page

The Globus Replica Location Service (RLS) C API provides functions to view and update data in a RLS catalog. There are 2 types of RLS servers, Local Replica Catalog (LRC) servers, which maintain Logical to Physical File Name mappings (LFN to PFN), and Replica Location Index (RLI) servers, which maintain LFN to LRC mappings. Note an RLS server can act as both an LRC and RLI server.

Functions are divided into the following groups:

- Activation
- Connection Management
- Operations on an LRC server
- Operations on an RLI server
- Miscellaneous Types and Functions
- Query Results
- Status Codes

Applications using this API should include **globus_rls_client.h**, and be linked with the library **globus_rls_client_-FLAVOR**.

2 Module Index

2.1 Modules

Here is a list of all modules:

3 Data Structure Index

3.1 Data Structures

Here are the data structures with brief descriptions:

4 Module Documentation

4.1 Status Codes

All of the functions in the API that return status return it in a globus_result_t structure.

Defines

- #define GLOBUS_RLS_SUCCESS 0
- #define GLOBUS_RLS_GLOBUSERR 1
- #define GLOBUS_RLS_INVHANDLE 2
- #define GLOBUS_RLS_BADURL 3
- #define GLOBUS_RLS_NOMEMORY 4
- #define GLOBUS_RLS_OVERFLOW 5
- #define GLOBUS_RLS_BADARG 6
- #define GLOBUS_RLS_PERM 7
- #define GLOBUS_RLS_BADMETHOD 8
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- #define GLOBUS_RLS_MAPPING_NEXIST 10
- #define GLOBUS_RLS_LFN_EXIST 11
- #define GLOBUS_RLS_LFN_NEXIST 12
- #define GLOBUS_RLS_PFN_EXIST 13
- #define GLOBUS_RLS_PFN_NEXIST 14
- #define GLOBUS_RLS_LRC_EXIST 15
- #define GLOBUS_RLS_LRC_NEXIST 16
- #define GLOBUS_RLS_DBERROR 17
- #define GLOBUS_RLS_RLI_EXIST 18
- #define GLOBUS_RLS_RLI_NEXIST 19
- #define GLOBUS_RLS_MAPPING_EXIST 20
- #define GLOBUS_RLS_INV_ATTR_TYPE 21
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- #define GLOBUS_RLS_ATTR_NEXIST 23
- #define GLOBUS_RLS_INV_OBJ_TYPE 24
- #define GLOBUS_RLS_INV_ATTR_OP 25
- #define GLOBUS_RLS_UNSUPPORTED 26
- #define GLOBUS_RLS_TIMEOUT 27
- #define GLOBUS_RLS_TOO_MANY_CONNECTIONS 28
- #define GLOBUS_RLS_ATTR_VALUE_NEXIST 29
- #define GLOBUS_RLS_ATTR_INUSE 30

4.1.1 Detailed Description

All of the functions in the API that return status return it in a globus_result_t structure.

Prior to version 2.0.0 an integer status was returned. The globus_result_t structure includes an integer "type" which is set to one of the status codes defined below (the same values that were returned by earlier versions of the API). The function globus_rls_client_error_info() may be used to extract the status code and/or error message from a globus_result_t. GLOBUS_SUCCESS is returned when the operation was successful.

4.1.2 Define Documentation

4.1.2.1 #define GLOBUS_RLS_SUCCESS 0

Operation succeeded.

4.1.2.2 #define GLOBUS_RLS_GLOBUSERR 1

An error was returned by the Globus I/O module.

4.1.2.3 #define GLOBUS_RLS_INVHANDLE 2

The globus_rls_handle_t handle is invalid.

4.1.2.4 #define GLOBUS_RLS_BADURL 3

The URL could not be parsed.

4.1.2.5 #define GLOBUS_RLS_NOMEMORY 4

Out of memory.

4.1.2.6 #define GLOBUS_RLS_OVERFLOW 5

A result was too large to fit in buffer.

4.1.2.7 #define GLOBUS_RLS_BADARG 6

Bad argument (eg NULL where string pointer expected).

4.1.2.8 #define GLOBUS_RLS_PERM 7

Client does not have permission for requested action.

4.1.2.9 #define GLOBUS_RLS_BADMETHOD 8

RPC error, invalid method name sent to server.

4.1.2.10 #define GLOBUS_RLS_INVSERVER 9

LRC request made to RLI server or vice versa.

4.1.2.11 #define GLOBUS_RLS_MAPPING_NEXIST 10

LFN,PFN (LRC) or LFN,LRC (RLI) mapping doesn't exist.

4.1.2.12 #define GLOBUS_RLS_LFN_EXIST 11

LFN already exists in LRC or RLI database.

4.1.2.13 #define GLOBUS_RLS_LFN_NEXIST 12

LFN doesn't exist in LRC or RLI database.

4.1.2.14 #define GLOBUS_RLS_PFN_EXIST 13

PFN already exists in LRC database.

4.1.2.15 #define GLOBUS_RLS_PFN_NEXIST 14

PFN doesn't exist in LRC database.

4.1.2.16 #define GLOBUS_RLS_LRC_EXIST 15

LRC already exists in LRC or RLI database.

4.1.2.17 #define GLOBUS_RLS_LRC_NEXIST 16

LRC doesn't exist in RLI database.

4.1.2.18 #define GLOBUS_RLS_DBERROR 17

Database error.

4.1.2.19 #define GLOBUS_RLS_RLI_EXIST 18

RLI already exists in LRC database.

4.1.2.20 #define GLOBUS_RLS_RLI_NEXIST 19

RLI doesn't exist in LRC.

4.1.2.21 #define GLOBUS_RLS_MAPPING_EXIST 20

LFN,PFN (LRC) or LFN,LRC (RLI) mapping already exists.

4.1.2.22 #define GLOBUS_RLS_INV_ATTR_TYPE 21

Invalid attribute type, see globus_rls_attr_type_t.

4.1.2.23 #define GLOBUS_RLS_ATTR_EXIST 22

Attribute already exists.

4.1.2.24 #define GLOBUS_RLS_ATTR_NEXIST 23

Attribute doesn't exist.

4.1.2.25 #define GLOBUS_RLS_INV_OBJ_TYPE 24

Invalid object type, see globus_rls_obj_type_t.

4.1.2.26 #define GLOBUS_RLS_INV_ATTR_OP 25

Invalid attribute search operator, see globus_rls_attr_op_t.

4.1.2.27 #define GLOBUS_RLS_UNSUPPORTED 26

Operation is unsupported.

4.1.2.28 #define GLOBUS_RLS_TIMEOUT 27

IO timeout.

4.1.2.29 #define GLOBUS_RLS_TOO_MANY_CONNECTIONS 28

Too many connections.

4.1.2.30 #define GLOBUS_RLS_ATTR_VALUE_NEXIST 29

Attribute with specified value not found.

4.1.2.31 #define GLOBUS_RLS_ATTR_INUSE 30

Attribute in use by some object, can't be deleted.

4.2 Miscellaneous

Miscellaneous functions and types.

Data Structures

- struct globus_rls_attribute_t

  Object (LFN or PFN) attribute type.

- struct globus_rls_stats_t

  Various configuration options and statistics about an RLS server returned in the following structures by globus_rls_client_stats().

Defines

- #define RLS_LRCSERVER 0x1
- #define RLS_RLISERVER 0x2
- #define RLS_RCVLFNLIST 0x4
- #define RLS_RCVBLOOMFILTER 0x8
- #define RLS_SNDLFNLIST 0x10
- #define RLS_SNDBLOOMFILTER 0x20

Enumerations

- enum globus_rls_pattern_t {
  rls_pattern_unix,
  rls_pattern_sql }
- enum globus_rls_attr_type_t {
  globus_rls_attr_type_date,
  globus_rls_attr_type_flt,
  globus_rls_attr_type_int,
  globus_rls_attr_type_str }
- enum globus_rls_obj_type_t {
  globus_rls_obj_lrc_lfn,
  globus_rls_obj_lrc_pfn,
  globus_rls_obj_rli_lfn,
  globus_rls_obj_rli_lrc }
- enum globus_rls_attr_op_t {
  globus_rls_attr_op_all,
  globus_rls_attr_op_eq,
  globus_rls_attr_op_ne,
  globus_rls_attr_op_gt,
  globus_rls_attr_op_ge,

globus_rls_attr_op_lt,
globus_rls_attr_op_le,
globus_rls_attr_op_btw,
globus_rls_attr_op_like }

- enum globus_rls_admin_cmd_t {
  globus_rls_admin_cmd_ping,
  globus_rls_admin_cmd_quit,
  globus_rls_admin_cmd_ssu }

Functions

- globus_result_t globus_rls_client_admin (globus_rls_handle_t *h, globus_rls_admin_cmd_t cmd)
- globus_result_t globus_rls_client_get_configuration (globus_rls_handle_t *h, char *option, globus_list_t **conf_list)
- globus_result_t globus_rls_client_set_configuration (globus_rls_handle_t *h, char *option, char *value)
- globus_result_t globus_rls_client_stats (globus_rls_handle_t *h, globus_rls_stats_t *rlsstats)
- char * globus_rls_client_attr2s (globus_rls_attribute_t *attr, char *buf, int buflen)
- globus_result_t globus_rls_client_s2attr (globus_rls_attr_type_t type, char *sval, globus_rls_attribute_t *attr)
- globus_result_t globus_rls_client_error_info (globus_result_t r, int *rc, char *buf, int buflen, globus_bool_t preserve)
- int globus_list_len (globus_list_t *len)
- char * globus_rls_errmsg (int rc, char *specificmsg, char *buf, int buflen)

4.2.1 Detailed Description

Miscellaneous functions and types.

