caBench-to-Bedside v3.1

Installation Manual

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Contents

Chapter 1 Introduction

Introduction to caB2B

cancer **B**ench-to-**B**edside (caB2B) is an application that leverages caBIG tools in a user-friendly graphical user interface (GUI). This document describes the process to install the caB2B application. The application includes the following components:

- caB2B Server
- caB2B Administrative Module
- caB2B Web Application
- caB2B Client Application

Figure below shows the relation between all the four components:

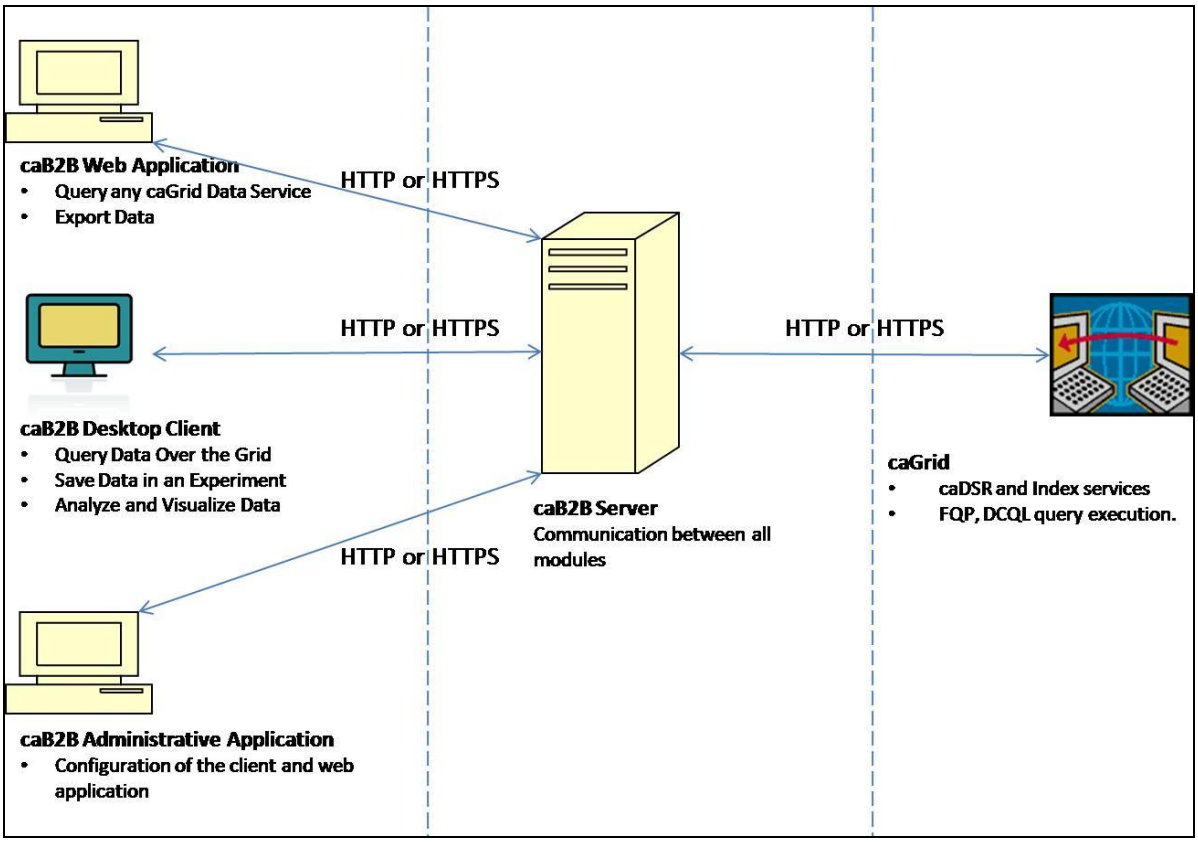


Figure 1.1. High Level Design of caB2B

Figure below shows the Deployment Diagram for caB2B showing its various artifacts and components

