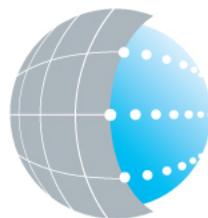


CAGRID PORTAL 2.2

Installation and Upgrade Guide



caBIG[®]

cancer Biomedical
Informatics Grid[®]

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February 19, 2009

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caGrid 1.2

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Document Change History

The following is the change history for this document.

<i>Date</i>	<i>Version</i>	<i>Description</i>	<i>Revised By</i>
February 19, 2009	2.2	Added and edited new wiki content to this guide for 2.2. Updated copyright.	Carolyn Kelley Klinger
October 5, 2008	2.1	Applied styles from CBIIT Word template. Changed version number throughout for 2.1 release. Added Credits section. Added registered trademark for caBIG®. Changed title page to say CBIIT. Added chapter on upgrading.	Carolyn Kelley Klinger
July 22, 2008	2.0.2.2	Corrected Yahoo URL.	John Eisenschmidt
June 28, 2008	2.0.2.1	Added caGrid license v2 and formatted.	Carolyn Kelley Klinger
June 27, 2008	2.0.2	Updated for caGrid Portal 2.0.2.	Manav Kher
December 18, 2007	2.0.1	Updated for caGrid Portal 2.0.1.	Eddie VanArsdall

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About This Guide

This guide explains how to install, deploy, configure, and run the caGrid Portal 2.1 application. It also provides prerequisite requirements for the installation.

About the caGrid Portal

The caGrid Portal is a Web-based application that enables end users to discover and interact with the services that are available on the caGrid infrastructure. The portal serves as the primary visualization tool for the caGrid middleware and provides a standards-based platform for hosting caBIG-related tools. The portal also serves as a caBIG information source. Users of the portal have instant access to information about caBIG® participants, caGrid points of contact (POCs), and caGrid-related news and events.

Audience for This Guide

This installation guide is intended for caGrid service developers, client application developers, and service administrators. Users of this guide should be familiar with Java and other programming languages, database concepts, and the Internet. This guide assumes that users intending to use caGrid resources in software applications have experience with building and using complex data systems.

Credits and Resources

caGrid Portal Development and Management Teams		
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Chapter 1 Pre-Installation

Obtain the caGrid Portal Software

You can obtain the caGrid Portal software by downloading the release or checking out the project from CVS.

Download the Release

To download the release, follow this link:

https://qforge.nci.nih.gov/frs/?group_id=25

Check Out the Project from CVS

To check out the project from CVS, use the settings in Table 1:

Setting	Value
Username	anonymous
Password	anonymous
Protocol	ssh
Host	cbiocvs2.nci.nih.gov
Repository	/share/content/gforge/cagrid-1-0
module	cagrid-1-0/Applications/cagrid-portal
tag	cagrid-portal-2-1_release_final

Table 1. Settings for checking out source code from CVS

If you are using a command line CVS client, use this command:

```
export CVS_RSH=ssh
cvs -d :ext:anonymous@cbiocvs2.nci.nih.gov:/share/content/gforge/cagrid-1-0 co \
-r cagrid-portal-2-1_release_final \
-d cagrid-portal cagrid-1-0/Applications/cagrid-portal
```

After checkout, the caGrid Portal source code directory (referred to henceforth as \$SRC) will be located under `cagrid-portal` in the current directory.

Obtain the Required Software

Before installing the caGrid Portal, make sure that you have the installed the following applications. Set the environment variables as specified.

Application/Version	Preparation
Java 1.5	Set <code>JAVA_HOME</code> and make sure that the Java SDK executable is on the <code>PATH</code> .
Ant 1.6.5	Set <code>ANT_HOME</code> and make sure that the Ant executable is on the <code>PATH</code> .
MySQL 5+	You will need privileges to create and delete databases.