4.2.2 Define Documentation

4.2.2.1 #define RLS_LRCSERVER 0x1

Server is LRC server.

4.2.2.2 #define RLS_RLISERVER 0x2

Server is RLI server.

4.2.2.3 #define RLS_RCVLFNLIST 0x4

RLI accepts LFN list updates.

4.2.2.4 #define RLS_RCVBLOOMFILTER 0x8

RLI accepts Bloom filter updates.

4.2.2.5 #define RLS_SNDLFNLIST 0x10

LRC sends LFN list updates.

4.2.2.6 #define RLS_SNDBLOOMFILTER 0x20

LRC sends Bloom filter updates.

4.2.3 Enumeration Type Documentation

4.2.3.1 enum globus_rls_pattern_t

Wildcard character style.

Enumerator:

rls_pattern_unix Unix file globbing chars (∗, ?).
rls_pattern_sql SQL "like" wildcards (%, _).

4.2.3.2 enum globus_rls_attr_type_t

Attribute Value Types.

Enumerator:

globus_rls_attr_type_date Date (time_t).
globus_rls_attr_type_flt Floating point (double).
globus_rls_attr_type_int Integer (int).
globus_rls_attr_type_str String (char ∗).

4.2.3.3 enum globus_rls_obj_type_t

Object types in LRC and RLI databases.

Enumerator:

globus_rls_obj_lrc_lfn LRC Logical File Name.
globus_rls_obj_lrc_pfn LRC Physical File Name.
globus_rls_obj_rli_lfn RLI Logical File Name.
globus_rls_obj_rli_lrc RLI LRC URL.

4.2.3.4 enum globus_rls_attr_op_t

Attribute Value Query Operators.

Enumerator:

globus_rls_attr_op_all All values returned.
globus_rls_attr_op_eq Values matching operand 1 returned.
globus_rls_attr_op_ne Values not matching operand 1.
globus_rls_attr_op_gt Values greater than operand 1.
globus_rls_attr_op_ge Values greater than or equal to op1.
globus_rls_attr_op_lt Values less than operand 1.
globus_rls_attr_op_le Values less than or equal to op1.
globus_rls_attr_op_btw Values between operand1 and 2.
globus_rls_attr_op_like Strings "like" operand1 (SQL like).

4.2.3.5 enum globus_rls_admin_cmd_t

globus_rls_client_admin() commands.

Enumerator:

globus_rls_admin_cmd_ping Verify RLS server responding.

globus_rls_admin_cmd_quit Tell RLS server to exit.

globus_rls_admin_cmd_ssu Tell LRC server to do softstate update.

4.2.4 Function Documentation

4.2.4.1 globus_result_t globus_rls_client_admin (globus_rls_handle_t * *h*, globus_rls_admin_cmd_t *cmd*)

Miscellaneous administrative operations.

Most operations require the admin privilege.

Parameters:

h Handle connected to RLS server.

cmd Command to be sent to RLS server.

Return values:

GLOBUS_SUCCESS Command succeeded.

4.2.4.2 globus_result_t globus_rls_client_get_configuration (globus_rls_handle_t * *h*, char * *option*, globus_list_t ** *conf_list*)

Get server configuration.

Client needs admin privilege.

Parameters:

h Handle connected to RLS server.

option Configuration option to get. If NULL all options are retrieved.

Return values:

conf_list List of configuration options.

GLOBUS_SUCCESS List of retrieved config options returned in *conf_list*, each datum is of type globus_rls_string2_t. *conf_list* should be freed with globus_rls_client_free_list(). There may be multiple "acl" entries in the list, since the access control list can include more than one entry. Each acl configuration value is consists of a regular expression (matched against grid-mapfile users or DNs), a colon, and space separated list of permissions the matching users are granted.

4.2.4.3 globus_result_t globus_rls_client_set_configuration (globus_rls_handle_t * *h*, char * *option*, char * *value*)

Set server configuration option.

Client needs admin privilege.

Parameters:

h Handle connected to RLS server.

option Configuration option to set.

value New value for option.

Return values:

GLOBUS_SUCCESS Option set on server.

4.2.4.4 globus_result_t globus_rls_client_stats (globus_rls_handle_t * *h*, globus_rls_stats_t * *rlsstats*)

Retrieve various statistics from RLS server.

Requires stats privilege.

Parameters:

h Handle connected to RLS server.

rlsstats Stats returned here.

Return values:

GLOBUS_SUCCESS Stats returned in *rlsstats*.

4.2.4.5 char* globus_rls_client_attr2s (globus_rls_attribute_t * *attr*, char * *buf*, int *buflen*)

Map attribute value to string.

Parameters:

attr Attribute to convert. If *attr->type* is globus_rls_attr_type_date then the resulting string will be in the format MySQL uses by default, which is YYYYMMDDHHMMSS.

buf Buffer to write string value to. Note if *attr->type* is globus_rls_attr_type_str then *attr->val.s* is returned, and *buf* is unused.

buflen Size of *buf* in bytes.

Return values:

String Value Attribute value converted to a string.

4.2.4.6 globus_result_t globus_rls_client_s2attr (globus_rls_attr_type_t *type*, char * *sval*, globus_rls_attribute_t * *attr*)

Set globus_rls_attribute_t type and val fields from a type and string value.

Parameters:

type Attribute value type.

sval String value to convert to binary. If type is globus_rls_attr_type_date *sval* should be in the form YYYY-MM-DD HH:MM:SS.

attr Attribute whose type and val fields are to be set.

Return values:

GLOBUS_SUCCESS *attr->type* and *attr->val* successfully set.

4.2.4.7 globus_result_t globus_rls_client_error_info (globus_result_t *r*, int * *rc*, char * *buf*, int *buflen*, globus_bool_t *preserve*)

Get error code and message from globus_result_t returned by this API.

Parameters:

r Result returned by RLS API function. *r* is freed by this call and should not be referenced again. If *preserve* is set then a new globus_result_t is constructed with the same values and returned as the function value.

rc Address to store error code at. If NULL error code is not returned.

buf Address to store error message at. If NULL error message is not returned.

preserve If GLOBUS_TRUE then a new globus_result_t is contructed with the same values as the old and returned as the function value.

buflen Size of *buf*.

Return values:

globus_result_t If *preserve* is set a new globus_result_t identical to *r* is returned, otherwise GLOBUS_SUCCESS.

4.2.4.8 int globus_list_len (globus_list_t * *len*)

Compute length of list.

globus_list_size() is implemented using recursion, besides being inefficient it can run out of stack space when the list is large.

4.2.4.9 char* globus_rls_errmsg (int *rc*, char * *specificmsg*, char * *buf*, int *buflen*)

Map RLS status code to error string.

Parameters:

rc Status code.

specificmsg If not NULL prepended (with a colon) to error string.

buf Buffer to write error message to.

buflen Length of *buf*. Message will be truncated to fit if too long.

Return values:

char * Returns *buf*, error message written to *buf*.

4.3 Query Results

List results are returned as globus_list_t's, list datums depend on the type of query (eg globus_rls_string2_t, globus_rls_attribute_t, etc).

Data Structures

- struct globus_rls_attribute_object_t

  globus_rls_client_lrc_attr_search() returns a list of these structures which include the object name (LFN or PFN) and attribute value found by the query.

- struct globus_rls_string2_t

  String pair result.

- struct globus_rls_string2_bulk_t

  String pair result with return code, returned by bulk query operations.

Functions

- globus_result_t globus_rls_client_free_list (globus_list_t *list)

4.3.1 Detailed Description

List results are returned as globus_list_t's, list datums depend on the type of query (eg globus_rls_string2_t, globus_rls_attribute_t, etc).