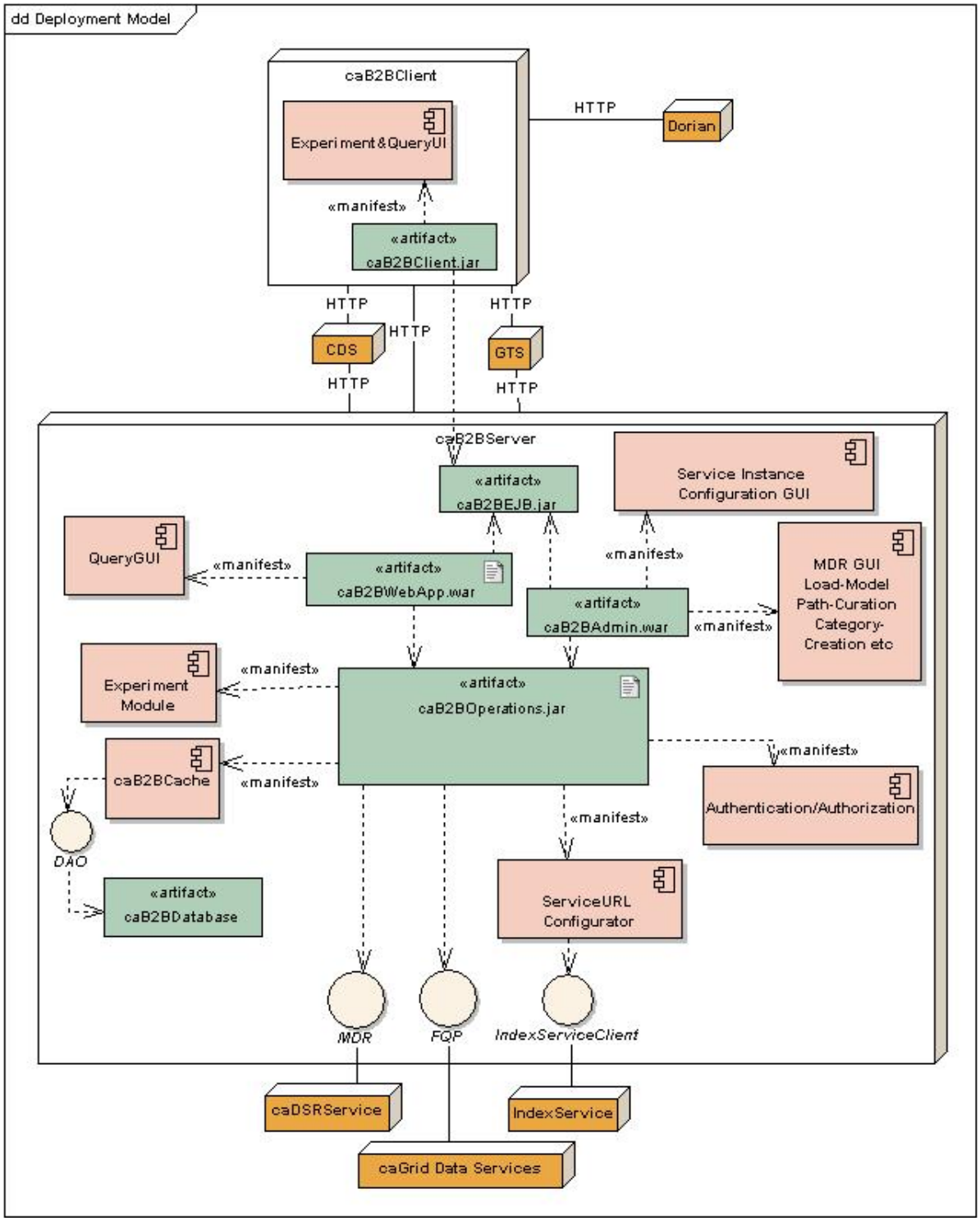


Figure 1.2 Deployment Diagram

1. The caB2B Server caters to multiple caB2B client applications and connects to the caGrid to utilize the caGrid resources. It also communicates with the local MySQL database, which stores the metadata for different data services and experiment related data.
2. The caB2B Administrative Module is a web application, which enables you to perform the following actions:

    a. Load new models from caDSR

    b. Define the service instances for the loaded models.

    c. Curate path between classes.

    d. Define Intermodel joins between different models

    e. Define customized categories.

    caB2B administrator can use this module to configure the caB2B Client Application and caB2B Web Application.
3. The caB2B Client Application is a desktop application, which enables you to perform the following actions:

    a. Query for data from caGrid enabled data services over the caGrid

    b. Select interesting data from the query results and add it to an experiment

    c. Analyze and visualize data using various available options
4. The caB2B Web Application is a web application with a simple and user friendly GUI (Graphical User Interface) which enables physicians or scientists to perform the following actions:

    a. Query for data from disparate data sources over the caGrid

    b. Execute keyword queries for ad hoc search for example, Search for 'SNP' without having prior knowledge of where the information is present.

    c. Export data for further research use.

Typical User

The user installing caB2B client and server should have intermediate knowledge of computers. User should be able to install software and solve the problems faced during installation. Pre-requisite knowledge of Windows, Linux shell commands are desirable for ease of installation for example, copy, delete, move, changing file permissions, etc. You should have experience of installing JBoss and MySQL on Windows and Linux like systems. You need to run ant scripts to install the application.

Document Text Conventions

The following table shows various typefaces to differentiate between regular text and menu commands, keyboard keys, and text that you type. This illustrates the conventions used in this guide.

Convention	*Description*	*Example*
`Special typestyle`	Used for filenames, directory names, commands, file listings, source code examples and anything that would appear in a Java program, such as methods, variables, and classes.	`URL_definition ::= url_string`
Boldface type	Options that you select in dialog boxes or drop-down menus buttons or icons.	In the Open dialog box, select the file and click the **Open** button.
Italics	Used for referring other documents, sections, figures and tables.	*caCORE Software Development Kit 1.0 Programmer's Guide*
Note:	Highlights a concept of particular interest	**Note:** This concept is used throughout the installation manual.
Warning!	Highlights information of which you should be particularly aware.	**Warning!** Deleting an object will permanently delete it from the database.
{} <>	A curly/angular bracket represents replaceable items.	Replace {`root directory}` with its proper value such as `c:\cabio`

Table 1. 1 Document Conventions

Chapter 2 System and Software Requirements

System Requirements

- Intel Pentium or equivalent processor
- 2GB of RAM
- Up to 2GB of available hard-disk space
- Any standard Linux or Windows operating system for which Java 1.6 is available.
- Administrative module and Web Application supports Internet Explorer 7, Firefox 3, Mac Safari 3.1.1 and above, at 1024x768 resolution or higher.