Table 2. caGrid Portal Installation Requirements

Create the Databases

The caGrid Portal application requires two databases: one for Liferay data, and one for caGrid Portal data. By convention, the names of these databases are `lportal` and `portal2`. If you are using these database names, then you need to execute the following SQL in your MySQL database:

```
create database lportal character set utf8;
create database portal2;
```

You also need to provision an account that has access to these databases. If the same account will have full access to both databases, use the following SQL:

```
grant all privileges on lportal.* to 'portalacct'@'%' identified by 'mypwd';
grant all privileges on portal2.* to 'portalacct'@'%' identified by 'mypwd';
flush privileges;
```

This gives the user `portalacct` all privileges on these databases. This user can access the databases from any host. For more information, see the MySQL admin documentation at <http://dev.mysql.com/doc/refman/5.0/en/index.html>.

Create the SSL Certificate and Keystore

Some pages in the portal need to be protected with HTTPS. You need to create an SSL certificate that the embedded Tomcat instance (running in JBoss) will use. The installation script will configure the Tomcat HTTPS Connector, but you still must either create a certificate and PKCS12 keystore or specify the path to an existing keystore and provide the keystore password.

To create a keystore using the Java keytool, run this command:

```
$JAVA_HOME/bin/keytool -genkey -alias tomcat -keyalg RSA -keystore  
/path/to/my/keystore
```

Make sure that you use the same password for the keystore and the key. When prompted for the first and last name, specify the host name.

For complete instructions on using keytool, follow this link:

<http://java.sun.com/j2se/1.5.0/docs/tooldocs/windows/keytool.html>

For instructions on configuring JBoss and Tomcat to use SSL, follow these links:

- <http://tomcat.apache.org/tomcat-5.5-doc/ssl-howto.html>
- <http://docs.jboss.org/jbossas/jboss4guide/r5/html/ch9.chapt.html#ch9.https.sect>

By default, the installation script will assume that the keystore is located at `$HOME/portal-liferay/portal-keystore` and that the keystore password is `portal`. You can configure this location and password in the properties file that the installation script uses (described later).

Obtain a Google Maps API Key

You can get a Google Maps API key at <http://www.google.com/apis/maps/signup.html/>. If your host name is `my.host.com` and the HTTP server is listening to port 8080, then the URL you should use is <http://my.host.com:8080/>. Save this key for future use.

Obtain Yahoo ApplicationID

Get an ApplicationID from Yahoo at <http://developer.yahoo.com/wsregapp/>. Save this for future use.

Configure the caGrid Trust Fabric

The caGrid Portal uses GAARDS to authenticate users, so you must configure the caGrid trust fabric on the machine that will host the portal. The portal itself will use the GTS client to maintain the trust fabric, but you must also bootstrap the trust fabric.

By default, the portal will use the `nci_prod` as the target grid. If you are using this grid, you don't need to do anything.

If you are using one of the following grids, the trust synchronization configuration has already been provided:

- `nci_dev`
- `nci_stage`
- `nci_prod`

You will need to configure properties relevant to the target grid environment by creating a corresponding `build.properties` file. Look at `build-nci_qa.properties` as an example. When you run the installation script, you must specify the name of your target environment. For more information, see "Configure the caGrid Portal Installation" on page 6.

If you are using another target grid, then you need to do three things:

1. Create a `sync-description.xml` file to configure the GTS client that the portal uses.
2. Bootstrap the trust fabric by placing root certificates under the `$HOME/.globus/certificates` directory.
3. Configure the caGrid Portal to use your `sync-description.xml` configuration.

To configure the portal to use your `sync-description.xml` file and certificates, you must edit the `aggr.trust.syncgts.file` and `aggr.trust.certs.dir` properties to the path to your `sync-description.xml` file and the directory in which the root certificates are found, respectively.