A list result should be freed with globus_rls_client_free_list() when it's no longer needed. RLS supports limiting the number of results returned by a single query using an offset and reslimit. The offset specifies which result to begin with, reslimit specifies how many results to return. Offset should begin at 0 to retrieve all records. If reslimit is 0 then all results are returned at once, unless the server has a limit on results configured. If NULL is passed as the offset argument then the API will repeatedly call the query function until are results are retrieved. The following are equivalent examples of how to print the lfn,pfn pairs returned by globus_rls_client_lrc_get_lfn():

```
globus_list_t *str2_list;
globus_list_t *p;
globus_rls_string2_t *str2;

// Retrieve all results, API will handle looping through partial results
// if the server has a limit configured.  Error handling has been omitted.
globus_rls_client_lrc_get_lfn(h, "somepfn", NULL, 0, &str2_list);
for (p = str2_list; p; p = globus_list_rest(p)) {
  str2 = (globus_rls_string2_t *) globus_list_first(p);
  printf("lfn: %s pfn:%s\n", str2->s1, str2->s2);
}
globus_rls_client_free_list(str2_list);

// This code fragment retrieves results 5 at a time.  Note offset is set
// to -1 when the server has no more results to return.
int offset = 0;

while (globus_rls_client_lrc_get_lfn(h, "somepfn", &offset, 5, &str2_list) == GLOBUS_SUCCESS) {
  for (p = str2_list; p; p = globus_list_rest(p)) {
    str2 = (globus_rls_string2_t *) globus_list_first(p);
    printf("lfn: %s pfn:%s\n", str2->s1, str2->s2);
  }
  globus_rls_client_free_list(str2_list);
  if (offset == -1)
    break;
}
```

4.3.2 Function Documentation

4.3.2.1 globus_result_t globus_rls_client_free_list (globus_list_t * *list*)

Free result list returned by one of the query functions.

Parameters:

list List returned by one of the query functions.

Return values:

GLOBUS_SUCCESS List and contents successfully freed.

4.4 Activation

This module must be activated before any functions in this API may be used.

Defines

- #define GLOBUS_RLS_CLIENT_MODULE (&globus_rls_client_module)

Variables

- globus_module_descriptor_t globus_rls_client_module

4.4.1 Detailed Description

This module must be activated before any functions in this API may be used.

This module depends on other Globus modules GLOBUS_COMMON_MODULE and GLOBUS_IO_MODULE, which should be activated first:

```
globus_module_activate(GLOBUS_COMMON_MODULE);
globus_module_activate(GLOBUS_IO_MODULE);
globus_module_activate(GLOBUS_RLS_CLIENT_MODULE);
```

When finished modules should be deactivated in reverse order.

4.4.2 Define Documentation

4.4.2.1 #define GLOBUS_RLS_CLIENT_MODULE (&globus_rls_client_module)

RLS Module Name.

4.4.3 Variable Documentation

4.4.3.1 globus_module_descriptor_t globus_rls_client_module

RLS module.

4.5 Connection Management

Functions to open and close connections to an RLS server.

Defines

- #define GLOBUS_RLS_URL_SCHEME "rls"
- #define GLOBUS_RLS_URL_SCHEME_NOAUTH "rlsn"
- #define GLOBUS_RLS_SERVER_DEFPORT 39281
- #define MAXERRMSG 1024

Functions

- void globus_rls_client_certificate (char *certfile, char *keyfile)
- void globus_rls_client_proxy_certificate (char *proxy)
- globus_result_t globus_rls_client_connect (char *url, globus_rls_handle_t **h)
- globus_result_t globus_rls_client_close (globus_rls_handle_t *h)
- int globus_rls_client_get_timeout ()
- void globus_rls_client_set_timeout (int seconds)

4.5.1 Detailed Description

Functions to open and close connections to an RLS server.

4.5.2 Define Documentation

4.5.2.1 #define GLOBUS_RLS_URL_SCHEME "rls"

URL scheme to use when connecting to RLS server.

4.5.2.2 #define GLOBUS_RLS_URL_SCHEME_NOAUTH "rlsn"

URL scheme when connecting to RLS server without authentication.

4.5.2.3 #define GLOBUS_RLS_SERVER_DEFPORT 39281

Default port number that RLS server listens on.

4.5.2.4 #define MAXERRMSG 1024

Maximum length of error messages returned by server.

4.5.3 Function Documentation

4.5.3.1 void globus_rls_client_certificate (char * *certfile*, char * *keyfile*)

Set certificate used in authentication.

Sets environment variables X509_USER_CERT, X509_USER_KEY, and clears X509_USER_PROXY.

Parameters:

certfile Name of X509 certificate file.

keyfile Name of X509 key file.

4.5.3.2 void globus_rls_client_proxy_certificate (char * *proxy*)

Set X509_USER_PROXY environment variable to specified file.

Parameters:

proxy Name of X509 proxy certificate file. If NULL clears X509_USER_PROXY.

4.5.3.3 globus_result_t globus_rls_client_connect (char * *url*, globus_rls_handle_t ** *h*)

Open connection to RLS server.

Parameters:

url URL of server to connect to. URL scheme should be **RLS** or **RLSN**, eg **RLS://my.host**. If the URL scheme is **RLSN** then no authentication is performed (the RLS server must be started with authentication disabled as well, this option is primarily intended for testing).

h If the connection is successful **h* will be set to the connection handle. This handle is required by all other functions in the API.

Return values:

GLOBUS_SUCCESS Handle *h* now connected to RLS server identified by *url*.

4.5.3.4 globus_result_t globus_rls_client_close (globus_rls_handle_t * *h*)

Close connection to RLS server.

Parameters:

h Connection handle to be closed, previously allocated by globus_rls_client_connect().

Return values:

GLOBUS_SUCCESS Connection closed, *h* is no longer valid.

4.5.3.5 int globus_rls_client_get_timeout ()

Get timeout for IO calls to RLS server.

If 0 IO calls do not timeout. The default is 30 seconds.

Return values:

timeout Seconds to wait before timing out an IO operation.

4.5.3.6 void globus_rls_client_set_timeout (int *seconds*)

Set timeout for IO calls to RLS server.

Parameters:

seconds Seconds to wait before timing out an IO operation. If 0 IO calls do not timeout. The default is 30 seconds.

4.6 LRC Operations

Functions to view and update data managed by a LRC server.

Data Structures

- struct globus_rls_rli_info_t

  Information about RLI server, returned by globus_rls_client_lrc_rli_info() and globus_rls_client_lrc_rli_list().

