GT 4.2.1 Replication Client: System Administrator's Guide
GT 4.2.1 Replication Client: System Administrator's Guide

Introduction

This guide contains advanced configuration information for system administrators working with the Replication Client. It provides references to information on procedures typically performed by system administrators, including installing, configuring, deploying, and testing the installation.

⚠️ Important

This information is in addition to the basic Globus Toolkit prerequisite, overview, installation, security configuration instructions in the Installing GT 4.2.1. Read through this guide before continuing!
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Chapter 1. Building and installing

Replication Client is distributed with the Globus Toolkit 4.2.1 and is available in both the binary bundles and the source bundle. For most purposes, the binary bundle provides the simplest means of installing the Replication Client and its dependencies. The GT make target for this component is `gt4-replication-client` and for tests `gt4-replication-client-test`. The make target is incuded in all. Basic installation steps:

```
% ./configure --prefix=$GLOBUS_LOCATION
% make [all | gt4-replication-client]
% make install
```
Chapter 2. Configuring

There are no additional steps for configuration.
Chapter 3. Deploying

There are no additional steps for deploying. The Replication Client is a client-side tool. In order to use the client a Globus Replica Location Service (RLS) and a Globus GridFTP Server (GridFTP Server) must be accessible.
Chapter 4. Testing

You must start a GridFTP Server on port 9001 of the local host. Note that GridFTP Server normally runs as the root user. See GridFTP for more details. If GridFTP Server is running on the local host on port 9001, run the following script.

```
% $GLOBUS_LOCATION/test/globus_replica_replication_test_unit/TESTS.pl
```

The above test performs unit testing of the replication client java API. If the command indicates errors or failures, check the web page in the directory as specified by the script for more details.

Next, run the following script to unit test the globus-replication-client command-line client.

```
% $GLOBUS_LOCATION/test/globus_replica_replication_test_client/TESTS.pl > test-output.html
```

To view the results of the client tests, open the html output file.
Chapter 5. Security considerations

1. Replication Client Security Considerations

1.1. Command-line

The Replication Client command-line uses the default security credential of the user. It uses this credential for calls to the RLS server and the GridFTP Server. Command-line options are available to set the user subject name for both source and destination. There is also an option to enable data channel authentication. See GridFTP Server documentation for more information on these options.

1.2. API

The Replication Client API allows the caller to pass a GSSCredential object. The calling application may decide how to initialize the credential.
Chapter 6. Debugging

For verbose output from the command-line, use the --verbose option.
Chapter 7. Troubleshooting

For a list of common errors in GT, see Error Codes.

1. Errors

Table 7.1. Replication Client Errors

<table>
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<th>Definition</th>
<th>Possible Solutions</th>
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<tbody>
<tr>
<td>fixme</td>
<td>fixme</td>
<td>fixme</td>
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Introduction

The user guide describes the key usage scenarios of the Replication Client and it describes its command line interface.
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Chapter 1. Replicating data with the Replication Client

This section describes a few key usage scenarios and provides examples of using the Replication Client command-line tools. The command-line client may be found at $GLOBUS_LOCATION/bin/globus-replication-client. For a complete list of options use the help option.

% $GLOBUS_LOCATION/bin/globus-replication-client --help

The client supports common data operations, such as put, get, copy, delete, and also register and replicate. The following examples assume that:

• an RLS is running on the local host using the default port (39281);
• the local RLS catalg is updating the local RLS index service (OPTIONAL); and
• a GridFTP Server is running on the local host using port 9001.

1. Put

The put command takes a source file, either a local file (e.g., file://...) or a remote file (e.g., gsiftp://...), transfers it to a destination location, and registers it with a designated logical name.

% echo "FOO WAS HERE!" > foo.orig
% $GLOBUS_LOCATION/bin/globus-replication-client -r rls://localhost put \\./foo.orig foo gsiftp://hostname:9001/tmp/foo.put

2. Get

The get command looks up a replica using its logical name, randomly selects a replica source location, and gets the file to a local file location.

% $GLOBUS_LOCATION/bin/globus-replication-client -r rls://localhost get \\./foo.get
% cat ./foo.get
    FOO WAS HERE!

3. Copy

The copy command looks up a replica using its logical name, randomly selects a replica source location, and performs a third-party transfer to a remote location. It does not register the new copy in the RLS, hence the new remote file is called a copy not a replica.
Replicating data with the Replication Client

% $GLOBUS_LOCATION/bin/globus-replication-client -r rls://localhost copy \ 
  foo gsiftp://hostname:9001/tmp/foo.copy

4. Replicate

The *replicate* command is nearly identical to the copy command, however, after the file is transfered to its new destination the files is registered in the RLS as another replica associated with the logical name.
Replication Client Commands

The Replication Client consists of a single command-line tool and an API. The client accepts different commands (e.g., get, put, register,...) and calls RLS and GridFTP Server(s) to perform the operations.
**Name**

globus-replication-client -- Performs several intuitive data replication operations.

globus-replication-client

**Tool description**

The command-line client supports intuitive data replication operations such as get (locate a replica and retrieve it), put (transfer local data to a remote location and register it as a replica), copy (locate a replica and copy the data to another location), replicate (locate a replica, copy the data to another location, and register the new location as a replica), delete (delete a specific replica), and register (register an existing data file in the replica catalog).

