

GT 5.0.0 MyProxy: System Administrator's Guide

GT 5.0.0 MyProxy: System Administrator's Guide

Introduction

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

Important

This information is in addition to the basic Globus Toolkit prerequisite, overview, installation, security configuration instructions in [Installing GT 5.0.0](#). Read through this guide before continuing!

A typical MyProxy configuration has one dedicated myproxy-server for the site, with MyProxy clients installed on all systems where other Globus Toolkit client software is installed.

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Chapter 1. Building and Installing

MyProxy is built and installed as part of a default GT 5.0.0 installation. For basic installation instructions, see [Installing GT 5.0.0](#). No extra installation steps are required for this component.

If you wish to install MyProxy without installing the rest of the Globus Toolkit, follow the instructions in [Installing GT 5.0.0](#) with the following changes. First, you do not need Ant, a JDK, or a JDBC database to build only MyProxy. Second, instead of running "make", run:

```
globus$ make gsi-myproxy
```

This will install the MyProxy client and server programs. For client-only installations, simply do not configure or use the installed server.

Chapter 2. Configuring

No additional configuration is required to use MyProxy clients after they are installed, although you may want to set the MYPROXY_SERVER environment variable to the hostname of your myproxy-server in the default user environment on your systems.

Please refer to the [MyProxy Admin Guide](#)¹ for MyProxy server configuration instructions.

¹ <http://myproxy.ncsa.uiuc.edu/adminguide.html>

Chapter 3. Deploying

A sample SysV-style boot script for MyProxy is installed at `$GLOBUS_LOCATION/share/myproxy/etc.init.d.myproxy`. To install on Linux, copy the file to `/etc/rc.d/init.d/myproxy` and run **chkconfig --add myproxy**. You will need to edit the file to set the `GLOBUS_LOCATION` environment variable correctly.

Alternatively, to run the myproxy server out of inetd or xinetd, you need to do the following as root:

- Add the entries in `$GLOBUS_LOCATION/share/myproxy/etc.services.modifications` to the `/etc/services` or `/etc/inet/services` file.
- Add the entries in `$GLOBUS_LOCATION/share/myproxy/etc.inetd.conf.modifications` to `/etc/inetd.conf` or `/etc/inet/inetd.conf`, or copy `$GLOBUS_LOCATION/share/myproxy/etc.xinetd.myproxy` to `/etc/xinetd.d/myproxy`. You'll need to modify the paths in the file according to your installation.
- Reactivate the inetd (or xinetd). This is typically accomplished by sending the SIGHUP signal to the daemon. Refer to the inetd or xinetd man page for your system.

In addition, an example cron script is provided in `$GLOBUS_LOCATION/share/myproxy/myproxy.cron` for removing expired/revoked credentials from the repository. You will need to edit the file to set the `GLOBUS_LOCATION` environment variable correctly before installing in (for example) `/etc/cron.hourly`.

Chapter 4. Testing

To verify your myproxy-server installation and configuration, you can run the myproxy-server directly from your shell. If using a *host certificate*, you will need to run the myproxy-server as root. First, make sure your Globus environment is setup in your shell. Set the GLOBUS_LOCATION environment variable to the location of your MyProxy installation. Then, depending on your shell, run one of the following commands.

For csh shells:

```
source $GLOBUS_LOCATION/etc/globus-user-env.csh
```

For sh shells:

```
.$GLOBUS_LOCATION/etc/globus-user-env.sh
```

Then, run `$GLOBUS_LOCATION/sbin/myproxy-server -d`. The `-d` argument runs the myproxy-server in debug mode. It will write debugging messages to the terminal and exit after servicing a single request. You will need to start it once for each test request. In another shell, you can run the MyProxy client programs to test the server.

If run without the `-d` argument, the myproxy-server program will start up and background itself. It accepts connections on TCP port 7512, forking off a separate child to handle each incoming connection. It logs information via the syslog service under the daemon facility.