Defines

- #define FRLI_BLOOMFILTER 0x1
- #define MAXURL 256

Functions

- globus_result_t globus_rls_client_lrc_attr_add (globus_rls_handle_t *h, char *key, globus_rls_attribute_t *attr)
- globus_result_t globus_rls_client_lrc_attr_add_bulk (globus_rls_handle_t *h, globus_list_t *attr_obj_list, globus_list_t **str2bulk_list)
- globus_result_t globus_rls_client_lrc_attr_create (globus_rls_handle_t *h, char *name, globus_rls_obj_type_t objtype, globus_rls_attr_type_t type)
- globus_result_t globus_rls_client_lrc_attr_delete (globus_rls_handle_t *h, char *name, globus_rls_obj_type_t objtype, globus_bool_t clearvalues)
- globus_result_t globus_rls_client_lrc_attr_get (globus_rls_handle_t *h, char *name, globus_rls_obj_type_t objtype, globus_list_t **attr_list)
- globus_result_t globus_rls_client_lrc_attr_modify (globus_rls_handle_t *h, char *key, globus_rls_attribute_t *attr)
- globus_result_t globus_rls_client_lrc_attr_remove (globus_rls_handle_t *h, char *key, globus_rls_attribute_t *attr)
- globus_result_t globus_rls_client_lrc_attr_remove_bulk (globus_rls_handle_t *h, globus_list_t *attr_obj_list, globus_list_t **str2bulk_list)
- globus_result_t globus_rls_client_lrc_attr_search (globus_rls_handle_t *h, char *name, globus_rls_obj_type_t objtype, globus_rls_attr_op_t op, globus_rls_attribute_t *operand1, globus_rls_attribute_t *operand2, int *offset, int reslimit, globus_list_t **attr_obj_list)
- globus_result_t globus_rls_client_lrc_attr_value_get (globus_rls_handle_t *h, char *key, char *name, globus_rls_obj_type_t objtype, globus_list_t **attr_list)
- globus_result_t globus_rls_client_lrc_attr_value_get_bulk (globus_rls_handle_t *h, globus_list_t *keylist, char *name, globus_rls_obj_type_t objtype, globus_list_t **attr_obj_list)
- globus_result_t globus_rls_client_lrc_add (globus_rls_handle_t *h, char *lfn, char *pfn)
- globus_result_t globus_rls_client_lrc_add_bulk (globus_rls_handle_t *h, globus_list_t *str2_list, globus_list_t **str2bulk_list)
- globus_result_t globus_rls_client_lrc_clear (globus_rls_handle_t *h)
- globus_result_t globus_rls_client_lrc_create (globus_rls_handle_t *h, char *lfn, char *pfn)
- globus_result_t globus_rls_client_lrc_create_bulk (globus_rls_handle_t *h, globus_list_t *str2_list, globus_list_t **str2bulk_list)
- globus_result_t globus_rls_client_lrc_delete (globus_rls_handle_t *h, char *lfn, char *pfn)
- globus_result_t globus_rls_client_lrc_delete_bulk (globus_rls_handle_t *h, globus_list_t *str2_list, globus_list_t **str2bulk_list)
- globus_result_t globus_rls_client_lrc_exists (globus_rls_handle_t *h, char *key, globus_rls_obj_type_t objtype)
- globus_result_t globus_rls_client_lrc_exists_bulk (globus_rls_handle_t *h, globus_list_t *keylist, globus_rls_obj_type_t objtype, globus_list_t **str2bulk_list)
- globus_result_t globus_rls_client_lrc_get_lfn (globus_rls_handle_t *h, char *pfn, int *offset, int reslimit, globus_list_t **str2_list)
- globus_result_t globus_rls_client_lrc_get_lfn_bulk (globus_rls_handle_t *h, globus_list_t *pfnlist, globus_list_t **str2bulk_list)
- globus_result_t globus_rls_client_lrc_get_lfn_wc (globus_rls_handle_t *h, char *pfn_pattern, globus_rls_pattern_t type, int *offset, int reslimit, globus_list_t **str2_list)
- globus_result_t globus_rls_client_lrc_get_pfn (globus_rls_handle_t *h, char *lfn, int *offset, int reslimit, globus_list_t **str2_list)
- globus_result_t globus_rls_client_lrc_get_pfn_bulk (globus_rls_handle_t *h, globus_list_t *lfnlist, globus_list_t **str2bulk_list)

- globus_result_t globus_rls_client_lrc_get_pfn_wc (globus_rls_handle_t *h, char *lfn_pattern, globus_rls_-pattern_t type, int *offset, int reslimit, globus_list_t **str2_list)
- globus_result_t globus_rls_client_lrc_mapping_exists (globus_rls_handle_t *h, char *lfn, char *pfn)
- globus_result_t globus_rls_client_lrc_renamelfn (globus_rls_handle_t *h, char *oldname, char *newname)
- globus_result_t globus_rls_client_lrc_renamelfn_bulk (globus_rls_handle_t *h, globus_list_t *str2_list, globus_list_t **str2bulk_list)
- globus_result_t globus_rls_client_lrc_renamepfn (globus_rls_handle_t *h, char *oldname, char *newname)
- globus_result_t globus_rls_client_lrc_renamepfn_bulk (globus_rls_handle_t *h, globus_list_t *str2_list, globus_list_t **str2bulk_list)
- globus_result_t globus_rls_client_lrc_rli_add (globus_rls_handle_t *h, char *rli_url, int flags, char *pattern)
- globus_result_t globus_rls_client_lrc_rli_delete (globus_rls_handle_t *h, char *rli_url, char *pattern)
- globus_result_t globus_rls_client_lrc_rli_get_part (globus_rls_handle_t *h, char *rli_url, char *pattern, globus_list_t **str2_list)
- globus_result_t globus_rls_client_lrc_rli_info (globus_rls_handle_t *h, char *rli_url, globus_rls_rli_info_t *info)
- globus_result_t globus_rls_client_lrc_rli_list (globus_rls_handle_t *h, globus_list_t **rliinfo_list)

4.6.1 Detailed Description

Functions to view and update data managed by a LRC server.

4.6.2 Define Documentation

4.6.2.1 #define FRLI_BLOOMFILTER 0x1

Update RLI using bloom filters (see globus_rls_client_lrc_rli_add()).

4.6.2.2 #define MAXURL 256

Maximum length of URL string.

4.6.3 Function Documentation

4.6.3.1 globus_result_t globus_rls_client_lrc_attr_add (globus_rls_handle_t * *h*, char * *key*, globus_rls_-attribute_t * *attr*)

Add an attribute to an object in the LRC database.

Parameters:

h Handle connected to an RLS server.

key Logical or Physical File Name (LFN or PFN) that identifies object attribute should be added to.

attr Attribute to be added to object. name, objtype, type and val should be set in *attr*.

Return values:

GLOBUS_SUCCESS Attribute successfully associated with object.

4.6.3.2 globus_result_t globus_rls_client_lrc_attr_add_bulk (globus_rls_handle_t * *h*, globus_list_t * *attr_obj_list*, globus_list_t ** *str2bulk_list*)

Bulk add attributes to objects in the LRC database.

Parameters:

h Handle connected to an RLS server.

attr_obj_list List of object names (LFN or PFN) and attributes to be added. Each list datum should be of type globus_rls_attribute_object_t.

str2bulk_list List of failed updates. Each list datum is a globus_rls_string2_bulk_t structure. **str2.s1** will be the oject name, **str2.s2** the attribute name, and **rc** will be the result code from the failed update. Only failed updates will be returned.

4.6.3.3 globus_result_t globus_rls_client_lrc_attr_create (globus_rls_handle_t * *h*, char * *name*, globus_rls_obj_type_t *objtype*, globus_rls_attr_type_t *type*)

Define new attribute in LRC database.

Parameters:

h Handle connected to an LRC server.

name Name of attribute.

objtype Object (LFN or PFN) type that attribute applies to.

type Type of attribute value.

Return values:

GLOBUS_SUCCESS Attribute successfully created.

4.6.3.4 globus_result_t globus_rls_client_lrc_attr_delete (globus_rls_handle_t * *h*, char * *name*, globus_rls_obj_type_t *objtype*, globus_bool_t *clearvalues*)

Undefine attribute in LRC database, previously created with globus_rls_client_lrc_attr_create().

Parameters:

h Handle connected to an LRC server.

name Name of attribute.

objtype Object (LFN or PFN) type that attribute applies to.

clearvalues If GLOBUS_TRUE then any any values for this attribute are first removed from the objects they're associated with. If GLOBUS_FALSE and any values exist then GLOBUS_RLS_ATTR_EXIST is returned.

Return values:

GLOBUS_SUCCESS Attribute successfully removed.

4.6.3.5 globus_result_t globus_rls_client_lrc_attr_get (globus_rls_handle_t * *h*, char * *name*, globus_rls_obj_type_t *objtype*, globus_list_t ** *attr_list*)

Return definitions of attributes in LRC database.

Parameters:

h Handle connected to an RLS server.

name Name of attribute. If name is NULL all attributes of the specified *objtype* are returned.

objtype Object (LFN or PFN) type that attribute applies to.

attr_list Any attribute definitions found will be returned as a list of globus_rls_attribute_t structures.

Return values:

GLOBUS_SUCCESS Attribute definitions successfully retrieved. *attr_list* should be freed with globus_rls_client_free_list() when it is no longer needed.

4.6.3.6 globus_result_t globus_rls_client_lrc_attr_modify (globus_rls_handle_t * *h*, char * *key*, globus_rls_attribute_t * *attr*)

Modify an attribute value.

Parameters:

h Handle connected to an RLS server.

key Name of object (LFN or PFN).

attr Attribute to be modified. The objtype , name and type fields should be set in *attr* to identify the attribute, the val field should be the new value.

Return values:

GLOBUS_SUCCESS Attribute successfully modified.

4.6.3.7 globus_result_t globus_rls_client_lrc_attr_remove (globus_rls_handle_t * *h*, char * *key*, globus_rls_attribute_t * *attr*)

Remove an attribute from an object (LFN or PFN) in the LRC database.

Parameters:

h Handle connected to an RLS server.

key Name of object (LFN or PFN).

attr Attribute to be removed. The objtype and name fields should be set in *attr* to identify the attribute.

Return values:

GLOBUS_SUCCESS Attribute successfully removed.

4.6.3.8 globus_result_t globus_rls_client_lrc_attr_remove_bulk (globus_rls_handle_t * *h*, globus_list_t * *attr_obj_list*, globus_list_t ** *str2bulk_list*)

Bulk remove attributes from objects in the LRC database.