To find instructions for configuring a trust fabric using caGrid tools, follow this link: http://www.cagrid.org/mwiki/index.php?title=GTS:1.1:Administrators_Guide:Syncing_With_the_Trust_Fabric

Configure the caGrid Portal Installation

The caGrid Portal installation script is at `$SRC/build.xml`. This is an Ant build file configured by the properties defined in the `build.properties` file in the same directory. To customize the installation, you can directly edit `build.properties`, or you can override those properties by adding them to the `build-local.properties` file.

Note: By default, the `build.xml` file will first load the `build-${target.env}.properties` and then the `build.properties` file. By default, the `${target.env}` refers to the local installation, so the `build-local.properties` file is used.

If you want to maintain installation configurations for multiple deployment tiers, you can create multiple properties files that use the following naming convention: `build-<tier>.properties`, where `<tier>` is replaced with the name of the tier. For example, if you create a configuration for the **testing** tier, then you would create a file named `build-testing.properties`, and then run Ant from the `$SRC` directory as follows:

```
ant -Dtarget.env=testing install
```

See the `$(SRC)/build-local.properties` file itself for a list of all the properties that you will need to specify to customize the Portal. The `build-local.properties` has a list of all mandatory (database properties etc.) and optional properties. If you are using the **training** target grid and default installation location, then you will usually only need to edit the following properties:

Set password for the Liferay administrator

- `liferay.admin.password`

Email address for the Portal administrator

- `cagrid.portal.admin.email`

Database information for the Liferay database (created [earlier](#))

- `liferay.db.host`
- `liferay.db.port`
- `liferay.db.name`
- `liferay.db.username`
- `liferay.db.password`

Database Information for the Portal database

For more information about creating Portal databases, see "Create the Databases" on page 4.

- `cagrid.portal.db.url`
- `cagrid.portal.db.username`
- `cagrid.portal.db.password`

caGrid Services

As explained earlier, the Portal by default builds against the caGrid Training tier.

Change the following properties if you want to deploy the Portal against a different tier of caGrid (for example, Production).

- `aggr.trust.target.grid`
- `cagrid.portal.indexServiceUrls`
- `cagrid.portal.idpInfo`
- `cagrid.portal.ifsUrl`
- `cagrid.portal.gmeUrl`
- `cagrid.portal.cadsrUrl`
- `fqp.service.url`

Note: The `build-nci_qa.properties` file can serve as an example.

Yahoo ApplicationID

For more information about creating a Yahoo ApplicationID, see "Obtain Yahoo ApplicationID" on page 5.

- `cagrid.portal.geocoder.yahoo.appId`

Google Maps key

For more information about creating a Google Maps key, see "Obtain a Google Maps API Key" on page 5.

- `cagrid.portal.map.google.apiKey`

Encryption key

- `cagrid.portal.security.encryption.key`

Note: The value is used to encrypt user credentials in memory (See "Secure the Encryption Key" on page 12 for more information). The key must be **at least 24 characters**.

- The key uses 3DES encryption, which uses the first 24 bytes of the key for encryption/decryption:
<http://java.sun.com/j2se/1.4.2/docs/api/javax/crypto/spec/DESedeKeySpec.html>

Chapter 2 Installation

From the \$SRC directory, run the following command:

```
ant -Dtarget.env=<envname> install
```

If you have just directly updated `build.properties` or `build-local.properties`, then you would run the following command:

```
ant install
```

Chapter 3 Post-Installation

Set Up the Environment

On Windows, use the System application in the Control Panel to set the `JBOSS_HOME` environment variable to point to the directory in which JBoss was installed. By default, the variable will point to the following path:

```
%HOMEDRIVE%%HOMEPATH%\portal-liferay\jboss-4.0.5.GA
```

On Unix/Linux/Mac, the default location will be `$HOME/portal-liferay/jboss-4.0.5.GA`. You can set the environment variable in the bash shell as follows:

```
export JBOSS_HOME=$HOME/portal/liferay/jboss-4.0.5.GA
```

Start the Application Server

On Windows, do the following:

1. Navigate to `%JBOSS_HOME%\bin`.
2. Double-click `run.bat`.

On Unix/Linux/Mac, do the following:

```
cd $JBOSS_HOME/bin  
chmod u+x *  
./run.sh > portal.log &
```

Import the Site Structure

You can configure the basic site structure by using the Liferay administrative portlets to import Liferay Archive (lar) files. These files are available in the `$(SRC)/portals/liferay/lars/` directory.