Chapter 5. Security Considerations

1. MyProxy Security Considerations

You should choose a well-protected host to run the myproxy-server on. Consult with security-aware personnel at your site. You want a host that is secured to the level of a Kerberos KDC, that has limited user access, runs limited services, and is well monitored and maintained in terms of security patches.

For a typical myproxy-server installation, the host on which the myproxy-server is running must have `/etc/grid-security` created and a *host certificate* installed. In this case, the myproxy-server will run as root so it can access the host certificate and key.

Chapter 6. Debugging

1. Logging

The myproxy-server logs to the system logger (syslog) LOG_DAEMON facility. Alternatively, run

myproxy-server -d

from a terminal. In that mode, the myproxy-server will write debugging messages to the terminal and exit after servicing a single request.

Chapter 7. Troubleshooting

1. Common GT Errors

For a list of common errors in GT, see [Error Codes](#).

2. Errors

Table 7.1. MyProxy Errors

Error Code	Definition	Possible Solutions
MyProxy server name does not match expected name	<p>This error appears as a mutual authentication failure or a server authentication failure, and the error message should list two names: the expected name of the MyProxy server and the actual authenticated name.</p> <p>By default, the MyProxy clients expect the MyProxy server to be running with a host certificate that matches the target hostname. This error can occur when running the MyProxy server under a non-host certificate or if the server is running on a machine with multiple hostnames.</p> <p>The MyProxy clients authenticate the identity of the MyProxy server to avoid sending passphrases and credentials to rogue servers.</p> <p>If the expected name contains an IP address, your system is unable to do a reverse lookup on that address to get the canonical hostname of the server, indicating either a problem with that machine's DNS record or a problem with the resolver on your system.</p>	<p>If the server name shown in the error message is acceptable, set the <code>MYPROXY_SERVER_DN</code> environment variable to that name to resolve the problem.</p>
Error in bind(): Address already in use	<p>This error indicates that the <code>myproxy-server</code> port (default: 7512) is in use by another process, probably another <code>myproxy-server</code> instance. You cannot run multiple instances of the <code>myproxy-server</code> on the same network port.</p>	<p>If you want to run multiple instances of the <code>myproxy-server</code> on a machine, you can specify different ports with the <code>-p</code> option, and then give the same <code>-p</code> option to the MyProxy commands to tell them to use the <code>myproxy-server</code> on that port.</p>
grid-proxy-init failed	<p>This error indicates that the <code>grid-proxy-init</code> command failed when <code>myproxy-init</code> attempted to run it, which implies a problem with the underlying Globus installation.</p>	<p>Run <code>grid-proxy-init -debug -verify</code> for more information.</p>
User not authorized	<p>An error from the <code>myproxy-server</code> saying you are "not authorized" to complete an operation typically indicates that the <code>myproxy-server.config</code> file settings are restricting your access to the <code>myproxy-server</code>. It is possible that the <code>myproxy-server</code> is running with the default <code>myproxy-server.config</code> file, which does not authorize any operations.</p>	<p>See Configuring MyProxy for more information.</p>

Error Code	Definition	Possible Solutions
Unable to verify remote side's credentials	An error saying "Unable to verify remote side's credentials," "Couldn't verify the remote certificate," or "alert bad certificate" often indicates that the client or server's certificate is signed by an untrusted Certification Authority (CA). The client must have a CA certificate and signing policy file installed in <code>/etc/grid-security/certificates</code> for the CA that signed the server's certificate. Likewise, the server must have a CA certificate and signing policy file installed in <code>/etc/grid-security/certificates</code> for the CA that signed the client's certificate.	See Configuring Certificates for more information.

3. Additional MyProxy Troubleshooting

For additional information, see the [MyProxy Troubleshooting Page](#)¹ at NCSA.

¹ <http://myproxy.ncsa.uiuc.edu/troubleshooting.html>

Chapter 8. Usage statistics collection

1. MyProxy usage statistics collection

By default, the myproxy-server will send a UDP packet containing usage information to `usage-stats.cilogon.org:4810` after serving each request. See the [MyProxy Privacy Policy](#)¹ for details.