Parameters:

h Handle connected to an RLS server.

attr_obj_list List of object names (LFN or PFN) and attributes to be removed. It is not necessary to set the attribute type or value. Each list datum should be of type globus_rls_attribute_object_t.

str2bulk_list List of failed updates. Each list datum is a globus_rls_string2_bulk_t structure. **str2.s1** will be the oject name, **str2.s2** the attribute name, and **rc** will be the result code from the failed update. Only failed updates will be returned.

4.6.3.9 globus_result_t globus_rls_client_lrc_attr_search (globus_rls_handle_t * *h*, char * *name*, globus_rls_obj_type_t *objtype*, globus_rls_attr_op_t *op*, globus_rls_attribute_t * *operand1*, globus_rls_attribute_t * *operand2*, int * *offset*, int *reslimit*, globus_list_t ** *attr_obj_list*)

Search for objects (LFNs or PFNs) in a LRC database that have the specified attribute whose value matches a boolean expression.

Parameters:

h Handle connected to an RLS server.

name Name of attribute.

objtype Object (LFN or PFN) type that attribute applies to.

op Operator to be used in searching for values.

operand1 First operand in boolean expression. type and val should be set in globus_rls_attribute_t.

operand2 Second operand in boolean expression, only used when *op* is globus_rls_client_attr_op_btw. type and val should be set in globus_rls_attribute_t.

offset Offset into result list. Used in conjunction with *reslimit* to retrieve results a few at a time. Use 0 to begin with first result. If NULL then API will handle accumulating partial results transparently.

reslimit Maximum number of results to return. Used in conjunction with *offset* to retrieve results a few at a time. Use 0 to retrieve all results.

attr_obj_list Any objects with the specified attribute will be returned, with the attribute value, in a list of globus_rls_attribute_object_t structures.

Return values:

GLOBUS_SUCCESS Objects with specified attribute returned in *attr_obj_list*. *attr_obj_list* should be freed with globus_rls_client_free_list() when it is no longer needed. See Query Results.

4.6.3.10 globus_result_t globus_rls_client_lrc_attr_value_get (globus_rls_handle_t * *h*, char * *key*, char * *name*, globus_rls_obj_type_t *objtype*, globus_list_t ** *attr_list*)

Return attributes in LRC database for specified object (LFN or PFN).

Parameters:

h Handle connected to an RLS server.

key Logical or Physical File Name (LFN or PFN) that identifies object attributes should be retrieved for.

name Name of attribute to retrieve. If NULL all attributes for *key*, *objtype* are returned.

objtype Object (LFN or PFN) type that attribute applies to.

attr_list Any attributes found will be returned in this list of globus_rls_attribute_t structures.

Return values:

GLOBUS_SUCCESS Attributes successfully retrieved. *attr_list* should be freed with globus_rls_client_free_list() when it is no longer needed.

4.6.3.11 globus_result_t globus_rls_client_lrc_attr_value_get_bulk (globus_rls_handle_t * *h*, globus_list_t * *keylist*, char * *name*, globus_rls_obj_type_t *objtype*, globus_list_t ** *attr_obj_list*)

Return attributes in LRC database for specified objects (LFN or PFN).

Parameters:

h Handle connected to an RLS server.

keylist Logical or Physical File Names (LFNs or PFNs) that identify object attributes should be retrieved for. Each list datum should be a string containing the LFN or PFN.

name Name of attribute to retrieve. If NULL all attributes for *key*, *objtype* are returned.

objtype Object (LFN or PFN) type that attribute applies to.

attr_obj_list Any attributes found will be returned in this list of globus_rls_attribute_object_t structures.

Return values:

GLOBUS_SUCCESS Attributes successfully retrieved. *attr_obj_list* should be freed with globus_rls_client_free_list() when it is no longer needed.

4.6.3.12 globus_result_t globus_rls_client_lrc_add (globus_rls_handle_t * *h*, char * *lfn*, char * *pfn*)

Add mapping to PFN to an existing LFN.

Parameters:

h Handle connected to an RLS server.

lfn LFN to add *pfn* mapping to, should already exist.

pfn PFN that *lfn* should map to.

Return values:

GLOBUS_SUCCESS New mapping created.

4.6.3.13 globus_result_t globus_rls_client_lrc_add_bulk (globus_rls_handle_t * *h*, globus_list_t * *str2_list*, globus_list_t ** *str2bulk_list*)

Bulk add LFN,PFN mappings in LRC database.

LFNs must already exist.

Parameters:

h Handle connected to an RLS server.

str2_list LFN,PFN pairs to add mappings.

str2bulk_list List of failed updates. Each list datum is a globus_rls_string2_bulk_t structure. **str2.s1** will be the LFN, and **str2.s2** the PFN it maps to, and **rc** will be the result code from the failed update. Only failed updates will be returned.

4.6.3.14 globus_result_t globus_rls_client_lrc_clear (globus_rls_handle_t * *h*)

Clear all mappings from LRC database.

User needs both ADMIN and LRCUPDATE privileges to perform this operation. Note that if the LRC is cleared this will not be reflected in any RLI servers updated by the LRC until the next softstate update, even if immediate updates are enabled.

Parameters:

h Handle connected to an RLS server.

Return values:

GLOBUS_SUCCESS Mappings cleared.

4.6.3.15 globus_result_t globus_rls_client_lrc_create (globus_rls_handle_t * *h*, char * *lfn*, char * *pfn*)

Create mapping between a LFN and PFN.

LFN should not exist yet.

Parameters:

h Handle connected to an RLS server.

lfn LFN to add *pfn* mapping to, should not already exist.

pfn PFN that *lfn* should map to.

Return values:

GLOBUS_SUCCESS New mapping created.

4.6.3.16 globus_result_t globus_rls_client_lrc_create_bulk (globus_rls_handle_t * *h*, globus_list_t * *str2_list*, globus_list_t ** *str2bulk_list*)

Bulk create LFN,PFN mappings in LRC database.

Parameters:

h Handle connected to an RLS server.

str2_list LFN,PFN pairs to create mappings for.

str2bulk_list List of failed updates. Each list datum is a globus_rls_string2_bulk_t structure. **str2.s1** will be the LFN, and **str2.s2** the PFN it maps to, and **rc** will be the result code from the failed update. Only failed updates will be returned.

4.6.3.17 globus_result_t globus_rls_client_lrc_delete (globus_rls_handle_t * *h*, char * *lfn*, char * *pfn*)

Delete mapping between LFN and PFN.

Parameters:

h Handle connected to an RLS server.

lfn LFN to remove mapping from.

pfn PFN that *lfn* maps to that is being removed.

Return values:

GLOBUS_SUCCESS Mapping removed.

4.6.3.18 globus_result_t globus_rls_client_lrc_delete_bulk (globus_rls_handle_t * *h*, globus_list_t * *str2_list*, globus_list_t ** *str2bulk_list*)

Bulk delete LFN,PFN mappings in LRC database.

Parameters:

h Handle connected to an RLS server.

str2_list LFN,PFN pairs to add mappings.

str2bulk_list List of failed updates. Each list datum is a globus_rls_string2_bulk_t structure. **str2.s1** will be the LFN, and **str2.s2** the PFN it maps to, and **rc** will be the result code from the failed update. Only failed updates will be returned.

4.6.3.19 globus_result_t globus_rls_client_lrc_exists (globus_rls_handle_t * *h*, char * *key*, globus_rls_obj_type_t *objtype*)

Check if an object exists in the LRC database.

Parameters:

h Handle connected to an RLS server.

key LFN or PFN that identifies object.

objtype Type of object *key* refers to (globus_rls_obj_lrc_lfn or globus_rls_obj_lrc_pfn).

Return values:

GLOBUS_SUCCESS Object exists.

4.6.3.20 globus_result_t globus_rls_client_lrc_exists_bulk (globus_rls_handle_t * *h*, globus_list_t * *keylist*, globus_rls_obj_type_t *objtype*, globus_list_t ** *str2bulk_list*)

Bulk check if objects exist in the LRC database.

Parameters:

h Handle connected to an RLS server.

keylist LFNs or PFNs that identify objects.

objtype Type of object *key* refers to (globus_rls_obj_lrc_lfn or globus_rls_obj_lrc_pfn).

str2bulk_list Results of existence check. Each list datum will be a globus_rls_string2_bulk_t structure. **str2.s1** will be the LFN or PFN, and **str2.s2** empty, and **rc** will be the result code indicating existence.

4.6.3.21 globus_result_t globus_rls_client_lrc_get_lfn (globus_rls_handle_t * *h*, char * *pfn*, int * *offset*, int *reslimit*, globus_list_t ** *str2_list*)

Return LFNs mapped to PFN in the LRC database.