To import the lar files, follow these steps:

Step	Action
1.	Using your browser, go to: <a href="https://<hostname>:8443">https://<hostname>:8443 .
2.	Sign in using the following parameters: <ul style="list-style-type: none"> • username: portaladmin@cabig.nci.nih.gov • password: p0rtal@dmIn
3.	In the upper right corner, click the Welcome drop-down menu, then select My Places > My Community .
4.	Click the icon to the right of the Private Pages text.
5.	Click the Import/Export tab.
6.	Click the Import sub tab.
7.	Select the Portlet Preferences and Portlet Data checkboxes.
8.	Click the Browse button to navigate to and select <code>portaladmin-private-community.lar</code> .
9.	Click OK .
10.	Click Import .
11.	Click the back arrow icon in the upper right corner.
12.	In the upper right-hand corner, click the Welcome drop-down menu, then select My Places > My Community > Private Pages . Note: This time, just click the Private Pages text—not the icon to the right.
13.	Using the Communities portlet, click the Communities I have joined tab.
14.	Click the Configure Pages icon for the Guest community. This is the third icon from the left showing an image of two pieces of paper.
15.	Click the Import/Export tab.
16.	Click on the Import sub tab.
17.	Select the Portlet Preferences and Portlet Data check boxes.

Step	Action
18.	Click the Browse button to navigate to and select <code>guest-community.lar</code> .
19.	Click OK .
20.	Click Import .
21.	Click the back arrow icon in the upper, right corner of page.
22.	In the upper, right corner, click the Welcome drop-down menu, then select My Places > Guest Community > Public Pages . The caGrid Portal home page appears.
23.	Sign out by selecting the Sign Out option from the Welcome drop-down menu.

**NOTE:**

If you see an error message just below the Google Map on the Home page stating that you do not have privileges to view this portlet, simply restart JBoss.

Secure the Encryption Key

A file named `cagridportal.properties` will be generated and placed in two locations on the file system:

- `$JBOSS_HOME/server/default/deploy/liferay-portal.war/WEB-INF/classes/cagridportal.properties`
- `$JBOSS_HOME/server/default/deploy/cagridportlets/WEB-INF/classes/cagridportal.properties`

The value of the `cagrid.portal.security.encryption.key` property in this file will be used to encrypt authentication tickets as well as portal users' temporary grid credentials in the database. These files must be protected so that users' grid credentials cannot be decrypted by a malicious user who has access to both the hosting system and database. Set file permissions appropriately for your system.

Chapter 4 Re-Installation

This section describes the steps needed to remove an existing installation and re-install. All existing data will be destroyed. See the Administrator's Guide for directions on backing up data and running batch imports of data.

1. Stop the JBoss application server.
2. Drop the `portal2` and `lportal` databases.
3. Re-create the databases.
4. From `$SRC`, run the following command:

```
ant -Dtarget.env=<env> clean install
```

Chapter 5 Upgrading from caGrid Portal 2.1 to 2.2

This chapter explains how to upgrade an existing caGrid Portal 2.1.x installation to version 2.2. If you are running an older (< 2.1) version of Portal, we recommend that you re-install the latest release. See *Chapter 4, Re-Installation* on page 13 for more information.

Obtaining the caGrid Portal 2.2 Software

You can download the caGrid Portal release or check out the code from CVS.

Download the Release

The caGrid Portal 2.2 release can be downloaded from GForge.