¹ <http://myproxy.ncsa.uiuc.edu/privacy>

Glossary

H

host certificate

An EEC belonging to a host. When using GSI this certificate is typically stored in `/etc/grid-security/hostcert.pem`. For more information on possible host certificate locations see the [GSI C Developer's Guide](#).

GT 5.0.0 MyProxy: User's Guide

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Chapter 1. Introduction

Please refer to the [MyProxy User's Guide](#)¹ on the MyProxy web site.

¹ <http://myproxy.ncsa.uiuc.edu/userguide.html>

Chapter 2. Command-line tools

Please refer to the [MyProxy Reference Manual](http://myproxy.ncsa.uiuc.edu/man/)¹ for documentation of the MyProxy command-line tools.

¹ <http://myproxy.ncsa.uiuc.edu/man/>

Chapter 3. Troubleshooting

1. Common GT Errors

For a list of common errors in GT, see [Error Codes](#).

2. Errors

Table 3.1. MyProxy Errors

Error Code	Definition	Possible Solutions
MyProxy server name does not match expected name	<p>This error appears as a mutual authentication failure or a server authentication failure, and the error message should list two names: the expected name of the MyProxy server and the actual authenticated name.</p> <p>By default, the MyProxy clients expect the MyProxy server to be running with a host certificate that matches the target hostname. This error can occur when running the MyProxy server under a non-host certificate or if the server is running on a machine with multiple hostnames.</p> <p>The MyProxy clients authenticate the identity of the MyProxy server to avoid sending passphrases and credentials to rogue servers.</p> <p>If the expected name contains an IP address, your system is unable to do a reverse lookup on that address to get the canonical hostname of the server, indicating either a problem with that machine's DNS record or a problem with the resolver on your system.</p>	<p>If the server name shown in the error message is acceptable, set the <code>MYPROXY_SERVER_DN</code> environment variable to that name to resolve the problem.</p>
Error in bind(): Address already in use	<p>This error indicates that the <code>myproxy-server</code> port (default: 7512) is in use by another process, probably another <code>myproxy-server</code> instance. You cannot run multiple instances of the <code>myproxy-server</code> on the same network port.</p>	<p>If you want to run multiple instances of the <code>myproxy-server</code> on a machine, you can specify different ports with the <code>-p</code> option, and then give the same <code>-p</code> option to the MyProxy commands to tell them to use the <code>myproxy-server</code> on that port.</p>
grid-proxy-init failed	<p>This error indicates that the <code>grid-proxy-init</code> command failed when <code>myproxy-init</code> attempted to run it, which implies a problem with the underlying Globus installation.</p>	<p>Run <code>grid-proxy-init -debug -verify</code> for more information.</p>
User not authorized	<p>An error from the <code>myproxy-server</code> saying you are "not authorized" to complete an operation typically indicates that the <code>myproxy-server.config</code> file settings are restricting your access to the <code>myproxy-server</code>. It is possible that the <code>myproxy-server</code> is running with the default <code>myproxy-server.config</code> file, which does not authorize any operations.</p>	<p>See Configuring MyProxy for more information.</p>

Error Code	Definition	Possible Solutions
Unable to verify remote side's credentials	An error saying "Unable to verify remote side's credentials," "Couldn't verify the remote certificate," or "alert bad certificate" often indicates that the client or server's certificate is signed by an untrusted Certification Authority (CA). The client must have a CA certificate and signing policy file installed in <code>/etc/grid-security/certificates</code> for the CA that signed the server's certificate. Likewise, the server must have a CA certificate and signing policy file installed in <code>/etc/grid-security/certificates</code> for the CA that signed the client's certificate.	See Configuring Certificates for more information.

3. Additional MyProxy Troubleshooting

For additional information, see the [MyProxy Troubleshooting Page](#)¹ at NCSA.

¹ <http://myproxy.ncsa.uiuc.edu/troubleshooting.html>

Chapter 4. Usage statistics collection

1. MyProxy usage statistics collection

By default, the myproxy-server will send a UDP packet containing usage information to `usage-stats.cilogon.org:4810` after serving each request. See the [MyProxy Privacy Policy](#)¹ for details.