Parameters:

h Handle connected to an RLS server.

pfn PFN to search for.

offset Offset into result list. Used in conjunction with *reslimit* to retrieve results a few at a time. Use 0 to begin with first result. If NULL then API will handle accumulating partial results transparently.

reslimit Maximum number of results to return. Used in conjunction with *offset* to retrieve results a few at a time. Use 0 to retrieve all results.

str2_list List of LFNs that map to *pfn*. Each list datum will be a globus_rls_string2_t structure. **s1** will be the LFN, and **s2** the PFN it maps to.

Return values:

GLOBUS_SUCCESS List of LFNs that map to *pfn* in *str2_list*. See Query Results.

4.6.3.22 globus_result_t globus_rls_client_lrc_get_lfn_bulk (globus_rls_handle_t * *h*, globus_list_t * *pfnlist*, globus_list_t ** *str2bulk_list*)

Bulk return LFNs mapped to PFN in the LRC database.

Parameters:

h Handle connected to an RLS server.

pfnlist PFNs to search for.

str2bulk_list Results of queries. Each list datum will be a globus_rls_string2_bulk_t structure. **str2.s1** will be the LFN, and **str2.s2** the PFN it maps to, and **rc** will be the result code from the query.

4.6.3.23 globus_result_t globus_rls_client_lrc_get_lfn_wc (globus_rls_handle_t * *h*, char * *pfn_pattern*, globus_rls_pattern_t *type*, int * *offset*, int *reslimit*, globus_list_t ** *str2_list*)

Return LFNs mapped to wildcarded PFN in the LRC database.

Parameters:

h Handle connected to an RLS server.

pfn_pattern PFN pattern to search for.

type Identifies wildcard characters used in *pfn_pattern*. Wildcard chars can be Unix file globbing chars (* matches 0 or more characters, ? matches any single character) or SQL "like" wildcard characters (% matches 0 or more charactes, _ matches any single character).

offset Offset into result list. Used in conjunction with *reslimit* to retrieve results a few at a time. Use 0 to begin with first result. If NULL then the API will handle accumulating partial results transparently.

reslimit Maximum number of results to return. Used in conjunction with *offset* to retrieve results a few at a time. Use 0 to retrieve all results.

str2_list List of LFNs that map to *pfn_pattern*. Each list datum will be a globus_rls_string2_t structure. **s1** will be the LFN, and **s2** the PFN it maps to.

Return values:

GLOBUS_SUCCESS List of LFNs that map to *pfn_pattern* in *str2_list*. See Query Results.

4.6.3.24 globus_result_t globus_rls_client_lrc_get_pfn (globus_rls_handle_t * *h*, char * *lfn*, int * *offset*, int *reslimit*, globus_list_t ** *str2_list*)

Return PFNs mapped to LFN in the LRC database.

Parameters:

h Handle connected to an RLS server.

lfn LFN to search for.

offset Offset into result list. Used in conjunction with *reslimit* to retrieve results a few at a time. Use 0 to begin with first result.

reslimit Maximum number of results to return. Used in conjunction with *offset* to retrieve results a few at a time. Use 0 to retrieve all results.

str2_list List of PFNs that map to *lfn*. Each list datum will be a globus_rls_string2_t structure. **s1** will be the LFN, and **s2** the PFN it maps to.

Return values:

GLOBUS_SUCCESS List of PFNs that map to *lfn* in *str2_list*.

4.6.3.25 globus_result_t globus_rls_client_lrc_get_pfn_bulk (globus_rls_handle_t * *h*, globus_list_t * *lfnlist*, globus_list_t ** *str2bulk_list*)

Bulk return PFNs mapped to LFN in the LRC database.

Parameters:

h Handle connected to an RLS server.

lfnlist LFNs to search for.

str2bulk_list Results of queries. Each list datum will be a globus_rls_string2_bulk_t structure. **str2.s1** will be the LFN, and **str2.s2** the PFN it maps to, and **rc** will be the result code from the query.

4.6.3.26 globus_result_t globus_rls_client_lrc_get_pfn_wc (globus_rls_handle_t * *h*, char * *lfn_pattern*, globus_rls_pattern_t *type*, int * *offset*, int *reslimit*, globus_list_t ** *str2_list*)

Return PFNs mapped to wildcarded LFN in the LRC database.

Parameters:

h Handle connected to an RLS server.

lfn_pattern LFN pattern to search for.

type Identifies wildcard characters used in *lfn_pattern*. Wildcard chars can be Unix file globbing chars (* matches 0 or more characters, ? matches any single character) or SQL "like" wildcard characters (% matches 0 or more charactes, _ matches any single character).

offset Offset into result list. Used in conjunction with *reslimit* to retrieve results a few at a time. Use 0 to begin with first result.

reslimit Maximum number of results to return. Used in conjunction with *offset* to retrieve results a few at a time. Use 0 to retrieve all results.

str2_list List of PFNs that map to *lfn_pattern*. Each list datum will be a globus_rls_string2_t structure. **s1** will be the LFN, and **s2** the PFN it maps to.

Return values:

GLOBUS_SUCCESS List of PFNs that map to *lfn_pattern* in *str2_list*. See Query Results.

4.6.3.27 globus_result_t globus_rls_client_lrc_mapping_exists (globus_rls_handle_t * *h*, char * *lfn*, char * *pfn*)

Check if a mapping exists in the LRC database.

Parameters:

h Handle connected to an RLS server.

lfn LFN of mapping.

pfn PFN of mapping.

Return values:

GLOBUS_SUCCESS Object exists.

4.6.3.28 globus_result_t globus_rls_client_lrc_renamelfn (globus_rls_handle_t * *h*, char * *oldname*, char * *newname*)

Rename LFN.

If immediate mode is ON, the LRC will send update messages to associated RLIs.

Parameters:

h Handle connected to an RLS server.

oldname Existing LFN name, to be renamed.

newname New LFN name, to replace existing name.

Return values:

GLOBUS_SUCCESS LFN renamed.

4.6.3.29 globus_result_t globus_rls_client_lrc_renamelfn_bulk (globus_rls_handle_t * *h*, globus_list_t * *str2_list*, globus_list_t ** *str2bulk_list*)

Bulk rename LFN names in LRC database.

LFNs must already exist. If immediate mode is ON, the LRC will send update messages to associated RLIs.

Parameters:

h Handle connected to an RLS server.

str2_list oldname,newname pairs such that newname replaces oldname for LFNs.

str2bulk_list List of failed updates. Each list datum is a globus_rls_string2_bulk_t structure. **str2.s1** will be the old LFN name, and **str2.s2** the new LFN name, and **rc** will be the result code from the failed update. Only failed updates will be returned.

4.6.3.30 globus_result_t globus_rls_client_lrc_renamepfn (globus_rls_handle_t * *h*, char * *oldname*, char * *newname*)

Rename PFN.

Parameters:

h Handle connected to an RLS server.

oldname Exisintg PFN name, to be renamed.

newname New PFN name, to replace existing name.

Return values:

GLOBUS_SUCCESS PFN renamed.

4.6.3.31 globus_result_t globus_rls_client_lrc_renamepfn_bulk (globus_rls_handle_t * *h*, globus_list_t * *str2_list*, globus_list_t ** *str2bulk_list*)

Bulk rename PFN names in LRC database.

PFNs must already exist.

Parameters:

h Handle connected to an RLS server.

str2_list oldname,newname pairs such that newname replaces oldname for PFNs.

str2bulk_list List of failed updates. Each list datum is a globus_rls_string2_bulk_t structure. **str2.s1** will be the old PFN name, and **str2.s2** the new PFN name, and **rc** will be the result code from the failed update. Only failed updates will be returned.

4.6.3.32 globus_result_t globus_rls_client_lrc_rli_add (globus_rls_handle_t * *h*, char * *rli_url*, int *flags*, char * *pattern*)

LRC servers send information about LFNs in their database to the the list of RLI servers in the database, added with the following function.

Updates may be partitioned amongst multiple RLIs by specifying one or more patterns for an RLI.

Parameters:

h Handle connected to an RLS server.

rli_url URL of RLI server that LRC should send updates to.

flags Should be zero or FRLI_BLOOMFILTER.

pattern If not NULL used to filter which LFNs are sent to *rli_url*. Standard Unix wildcard characters (*, ?) may be used to do wildcard matches.

Return values:

GLOBUS_SUCCESS RLI (with pattern if not NULL) added to LRC database.

4.6.3.33 globus_result_t globus_rls_client_lrc_rli_delete (globus_rls_handle_t * *h*, char * *rli_url*, char * *pattern*)

Delete an entry from the LRC rli/partition tables.

