

GT 4.2.0 Release Notes: Reliable File Transfer (RFT) Service

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<titleabbrev>Release Notes</titleabbrev>

1. Component Overview

The Reliable Transfer Service (RFT) Service implementation in GT 4.2.0 uses standard SOAP messages over HTTP to submit and manage a set of 3rd party GridFTP transfers and deletion of files and directories using GridFTP. The service also provides an interface to control various transfer parameters of the GridFTP control channel like TCP buffer size, parallel streams, DCAU etc. The user creates a RFT resource by submitting a Transfer Request (consisting of a set of third-party gridftp transfers) to the RFT Factory service. The resource is created after the user is properly authorized and authenticated. RFT service implementation exposes operations to control and manage the transfers (the resource). The resource the user created exposes the state of the transfer as a resource property to which the user can either subscribe for changes or poll for the changes in state periodically using standard WS-RF command line clients and other resource properties.

2. RFT Feature Summary

Features new in GT 4.2.0

Supported Features

- Delete files: Delete a set of files/directories on a GridFTP server.
- Exponential Backoff: Configurable exponential back off before a failed transfer is retried.
- Transfer All or None: If this option is set and one of the transfers in the request fails, RFT will stop transferring the remainder of the request and delete the files that were already transferred successfully.
- Transfer Permissions: File permissions are restored at the destination once the file is transferred successfully. This can be configured to throw a fatal error or a transient error depending on whether the GridFTP server supports the MLST command.
- Configurable number of concurrent transfers per container and per request.

- Better error reporting and faults.
- Database purge of the request and transfers after life time expiration.
- Cumulative (aggregate) Resource Properties on the factory provide some statistical information.
- One status Resource Property for the entire transfer.
- Recursive directory transfers and deletes.
- Parallel streams.
- TCP Buffer Size.
- Third-party directory transfers, file transfers and deletes.
- Data channel authentication (DCAU).
- NoTPT option.
- Different subject names for source and destination GridFTP servers for the authorization mechanism.
- Support for binary/ASCII type of transfers.
- Configurable number of retries for failed transfers per request.
- Block Size in bytes.

Deprecated Features

- None

3. Summary of Changes in RFT

The following changes have occurred for RFT since the last stable release, 4.0.x:

New in RFT 4.2 is a connection caching feature. This allows internal GridFTP connections to be internally cached globally across all service requests. This has shown to be a vast performance increase in the cases where a single users wishes to transfer many URLs, but instead of transferring them in a single request, they put each in one request. Cache helps this case specifically, and is a general optimization for other cases.

The backoff algorithm has been modified. To start with, all errors in communicating with GridFTP servers are considered transient. In the past we considered authorization failures and DNS lookup failures, as well as other similar things as fatal. We have since recognized that even those shall pass, and in some environments those should be expected as a means of controlling load.

Additionally how we back off is different. If a failure is detected we do not try to communicate with the given GridFTP server for a specified amount of time, *or* until some other transfer completes successfully with that server. This allows for optimal use of GridFTP servers that only allow a fixed number of connections at once, and it helps make optimal use of our connection cache.

4. Bug Fixes

- [Bug 3864](#)¹
- [Bug 4847](#)²
- [Bug 4849](#)³
- [Bug 4850](#)⁴
- [Bug 5494](#)⁵
- [Bug 5660](#)⁶
- [Bug 5783](#)⁷
- [Bug 5910](#)⁸
- [Bug 5915](#)⁹
- [Bug 6038](#)¹⁰
- [Bug 6039](#)¹¹
- [Bug 6040](#)¹²
- [Bug 6044](#)¹³
- [Bug 6056](#)¹⁴
- [Bug 6063](#)¹⁵
- [Bug 5942](#)¹⁶
- [Bug 5943](#)¹⁷
- [Bug 2749](#)¹⁸
- [Bug 2724](#)¹⁹