¹ <http://myproxy.ncsa.uiuc.edu/privacy>

Glossary

GT 5.0.0 MyProxy: Developer's Guide

GT 5.0.0 MyProxy: Developer's Guide

Introduction

Please refer to the [MyProxy Developer's Guide](http://myproxy.ncsa.uiuc.edu/devguide.html)¹ on the MyProxy web site.

¹ <http://myproxy.ncsa.uiuc.edu/devguide.html>

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Chapter 1. Before you begin

1. Feature summary

Supported Features

- Users can obtain certificates and trust roots from the MyProxy CA using **myproxy-logon**.
- Users can store and retrieve multiple X.509 *proxy credentials* using **myproxy-init** and **myproxy-logon**.
- Users can store and retrieve multiple X.509 end-entity credentials using **myproxy-store** and **myproxy-retrieve**.
- Users and administrators can manage trustroots (CA certificates and CRLs) using **myproxy-logon** and **myproxy-get-trustroots**.
- Administrators can load the repository with X.509 end-entity credentials on the users' behalf using **myproxy-admin-load-credential**.
- Administrators can use the **myproxy-admin-adduser** command to create *user credentials* and load them into the MyProxy repository.
- Administrators can use the **myproxy-admin-addservice** command to create *host credentials* and load them into the MyProxy repository.
- Users and administrators can set access control policies on the credentials in the repository.
- If allowed by policy, job managers (such as Condor-G) can renew credentials before they expire.
- The MyProxy server enforces local site passphrase policies using a configurable external call-out.

Deprecated Features

- None

2. Tested platforms

Tested Platforms for MyProxy:

- Mac OS X 10.5
- x86/x86_64 GNU/Linux
- PPC AIX 5.3
- Sun4u Solaris 5.10

3. Backward compatibility summary

All MyProxy versions are fully backwards compatible.

4. Technology dependencies

MyProxy depends on the following GT component:

- [GSIC](#)

5. MyProxy Security Considerations

You should choose a well-protected host to run the myproxy-server on. Consult with security-aware personnel at your site. You want a host that is secured to the level of a Kerberos KDC, that has limited user access, runs limited services, and is well monitored and maintained in terms of security patches.

For a typical myproxy-server installation, the host on which the myproxy-server is running must have `/etc/grid-security` created and a *host certificate* installed. In this case, the myproxy-server will run as root so it can access the host certificate and key.

Chapter 2. Usage scenarios

Please refer to the [MyProxy User Guide](#)¹ for MyProxy usage scenarios.

¹ <http://myproxy.ncsa.uiuc.edu/userguide.html>

Chapter 3. Tutorials

There are no tutorials available at this time.

Chapter 4. Architecture and design overview

The MyProxy system architecture and design is described in the following two publications:

- J. Basney, M. Humphrey, and V. Welch. The MyProxy Online Credential Repository¹. Software: Practice and Experience, 2005.
- J. Novotny, S. Tuecke, and V. Welch. An Online Credential Repository for the Grid: MyProxy². Proceedings of the Tenth International Symposium on High Performance Distributed Computing (HPDC-10), IEEE Press, August 2001.

¹ <http://www.ncsa.uiuc.edu/~jbasney/myproxy-spe.pdf>

² <http://www.globus.org/alliance/publications/papers/myproxy.pdf>

Chapter 5. Troubleshooting

1. Common GT Errors

For a list of common errors in GT, see [Error Codes](#).