Parameters:

h Handle connected to an RLS server.

rli_url URL of RLI server to remove from LRC partition table.

pattern If not NULL then only the specific *rli_url/pattern* is removed, else all partition information for *rli_url* is removed.

Return values:

GLOBUS_SUCCESS RLI and pattern (if specified) removed from LRC partition table.

4.6.3.34 globus_result_t globus_rls_client_lrc_rli_get_part (globus_rls_handle_t * *h*, char * *rli_url*, char * *pattern*, globus_list_t ** *str2_list*)

Get RLI update partitions from LRC server.

Parameters:

h Handle connected to an RLS server.

rli_url If not NULL identifies RLI that partition data will be retrieved for. If NULL then all RLIs are retrieved.

pattern If not NULL returns only partitions with matching patterns, otherwise all patterns are retrieved.

str2_list Results added to list. Datums in *str2_list* are of type globus_rls_string2_t structure. **s1** will be the rli url, **s2** an empty string or the pattern used to partition updates. See Query Results.

Return values:

GLOBUS_SUCCESS Partition data retrieved from server, written to *str2_list*.

4.6.3.35 globus_result_t globus_rls_client_lrc_rli_info (globus_rls_handle_t * *h*, char * *rli_url*, globus_rls_rli_info_t * *info*)

Get info about RLI server updated by an LRC server.

Parameters:

h Handle connected to an RLS server.

rli_url URL of RLI server to retrieve info for.

info Data about RLI server will be written here.

Return values:

GLOBUS_SUCCESS Info about RLI server successfully retrieved.

4.6.3.36 globus_result_t globus_rls_client_lrc_rli_list (globus_rls_handle_t * *h*, globus_list_t ** *rliinfo_list*)

Return URLs of RLIs that LRC sends updates to.

Parameters:

h Handle connected to an RLS server.

rliinfo_list List of RLIs updated by this LRC returned in this list. Each list datum is of type globus_rls_rli_info_t. *rliinfo_list* should be freed with globus_rls_client_free_list() when no longer needed.

Return values:

GLOBUS_SUCCESS List of RLIs updated by this LRC returned in *rliinfo_list*.

4.7 RLI Operations

Functions to view and update data managed by a RLI server.

Data Structures

- struct globus_rls_sender_info_t

  Information about server sending updates to an rli, returned by globus_rls_client_rli_sender_list().

Functions

- globus_result_t globus_rls_client_rli_exists (globus_rls_handle_t *h, char *key, globus_rls_obj_type_t objtype)
- globus_result_t globus_rls_client_rli_exists_bulk (globus_rls_handle_t *h, globus_list_t *keylist, globus_rls_obj_type_t objtype, globus_list_t **str2bulk_list)

- globus_result_t globus_rls_client_rli_get_lrc (globus_rls_handle_t *h, char *lfn, int *offset, int reslimit, globus_list_t **str2_list)
- globus_result_t globus_rls_client_rli_get_lrc_bulk (globus_rls_handle_t *h, globus_list_t *lfnlist, globus_list_t **str2bulk_list)
- globus_result_t globus_rls_client_rli_get_lrc_wc (globus_rls_handle_t *h, char *lfn_pattern, globus_rls_pattern_t type, int *offset, int reslimit, globus_list_t **str2_list)
- globus_result_t globus_rls_client_rli_sender_list (globus_rls_handle_t *h, globus_list_t **senderinfo_list)
- globus_result_t globus_rls_client_rli_lrc_list (globus_rls_handle_t *h, globus_list_t **lrcinfo_list)
- globus_result_t globus_rls_client_rli_mapping_exists (globus_rls_handle_t *h, char *lfn, char *lrc)
- globus_result_t globus_rls_client_rli_rli_add (globus_rls_handle_t *h, char *rli_url, char *pattern)
- globus_result_t globus_rls_client_rli_rli_delete (globus_rls_handle_t *h, char *rli_url, char *pattern)
- globus_result_t globus_rls_client_rli_rli_get_part (globus_rls_handle_t *h, char *rli_url, char *pattern, globus_list_t **str2_list)
- globus_result_t globus_rls_client_rli_rli_list (globus_rls_handle_t *h, globus_list_t **rliinfo_list)

4.7.1 Detailed Description

Functions to view and update data managed by a RLI server.

4.7.2 Function Documentation

4.7.2.1 globus_result_t globus_rls_client_rli_exists (globus_rls_handle_t * *h*, char * *key*, globus_rls_obj_type_t *objtype*)

Check if an object exists in the RLI database.

Parameters:

h Handle connected to an RLS server.

key LFN or LRC that identifies object.

objtype Type of object *key* refers to (globus_rls_obj_rli_lfn or globus_rls_obj_rli_lrc).

Return values:

GLOBUS_SUCCESS Object exists.

4.7.2.2 globus_result_t globus_rls_client_rli_exists_bulk (globus_rls_handle_t * *h*, globus_list_t * *keylist*, globus_rls_obj_type_t *objtype*, globus_list_t ** *str2bulk_list*)

Bulk check if objects exist in the RLI database.

Parameters:

h Handle connected to an RLS server.

keylist LFNs or LRCs that identify objects.

objtype Type of object *key* refers to (globus_rls_obj_rli_lfn or globus_rls_obj_rli_lrc).

str2bulk_list Results of existence check. Each list datum will be a globus_rls_string2_bulk_t structure. **str2.s1** will be the LFN or LRC, and **str2.s2** empty, and **rc** will be the result code indicating existence.

4.7.2.3 globus_result_t globus_rls_client_rli_get_lrc (globus_rls_handle_t * *h*, char * *lfn*, int * *offset*, int *reslimit*, globus_list_t ** *str2_list*)

Return LRCs mapped to LFN in the RLI database.

Parameters:

h Handle connected to an RLS server.

lfn LFN whose list of LRCs is desired.

offset Offset into result list. Used in conjunction with *reslimit* to retrieve results a few at a time. Use 0 to begin with first result.

reslimit Maximum number of results to return. Used in conjunction with *offset* to retrieve results a few at a time. Use 0 to retrieve all results.

str2_list List of LRCs that *lfn* maps to. Each list datum will be a globus_rls_string2_t structure. **s1** will be the LFN, and **s2** the LRC it maps to. *str2_list* should be freed with globus_rls_client_free_list().

Return values:

GLOBUS_SUCCESS List of LRCs that map to *lfn* in *str2_list*. See Query Results.

4.7.2.4 globus_result_t globus_rls_client_rli_get_lrc_bulk (globus_rls_handle_t * *h*, globus_list_t * *lfnlist*, globus_list_t ** *str2bulk_list*)

Bulk return LRCs mapped to LFN in the RLI database.

Parameters:

h Handle connected to an RLS server.

lfnlist LFNs to search for.

str2bulk_list Results of queries. Each list datum will be a globus_rls_string2_bulk_t structure. **str2.s1** will be the LFN, and **str2.s2** the LRC it maps to, and **rc** will be the result code from the query.

4.7.2.5 globus_result_t globus_rls_client_rli_get_lrc_wc (globus_rls_handle_t * *h*, char * *lfn_pattern*, globus_rls_pattern_t *type*, int * *offset*, int *reslimit*, globus_list_t ** *str2_list*)

Return LRCs mapped to wildcarded LFN in the RLI database.

Parameters:

h Handle connected to an RLS server.

lfn_pattern LFN pattern to search for.

type Identifies wildcard characters used in *lfn_pattern*. Wildcard chars can be Unix file globbing chars (* matches 0 or more characters, ? matches any single character) or SQL "like" wildcard characters (% matches 0 or more charactes, _ matches any single character).

offset Offset into result list. Used in conjunction with *reslimit* to retrieve results a few at a time. Use 0 to begin with first result.

reslimit Maximum number of results to return. Used in conjunction with *offset* to retrieve results a few at a time. Use 0 to retrieve all results.

str2_list List of LRCs that map to *lfn_pattern*. Each list datum will be a globus_rls_string2_t. **s1** will be the LFN, and **s2** the LRC it maps to. *str2_list* should be freed with globus_rls_client_free_list().

Return values:

GLOBUS_SUCCESS List of LRCs that map to *lfn_pattern* in *str2_list*. See Query Results.

4.7.2.6 globus_result_t globus_rls_client_rli_sender_list (globus_rls_handle_t * *h*, globus_list_t ** *senderinfo_list*)

Get list of servers updating this RLI server.

Similar to globus_rls_client_rli_get_part() except no partition information is returned.