¹ http://bugzilla.globus.org/bugzilla/show_bug.cgi?id=3864

² http://bugzilla.globus.org/bugzilla/show_bug.cgi?id=4847

³ http://bugzilla.globus.org/bugzilla/show_bug.cgi?id=4849

⁴ http://bugzilla.globus.org/bugzilla/show_bug.cgi?id=4850

⁵ http://bugzilla.globus.org/bugzilla/show_bug.cgi?id=5494

⁶ http://bugzilla.globus.org/bugzilla/show_bug.cgi?id=5660

⁷ http://bugzilla.globus.org/bugzilla/show_bug.cgi?id=5783

⁸ http://bugzilla.globus.org/bugzilla/show_bug.cgi?id=5910

⁹ http://bugzilla.globus.org/bugzilla/show_bug.cgi?id=5915

¹⁰ http://bugzilla.globus.org/bugzilla/show_bug.cgi?id=6038

¹¹ http://bugzilla.globus.org/bugzilla/show_bug.cgi?id=6039

¹² http://bugzilla.globus.org/bugzilla/show_bug.cgi?id=6040

¹³ http://bugzilla.globus.org/bugzilla/show_bug.cgi?id=6044

¹⁴ http://bugzilla.globus.org/bugzilla/show_bug.cgi?id=6056

¹⁵ http://bugzilla.globus.org/bugzilla/show_bug.cgi?id=6063

¹⁶ http://bugzilla.globus.org/bugzilla/show_bug.cgi?id=5942

¹⁷ http://bugzilla.globus.org/bugzilla/show_bug.cgi?id=5943

¹⁸ http://bugzilla.globus.org/globus/show_bug.cgi?id=2749

¹⁹ http://bugzilla.globus.org/globus/show_bug.cgi?id=2724

- [Bug 2683](#)²⁰
- [Bug 2662](#)²¹
- [Bug 2703](#)²²
- [Bug 2847](#)²³
- [Bug 2826](#)²⁴
- [Bug 2312](#)²⁵
- [Bug 2879](#)²⁶
- [Bug 2930](#)²⁷
- [Bug 2935](#)²⁸
- [Bug 2852](#)²⁹
- [Bug 2986](#)³⁰
- [Bug 3017](#)³¹
- [Bug 2984](#)³²
- [Bug 2965](#)³³
- [Bug 2666](#)³⁴
- [Bug 2927](#)³⁵
- [Bug 3072](#)³⁶
- [Bug 2916](#)³⁷
- [Bug 2721](#)³⁸
- [Bug 2999](#)³⁹

²⁰ http://bugzilla.globus.org/globus/show_bug.cgi?id=2683

²¹ http://bugzilla.globus.org/globus/show_bug.cgi?id=2662

²² http://bugzilla.globus.org/globus/show_bug.cgi?id=2703

²³ http://bugzilla.globus.org/globus/show_bug.cgi?id=2847

²⁴ http://bugzilla.globus.org/globus/show_bug.cgi?id=2826

²⁵ http://bugzilla.globus.org/globus/show_bug.cgi?id=2312

²⁶ http://bugzilla.globus.org/globus/show_bug.cgi?id=2879

²⁷ http://bugzilla.globus.org/globus/show_bug.cgi?id=2930

²⁸ http://bugzilla.globus.org/globus/show_bug.cgi?id=2935

²⁹ http://bugzilla.globus.org/globus/show_bug.cgi?id=2852

³⁰ http://bugzilla.globus.org/globus/show_bug.cgi?id=2986

³¹ http://bugzilla.globus.org/globus/show_bug.cgi?id=3017

³² http://bugzilla.globus.org/globus/show_bug.cgi?id=2984

³³ http://bugzilla.globus.org/globus/show_bug.cgi?id=2965

³⁴ http://bugzilla.globus.org/globus/show_bug.cgi?id=2666

³⁵ http://bugzilla.globus.org/globus/show_bug.cgi?id=2927

³⁶ http://bugzilla.globus.org/globus/show_bug.cgi?id=3072

³⁷ http://bugzilla.globus.org/globus/show_bug.cgi?id=2916

³⁸ http://bugzilla.globus.org/globus/show_bug.cgi?id=2721

³⁹ http://bugzilla.globus.org/globus/show_bug.cgi?id=2999

- [Bug 3110](#)⁴⁰
- [Bug 3091](#)⁴¹
- [Bug 3130](#)⁴²
- [Bug 2914](#)⁴³
- [Bug 3115](#)⁴⁴
- [Bug 2956](#)⁴⁵

5. Known Problems

The following problems and limitations are known to exist for RFT at the time of the 4.2.0 release:

5.1. Limitations

Does not compile with JDK 1.3.1.

5.2. Outstanding Issues

- [3121](#)⁴⁶ - The configured maximum allowed active transfers constraint is not enforced.

6. Technology dependencies

RFT depends on the following GT components:

- Java WS Core
- WS Authentication and Authorization
- Delegation Service
- Service Groups
- MDS useful RP

RFT depends on the following 3rd party software:

- Optional : PostgreSQL 7.1 or later. Not tested with 8.0 yet.
- Optional : MySQL

⁴⁰ http://bugzilla.globus.org/globus/show_bug.cgi?id=3110

⁴¹ http://bugzilla.globus.org/globus/show_bug.cgi?id=3091

⁴² http://bugzilla.globus.org/globus/show_bug.cgi?id=3130

⁴³ http://bugzilla.globus.org/globus/show_bug.cgi?id=2914

⁴⁴ http://bugzilla.globus.org/globus/show_bug.cgi?id=3115

⁴⁵ http://bugzilla.globus.org/globus/show_bug.cgi?id=2956

⁴⁶ http://bugzilla.globus.org/globus/show_bug.cgi?id=3121

7. Tested platforms

Tested platforms for RFT:

- Linux
 - Fedora Core 1 i686
 - Fedora Core 3 i686
 - RedHat 7.3 i686
 - RedHat 9 x86
 - Debian Sarge x86
 - Debian 3.1 i686
- Mac OS X
 - Mac OS X 10.3, 10.4

Tested containers for RFT:

- Java WS Core container
- Tomcat 5.0.30

8. Backward compatibility summary

Protocol changes since GT 4.0.x

- Added All or None option, maximum attempts, and finishBy to the transfer request
- Not backwards compatible with the OGSi version

API changes since GT 4.0.x

- None

Exception changes since GT 4.0.x

- None

Schema changes since GT 4.0.x

- WSDL changes to work with the new Java WS Core

9. Associated Standards

Associated standards for RFT:

- WSRF⁴⁷

⁴⁷ <http://docs.oasis-open.org/wsrf/2004/06/wsrf-WS-ServiceGroup-1.2-draft-02.pdf>

- [WS-Addressing](#)⁴⁸
- [WS-Security](#)⁴⁹

10. For More Information

See [Reliable File Transfer \(RFT\) Service](#) for more information about this component.

DRAFT

⁴⁸ <http://msdn.microsoft.com/ws/2004/03/ws-addressing>

⁴⁹ <http://msdn.microsoft.com/webservices/understanding/specs/default.aspx?pull=/library/en-us/dnglobspec/html/wssecurspecindex.asp>