2. Errors

Table 5.1. MyProxy Errors

Error Code	Definition	Possible Solutions
MyProxy server name does not match expected name	<p>This error appears as a mutual authentication failure or a server authentication failure, and the error message should list two names: the expected name of the MyProxy server and the actual authenticated name.</p> <p>By default, the MyProxy clients expect the MyProxy server to be running with a host certificate that matches the target hostname. This error can occur when running the MyProxy server under a non-host certificate or if the server is running on a machine with multiple hostnames.</p> <p>The MyProxy clients authenticate the identity of the MyProxy server to avoid sending passphrases and credentials to rogue servers.</p> <p>If the expected name contains an IP address, your system is unable to do a reverse lookup on that address to get the canonical hostname of the server, indicating either a problem with that machine's DNS record or a problem with the resolver on your system.</p>	<p>If the server name shown in the error message is acceptable, set the <code>MYPROXY_SERVER_DN</code> environment variable to that name to resolve the problem.</p>
Error in bind(): Address already in use	<p>This error indicates that the <code>myproxy-server</code> port (default: 7512) is in use by another process, probably another <code>myproxy-server</code> instance. You cannot run multiple instances of the <code>myproxy-server</code> on the same network port.</p>	<p>If you want to run multiple instances of the <code>myproxy-server</code> on a machine, you can specify different ports with the <code>-p</code> option, and then give the same <code>-p</code> option to the MyProxy commands to tell them to use the <code>myproxy-server</code> on that port.</p>
grid-proxy-init failed	<p>This error indicates that the <code>grid-proxy-init</code> command failed when <code>myproxy-init</code> attempted to run it, which implies a problem with the underlying Globus installation.</p>	<p>Run <code>grid-proxy-init -debug -verify</code> for more information.</p>
User not authorized	<p>An error from the <code>myproxy-server</code> saying you are "not authorized" to complete an operation typically indicates that the <code>myproxy-server.config</code> file settings are restricting your access to the <code>myproxy-server</code>. It is possible that the <code>myproxy-server</code> is running with the default <code>myproxy-server.config</code> file, which does not authorize any operations.</p>	<p>See Configuring MyProxy for more information.</p>

Error Code	Definition	Possible Solutions
Unable to verify remote side's credentials	An error saying "Unable to verify remote side's credentials," "Couldn't verify the remote certificate," or "alert bad certificate" often indicates that the client or server's certificate is signed by an untrusted Certification Authority (CA). The client must have a CA certificate and signing policy file installed in <code>/etc/grid-security/certificates</code> for the CA that signed the server's certificate. Likewise, the server must have a CA certificate and signing policy file installed in <code>/etc/grid-security/certificates</code> for the CA that signed the client's certificate.	See Configuring Certificates for more information.

3. Additional MyProxy Troubleshooting

For additional information, see the [MyProxy Troubleshooting Page](#)¹ at NCSA.

¹ <http://myproxy.ncsa.uiuc.edu/troubleshooting.html>

Chapter 6. Related Documentation

For additional information about MyProxy, see the [MyProxy Project Home Page](http://myproxy.ncsa.uiuc.edu/)¹ at NCSA.

¹ <http://myproxy.ncsa.uiuc.edu/>

Glossary

H

host certificate An EEC belonging to a host. When using GSI this certificate is typically stored in `/etc/grid-security/hostcert.pem`. For more information on possible host certificate locations see the [GSI C Developer's Guide](#).

host credentials The combination of a host certificate and its corresponding private key.

P

proxy credentials The combination of a proxy certificate and its corresponding private key. GSI typically stores proxy credentials in `/tmp/x509up_u<uid>` , where `<uid>` is the user id of the proxy owner.

U

user credentials The combination of a user certificate and its corresponding private key.

GT 5.0.0 Migrating Guide for MyProxy

<titleabbrev>Migrating Guide</titleabbrev>

No special procedures are required for upgrading MyProxy installations. MyProxy is backward compatible.

GT 5.0.0 MyProxy: Quality Profile

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<titleabbrev>Quality Profile</titleabbrev>

1. Test coverage reports

Not yet available.

2. Code analysis reports

Not yet available.

3. Outstanding bugs

- [Bug 2709](#):¹ The MyProxy package isn't internationalized.

4. Bug Fixes

Please see the [MyProxy Release Notes](#)² for details on this and other MyProxy versions.