Check Out caGrid Portal from CVS

You can use the following settings to check out the source code:

Setting	Value
Username	anonymous
Password	anonymous
Protocol	ssh
Host	cbiocvs2.nci.nih.gov
Repository	/share/content/gforge/cagrid-1-0
module	cagrid-1-0/Applications/cagrid-portal
tag	cagrid-portal-2-2_release

Table 3. Settings for checking out source code from CVS for upgrade to caGrid Portal 2.2

If you are using a command line CVS client, you could use this command:

```
export CVS_RSH=ssh
cvs -d :ext:anonymous@cbiocvs2.nci.nih.gov:/share/content/gforge/cagrid-1-0 co
-r ccagrid-portal-2-2_release
-d cagrid-portal cagrid-1-0/Applications/cagrid-portal
```

After checkout, the caGrid Portal source code directory (referred to from this point on as \$SRC) will be located under `./cagrid-portal`.

Obtain Required Software

You must install the following software:

- Java 1.5
Make sure `JAVA_HOME` is set and Java SDK executable is on the `PATH`.
- Ant 1.6.5
Make sure that `ANT_HOME` is set and Ant executable is on the `PATH`.

Update Properties

The caGrid Portal build script uses `build-local.properties` and `build-<target.env>.properties` files for setting all its properties.

Note: `build-local.properties` overrides all other properties.

You can copy these property files from your existing installation or simply edit these properties for your environment.

`<target.env>` is the environment in which the Portal is being installed. By default, the distribution of caGrid Portal is pre-configured for the following environments:

- `nci_dev`
- `nci_qa`
- `nci_prod`
- `training` (default)

Note: The `build-local.properties` file has a list of properties that are NEEDED to configure the installation to the local environment (database connections settings etc.). Users are expected to fill in the appropriate values in the `build-local.properties` file.

Note: caGrid Portal does not have a `build-nci_stage.properties` file for the `nci_stage` tier. For `nci_stage` tier, you will need to update the `build-local.properties` file with relevant information for that tier and also add the following property:

```
aggr.trust.target.grid=nci_stage
```

Upgrade caGrid Portal Software

Do the following to upgrade caGrid Portal.

1. Shut down JBOSS.
2. Since this release of the caGrid Portal also updates the Liferay Portal software, you must delete your existing caGrid Portal and Liferay Portal installations from the JBOSS server. Typically you must delete the following directories:

Note: These paths may vary.

```
${JBOSS_HOME}/server/default/deploy/cagrid-minimal.war
${JBOSS_HOME}/server/default/deploy/cagridportlets.war
```

```
${JBOSS_HOME}/server/default/deploy/liferay-portal.war
```

3. Clean the JBOSS cache, i.e delete `$JBOSS_HOME/server/default/tmp` and `$JBOSS_HOME/server/default/work` directories.
4. Run `ant -Dtarget.env=nci_dev liferay:install-liferay`.
5. Run `ant -Dtarget.env=nci_dev liferay:deploy-all`.
6. Start up JBOSS.

Note: The concept of target environment (`-Dtarget.env`) is explained earlier and you may wish to use a different target environment.

Note: Wait for the JBOSS server to restart and fully deploy the caGrid Portal (this typically takes 5 minutes) before opening the caGrid Portal homepage in the browser (eg. <http://localhost:8080>)

Chapter 6 Firewall/Connectivity Considerations

By default, the portal installation script will download JBoss and several Liferay artifacts. If you are behind a firewall, you will need to provide the proxy configuration for your Java Virtual Machine. Essentially, you simply need to set the `ANT_OPTS` environment variable to include the standard Java proxy settings using the following command:

```
export ANT_OPTS="-Dhttp.proxyHost=proxy -Dhttp.proxyPort=8080"
```

For additional instructions, see <http://ant.apache.org/manual/proxy.html>.

If you have no Internet access, you can still use the installation script. You will simply need to download the dependencies manually and then edit the following properties in `build.properties` so that they point to local directories and files:

- `liferay.jboss.home`
- `liferay.jboss.zip`
- `liferay.downloads.dir`
- `liferay.dependencies.zip`
- `liferay.war`

See `build-liferay.xml` for details.

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