**Command syntax**

globus-replication-client [options] command

<table>
<thead>
<tr>
<th>Table 1. Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option</td>
</tr>
<tr>
<td>-a</td>
</tr>
<tr>
<td>-b</td>
</tr>
<tr>
<td>-h</td>
</tr>
<tr>
<td>-nodcau</td>
</tr>
<tr>
<td>-p</td>
</tr>
<tr>
<td>-r</td>
</tr>
<tr>
<td>-s</td>
</tr>
<tr>
<td>-tcpbs</td>
</tr>
<tr>
<td>-v</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2. Commands And Arguments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
</tr>
<tr>
<td>copy &lt;name&gt; &lt;url&gt;</td>
</tr>
<tr>
<td>delete &lt;name&gt; &lt;url&gt;</td>
</tr>
<tr>
<td>get &lt;name&gt; &lt;file&gt;</td>
</tr>
<tr>
<td>put {&lt;file&gt;</td>
</tr>
<tr>
<td>register &lt;name&gt; &lt;url&gt;</td>
</tr>
<tr>
<td>replicate &lt;name&gt; &lt;url&gt;</td>
</tr>
</tbody>
</table>
Chapter 2. Troubleshooting

The following section provides information about common errors for end users. For a list of common errors in GT, see Error Codes.

1. Errors

Table 2.1. Replication Client Errors

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Definition</th>
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</tr>
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<tbody>
<tr>
<td>fixme</td>
<td>fixme</td>
<td>fixme</td>
</tr>
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</table>
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GT 4.2.1 Replication Client: Developer's Guide
GT 4.2.1 Replication Client: Developer’s Guide

Introduction

This guide contains information of interest to developers working with Replication Client. It provides reference information for application developers, including APIs, architecture, procedures for using the APIs and code samples.
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Chapter 1. Before you begin

1. Feature summary

Features new in release GT 4.2.1:

- This component is new for GT 4.2.1.

Other Supported Features

- N/A

Deprecated Features

- N/A

2. Tested platforms

Tested Platforms for the Replication Client

- Linux

3. Backward compatibility summary

Protocol changes since GT version 4.0.x:

- N/A

API changes since GT version 4.0.x:

- N/A

Exception changes since GT version 4.0.x:

- N/A

Schema changes since GT version 4.0.x:

- N/A

4. Technology dependencies

Replication Client depends on the following GT components:

- Globus Replica Location Service (RLS)
- Globus GridFTP Server

Replication Client depends on the following 3rd party software:

- Java JVM 1.5+
5. Replication Client Security Considerations

5.1. Command-line

The Replication Client command-line uses the default security credential of the user. It uses this credential for calls to the RLS server and the GridFTP Server. Command-line options are available to set the user subject name for both source and destination. There is also an option to enable data channel authentication. See GridFTP Server documentation for more information on these options.

5.2. API

The Replication Client API allows the caller to pass a GSSCredential object. The calling application may decide how to initialize the credential.
Chapter 2. Usage scenarios

See our wiki\(^1\).

\(^1\) http://dev.globus.org/wiki/Globus_Replication_Client#Development
Chapter 3. Tutorials

See our wiki¹.

¹ http://dev.globus.org/wiki/Globus_Replication_Client#Development
Chapter 4. Architecture and design overview

Check back later.
Chapter 5. APIs

1. Programming Model Overview

The Replication Client provides a plain Java interface.

2. Component API

Javadocs for the Replication Client may be found at the following location:

- TBD
Chapter 6. Services and WSDL

This component does not implement a service or protocol of its own. It uses the RLS and the GridFTP Server and their respective protocols.
Replication Client Commands

The Replication Client consists of a single command-line tool and an API. The client accepts different commands (e.g., get, put, register,...) and calls RLS and GridFTP Server(s) to perform the operations.
Name

globus-replication-client -- Performs several intuitive data replication operations.

globus-replication-client

Tool description

The command-line client supports intuitive data replication operations such as get (locate a replica and retrieve it), put (transfer local data to a remote location and register it as a replica), copy (locate a replica and copy the data to another location), replicate (locate a replica, copy the data to another location, and register the new location as a replica), delete (delete a specific replica), and register (register an existing data file in the replica catalog).