5. Performance reports

- [MyProxy Scalability Information](#)³

¹ http://bugzilla.globus.org/globus/show_bug.cgi?id=2709

² <http://www-unix.globus.org/ftppub/myproxy/VERSION>

³ <http://myproxy.ncsa.uiuc.edu/scalability.html>

GT 5.0.0 Release Notes: MyProxy

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<titleabbrev>Release Notes</titleabbrev>

1. Component Overview

MyProxy is open source software for managing X.509 Public Key Infrastructure (PKI) security credentials (certificates and private keys). MyProxy combines an online credential repository with an online certificate authority to allow users to securely obtain credentials when and where needed. Users run **myproxy-logon** to authenticate and obtain credentials, including trusted CA certificates and Certificate Revocation Lists (CRLs). For more information about MyProxy, see the [MyProxy Home Page](#)¹.

2. Feature summary

Supported Features

- Users can obtain certificates and trust roots from the MyProxy CA using **myproxy-logon**.
- Users can store and retrieve multiple X.509 *proxy credentials* using **myproxy-init** and **myproxy-logon**.
- Users can store and retrieve multiple X.509 end-entity credentials using **myproxy-store** and **myproxy-retrieve**.
- Users and administrators can manage trustroots (CA certificates and CRLs) using **myproxy-logon** and **myproxy-get-trustroots**.
- Administrators can load the repository with X.509 end-entity credentials on the users' behalf using **myproxy-admin-load-credential**.
- Administrators can use the **myproxy-admin-adduser** command to create *user credentials* and load them into the MyProxy repository.
- Administrators can use the **myproxy-admin-addservice** command to create *host credentials* and load them into the MyProxy repository.
- Users and administrators can set access control policies on the credentials in the repository.

¹ <http://myproxy.ncsa.uiuc.edu/>

- If allowed by policy, job managers (such as Condor-G) can renew credentials before they expire.
- The MyProxy server enforces local site passphrase policies using a configurable external call-out.

Deprecated Features

- None

3. Summary of Changes in MyProxy

GT 5.0.0 contains MyProxy v5.0. MyProxy support for [managing trust roots](#)² (CA certificates and CRLs) has improved, including a new [myproxy-get-trustroots](#)³ command. See the [MyProxy Release Notes](#)⁴ for more details on this and other MyProxy versions.

4. Known Problems

The following problems and limitations are known to exist for MyProxy at the time of the 5.0.0 release:

4.1. Limitations

- No known limitations exist.

4.2. Outstanding bugs

- [Bug 2709](#):⁵ The MyProxy package isn't internationalized.

5. Technology dependencies

MyProxy depends on the following GT component:

- [GSLC](#)

6. Tested platforms

Tested Platforms for MyProxy:

- Mac OS X 10.5
- x86/x86_64 GNU/Linux
- PPC AIX 5.3
- Sun4u Solaris 5.10

² <http://myproxy.ncsa.uiuc.edu/trustroots/>

³ <http://myproxy.ncsa.uiuc.edu/man/myproxy-get-trustroots.1.html>

⁴ <http://www-unix.globus.org/ftppub/myproxy/VERSION>

⁵ http://bugzilla.globus.org/globus/show_bug.cgi?id=2709

7. Backward compatibility summary

All MyProxy versions are fully backwards compatible.

8. Associated Standards

Associated standards for MyProxy:

- [GFD-E.054](#)⁶ MyProxy Protocol
- [RFC 3820](#)⁷ Proxy Certificates
- [RFC 2246](#)⁸ TLS

9. For More Information

See [MyProxy](#) for more information about this component.

Glossary

H

host credentials The combination of a host certificate and its corresponding private key.

P

proxy credentials The combination of a proxy certificate and its corresponding private key. GSI typically stores proxy credentials in `/tmp/x509up_u<uid>` , where `<uid>` is the user id of the proxy owner.

U

user credentials The combination of a user certificate and its corresponding private key.

⁶ <http://www.ggf.org/documents/GFD.54.pdf>

⁷ <http://www.faqs.org/rfcs/rfc3820.html>

⁸ <http://www.faqs.org/rfcs/rfc2246.html>