Parameters:

h Handle connected to an RLS server.

senderinfo_list Datums in senderinfo_list will be of type globus_rls_sender_info_t. *senderinfo_list* should be freed with globus_rls_client_free_list().

Return values:

GLOBUS_SUCCESS List of LRCs updating RLI added to *senderinfo_list*.

4.7.2.7 globus_result_t globus_rls_client_rli_lrc_list (globus_rls_handle_t * *h*, globus_list_t ** *lrcinfo_list*)

Deprecated, use globus_rls_client_rli_sender_list().

Parameters:

h Handle connected to an RLS server.

lrcinfo_list Datums in lrcinfo_list will be of type globus_rls_lrc_info_t. *lrcinfo_list* should be freed with globus_rls_client_free_list().

Return values:

GLOBUS_SUCCESS List of LRCs updating RLI added to *lrcinfo_list*.

4.7.2.8 globus_result_t globus_rls_client_rli_mapping_exists (globus_rls_handle_t * *h*, char * *lfn*, char * *lrc*)

Check if a mapping exists in the RLI database.

Parameters:

h Handle connected to an RLS server.

lfn LFN of mapping.

lrc LRC of mapping.

Return values:

GLOBUS_SUCCESS Mapping exists.

4.7.2.9 globus_result_t globus_rls_client_rli_rli_add (globus_rls_handle_t * *h*, char * *rli_url*, char * *pattern*)

RLI servers send information about LFNs in their database to the the list of RLI servers in the database, added with the following function.

Updates may be partitioned amongst multiple RLIs by specifying one or more patterns for an RLI.

Parameters:

h Handle connected to an RLS server.

rli_url URL of RLI server that LRC should send updates to.

pattern If not NULL used to filter which LFNs are sent to *rli_url*. Standard Unix wildcard characters (∗, ?) may be used to do wildcard matches.

Return values:

GLOBUS_SUCCESS RLI (with pattern if not NULL) added to RLI database.

4.7.2.10 globus_result_t globus_rls_client_rli_rli_delete (globus_rls_handle_t ∗ *h*, char ∗ *rli_url*, char ∗ *pattern*)

Delete an entry from the RLI rli/partition tables.

Parameters:

h Handle connected to an RLS server.

rli_url URL of RLI server to remove from RLI partition table.

pattern If not NULL then only the specific *rli_url/pattern* is removed, else all partition information for *rli_url* is removed.

Return values:

GLOBUS_SUCCESS RLI and pattern (if specified) removed from LRC partition table.

4.7.2.11 globus_result_t globus_rls_client_rli_rli_get_part (globus_rls_handle_t ∗ *h*, char ∗ *rli_url*, char ∗ *pattern*, globus_list_t ∗∗ *str2_list*)

Get RLI update partitions from RLI server.

Parameters:

h Handle connected to an RLS server.

rli_url If not NULL identifies RLI that partition data will be retrieved for. If NULL then all RLIs are retrieved.

pattern If not NULL returns only partitions with matching patterns, otherwise all patterns are retrieved.

str2_list Results added to list. Datums in *str2_list* are of type globus_rls_string2_t structure. **s1** will be the rli url, **s2** an empty string or the pattern used to partition updates. See Query Results.

Return values:

GLOBUS_SUCCESS Partition data retrieved from server, written to *str2_list*.

4.7.2.12 globus_result_t globus_rls_client_rli_rli_list (globus_rls_handle_t ∗ *h*, globus_list_t ∗∗ *rliinfo_list*)

Return URLs of RLIs that RLI sends updates to.

Parameters:

h Handle connected to an RLS server.

rliinfo_list List of RLIs updated by this RLI returned in this list. Each list datum is of type globus_rls_rli_info_t. *rliinfo_list* should be freed with globus_rls_client_free_list() when no longer needed.

Return values:

GLOBUS_SUCCESS List of RLIs updated by this LRC returned in *rliinfo_list*.

5 Data Structure Documentation

5.1 globus_rls_attribute_object_t Struct Reference

globus_rls_client_lrc_attr_search() returns a list of these structures which include the object name (LFN or PFN) and attribute value found by the query.

Data Fields

- globus_rls_attribute_t attr
- char * key
- int rc

5.1.1 Detailed Description

globus_rls_client_lrc_attr_search() returns a list of these structures which include the object name (LFN or PFN) and attribute value found by the query.

5.1.2 Field Documentation

5.1.2.1 globus_rls_attribute_t globus_rls_attribute_object_t::attr

Attribute value.

5.1.2.2 char* globus_rls_attribute_object_t::key

LFN or PFN.

5.1.2.3 int globus_rls_attribute_object_t::rc

Result code, only used in bulk query.

5.2 globus_rls_attribute_t Struct Reference

Object (LFN or PFN) attribute type.

Data Fields

- char * name
- globus_rls_obj_type_t objtype
- globus_rls_attr_type_t type
- union {
  time_t t
  double d
  int i
  char * s
  } val

5.2.1 Detailed Description

Object (LFN or PFN) attribute type.

5.2.2 Field Documentation

5.2.2.1 char* globus_rls_attribute_t::name

Attribute name.

5.2.2.2 globus_rls_obj_type_t globus_rls_attribute_t::objtype

Object type.

5.2.2.3 globus_rls_attr_type_t globus_rls_attribute_t::type

Attribute value type.

5.2.2.4 time_t globus_rls_attribute_t::t

Date value (unix time).

5.2.2.5 double globus_rls_attribute_t::d

Floating point value.

5.2.2.6 int globus_rls_attribute_t::i

Integer value.

5.2.2.7 char* globus_rls_attribute_t::s

String value.

5.2.2.8 union { ... } globus_rls_attribute_t::val

Value of attribute (depends on type).

5.3 globus_rls_handle_t Struct Reference

RLS Client Handle.

Data Fields

- globus_url_t url
- globus_io_handle_t handle
- int flags

5.3.1 Detailed Description

RLS Client Handle.

5.3.2 Field Documentation

5.3.2.1 globus_url_t globus_rls_handle_t::url

URL of RLS server (RLS://host[:port]).

5.3.2.2 globus_io_handle_t globus_rls_handle_t::handle

Globus IO handle.

5.3.2.3 int globus_rls_handle_t::flags

See FH_xxx flags below.

5.4 globus_rls_rli_info_t Struct Reference

Information about RLI server, returned by globus_rls_client_lrc_rli_info() and globus_rls_client_lrc_rli_list().

Data Fields

- char url [256]
- int updateinterval
- int flags
- time_t lastupdate

5.4.1 Detailed Description

Information about RLI server, returned by globus_rls_client_lrc_rli_info() and globus_rls_client_lrc_rli_list().

5.4.2 Field Documentation

5.4.2.1 char globus_rls_rli_info_t::url[256]

URL of server.

5.4.2.2 int globus_rls_rli_info_t::updateinterval

Interval between softstate updates.

5.4.2.3 int globus_rls_rli_info_t::flags

RLI flags (see FRLI_BLOOMFILTER).

5.4.2.4 time_t globus_rls_rli_info_t::lastupdate

Time of last softstate update.

5.5 globus_rls_sender_info_t Struct Reference

Information about server sending updates to an rli, returned by globus_rls_client_rli_sender_list().

Data Fields

- char url [256]
- time_t lastupdate

5.5.1 Detailed Description

Information about server sending updates to an rli, returned by globus_rls_client_rli_sender_list().

5.5.2 Field Documentation

5.5.2.1 char globus_rls_sender_info_t::url[256]

URL of server.

5.5.2.2 time_t globus_rls_sender_info_t::lastupdate

Time of last softstate update.

5.6 globus_rls_stats_t Struct Reference

Various configuration options and statistics about an RLS server returned in the following structures by globus_rls_client_stats().

Data Fields

- int flags

5.6.1 Detailed Description

Various configuration options and statistics about an RLS server returned in the following structures by globus_rls_client_stats().

See RLS_LRCSERVER for possible flags values.

5.6.2 Field Documentation

5.6.2.1 int globus_rls_stats_t::flags

See RLS_LRCSERVER.

5.7 globus_rls_string2_bulk_t Struct Reference

String pair result with return code, returned by bulk query operations.

5.7.1 Detailed Description

String pair result with return code, returned by bulk query operations.

5.8 globus_rls_string2_t Struct Reference

String pair result.

Data Fields

- char * s1
- char * s2

5.8.1 Detailed Description

String pair result.

Many of the query functions use this to return pairs of strings (eg LFN,PFN or LFN,LRC).

5.8.2 Field Documentation

5.8.2.1 char* globus_rls_string2_t::s1

First string in pair (eg LFN).

5.8.2.2 char* globus_rls_string2_t::s2

Second string in pair (eg PFN or LRC).

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