Command syntax

globus-replication-client [options] command

Table 1. Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-a</td>
<td>--ascii</td>
</tr>
<tr>
<td>-b</td>
<td>--binary</td>
</tr>
<tr>
<td>-h</td>
<td>--help</td>
</tr>
<tr>
<td>-nodc</td>
<td>--no-data-channel-authentication</td>
</tr>
<tr>
<td>-p</td>
<td>--parallel &lt;size&gt;</td>
</tr>
<tr>
<td>-r</td>
<td>--registry &lt;url&gt;</td>
</tr>
<tr>
<td>-s</td>
<td>--subject &lt;subject&gt;</td>
</tr>
<tr>
<td>-tcpbs</td>
<td>--tcp-buffer-size &lt;size&gt;</td>
</tr>
<tr>
<td>-v</td>
<td>--verbose</td>
</tr>
</tbody>
</table>

Table 2. Commands And Arguments

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>copy &lt;name&gt; &lt;url&gt;</td>
<td>Copies a replica. The new copy (at the given url) will NOT be registered in the RLS.</td>
</tr>
<tr>
<td>delete &lt;name&gt; &lt;url&gt;</td>
<td>Deletes the specific instance of the replicated data.</td>
</tr>
<tr>
<td>get &lt;name&gt; &lt;file&gt;</td>
<td>Locates the replica and retrieves a copy to the local file.</td>
</tr>
<tr>
<td>put {&lt;file&gt;</td>
<td>&lt;url&gt;} &lt;name&gt; &lt;url&gt;</td>
</tr>
<tr>
<td>register &lt;name&gt; &lt;url&gt;</td>
<td>Registers data specified by url under a given name in the RLS.</td>
</tr>
<tr>
<td>replicate &lt;name&gt; &lt;url&gt;</td>
<td>Locates a replica, transfers the data to the specified location, and registers it in the RLS.</td>
</tr>
</tbody>
</table>
Chapter 7. Configuring

There are no additional steps for configuration.
Chapter 8. Environment variable interface

1. Environmental variables for Replication Client

There are no additional environment variables for this component.
Chapter 9. Debugging

Use the command-line client verbose option for detailed output.
Chapter 10. Troubleshooting

For a list of common errors in GT, see Error Codes.

1. Errors

Table 10.1. Replication Client Errors

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Definition</th>
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<tbody>
<tr>
<td>fixme</td>
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<td>fixme</td>
</tr>
</tbody>
</table>
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GT 4.2.1 Migrating Guide for Replication Client

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The following provides available information about migrating from previous versions of the Globus Toolkit.

1. **Migrating from GT4.0**

   This component is new with GT version 4.2.1; therefore, this section does not apply.

2. **Migrating from GT3**

   This component is new with GT version 4.2.1; therefore, this section does not apply.

3. **Migrating from GT2**

   This component is new with GT version 4.2.1; therefore, this section does not apply.
GT 4.2.1 Replication Client: Quality Profile

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<titleabbrev>Quality Profile</titleabbrev>

1. Test coverage reports

Not available.

2. Code analysis reports

Not available.

3. Outstanding bugs

• There are no outstanding bugs at this time.

See a bugzilla¹ query on Replication Services, Replication Client to list the bugs outstanding.

4. Bug Fixes

• None.

5. Performance reports

None.

¹ http://bugzilla.globus.org/globus/query.cgi
GT 4.2.1 Release Notes: Replication Client

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<titleabbrev>Release Notes</titleabbrev>

1. Component Overview

The replication client integrates the functionality of the Replica Location Service (RLS) and the GridFTP Server to perform intuitive operations including GET, PUT, COPY, REGISTER, REPLICATE, and DELETE. The interfaces for the client include a Java API and a command-line client. The command-line client, globus-replication-client, accepts RLS Logical Names and GSIFTP URLs as endpoints for replication.

2. Feature summary

Features new in release GT 4.2.1:

• This component is new for GT 4.2.1.

Other Supported Features

• N/A

Deprecated Features

• N/A

3. Summary of Changes in Replication Client

This component is new for release GT 4.2.1.

4. Bug Fixes

• None.
5. Known Problems

The following problems and limitations are known to exist for the Replication Client at the time of the 4.2.1 release:

5.1. Limitations

• No known limitations exist.

5.2. Outstanding bugs

• There are no outstanding bugs at this time.

See a bugzilla\(^1\) query on Replication Services, Replication Client to list the bugs outstanding.

6. Technology dependencies

Replication Client depends on the following GT components:

• Globus Replica Location Service (RLS)
• Globus GridFTP Server

Replication Client depends on the following 3rd party software:

• Java JVM 1.5+

7. Tested platforms

Tested Platforms for the Replication Client

• Linux

8. Backward compatibility summary

Protocol changes since GT version 4.0.x:

• N/A

API changes since GT version 4.0.x:

• N/A

Exception changes since GT version 4.0.x:

• N/A

Schema changes since GT version 4.0.x:

• N/A

\(^1\)http://bugzilla.globus.org/globus/query.cgi
9. Associated Standards

Associated standards for the Replication Client:

• None

10. For More Information

Click here for more information about this component.