Software Requirements

caB2B supports all Operating Systems for which Java 1.6 is available. We have tested it on Windows XP and Linux.

Note: Direct internet connection must be available on the host machine on which you are installing caB2B. If host machine is behind proxy then follow the steps mentioned in *Installation behind Proxy* section.

From the list below, install the appropriate versions of the software applications on the machine on which you are installing the caB2B application. These softwares are not included in the caB2B installation package (except JBoss).

Binary	Recommended Version	Minimum Version	Download Link	Description
SVN Command Line client	1.4.6	1.4.6	http://subversion.tigris.org/	Install SVN Client and set environment variables
JDK	1..6.0_03	1.6.0_03	http://java.sun.com/products/archive/j2se/6u10/	The J2SE Development Kit (JDK) supports creating J2SE applications.
Ant	1.7.0	1.7.0	http://ftp.wayne.edu/apache/ant/binaries/apache-ant-1.7.1-bin.zip	Apache Ant is a java based build tool used for caB2B application
MySQL	5.0.45	5.0.27	http://downloads.mysql.com/archives.php?p=mysql-5.0&v=5.0.45	MySQL is an open-source database software application. Remote MySQL server can also be used. However, make sure

				that MySQL user has remote access rights.
JBoss	4.0.5 GA	4.0.5 GA	Not required	BDA will download JBoss during installation process. No pre-installation required for JBoss.
caGrid	1.3	1.2	http://gforge.nci.nih.gov/frs/download.php/6861/caGrid-1.3.0.1.zip	caGrid is used for certificate generation.
Globus	4.0.3	4.0.3	http://gforge.nci.nih.gov/frs/download.php/1334/ws-core-enum-4.0.3.zip	Globus is an open source tool required in the process of getting caGrid certificates.

After you have installed all the prerequisite software applications, follow the procedure below to check whether the installation is correct or not.

Check for ANT 1.7.0: Make sure Ant is in *path* environment variable, refer Setting Environment Variables to set Ant in path variable. Run the command
`ant -version` from any directory. This would give something similar to below message-

Linux	`Apache Ant version 1.7.0 compiled on December 13 2006`
Windows XP	`Apache Ant version 1.7.0 compiled on December 13 2006`

If you get a version number that is below 1.7.0 then version update is required.

Check for JAVA 1.6.0_10: Make sure Java is in *path* environment variable, refer Setting Environment Variables to set Java in path variable. Run the command `java –version` from any directory. It should give you java version "1.6.0_x".
It should give something similar to below message-

```
java version "1.6.0_03"
Java(TM) SE Runtime Environment (build 1.6.0_03-b05)
Java HotSpot(TM) Client VM (build 1.6.0_03-b05, mixed
mode, sharing)
```

If you get a version number that is below 1.6 then version, update is required.

Check for Globus: Unzip Globus zip downloaded from http://gforge.nci.nih.gov/frs/download.php/1334/ws-core-enum-4.0.3.zip and refer Appendix Setting Environment Variables to set GLOBUS_LOCATION in environment variable.

Check for caGrid: Unzip cagrid1.3.zip downloaded from http://gforge.nci.nih.gov/frs/download.php/6861/caGrid-1.3.0.1.zip and refer Appendix Setting Environment Variables to set CAGRID_HOME in environment variable.
Run the command

1. `cd $CAGRID_HOME`
2. `ant configureHelp`

It should give something similar to below message-

```
Buildfile: build.xml

init-ivy:
[ivy:settings] :: Ivy 2.0.0-beta2 - 20080225093827 :: http://ant.apache.org/ivy/
::
[ivy:settings] :: loading settings :: file =
E:\nci\caGrid1_3\caGrid\antfiles\ivy\ivysettings.xml

define-ant-tasks:

build-projects-list:

prepare:

configureHelp:
     [echo]
================================================================================
     [echo] |    CONFIGURED TO USE GRID: training-1.3 AT:
${target.grid.configure.time}
     [echo] |
     [echo] |    THE VALID TARGET GRIDS ARE:
     [echo] |      - nci_prod-1.3
     [echo] |      - nci_qa-1.3
     [echo] |      - nci_stage-1.3
     [echo] |      - training-1.3
     [echo] |
     [echo] --------------------------------------------------------------------
     [echo] |    NOTE: To use a different target grid, set property 'target.grid'
     [echo] |    to the grid's name, and run the 'configure' target.
     [echo] |
     [echo] |    For example, type:
     [echo] |        ant -Dtarget.grid=training-1.3 configure
     [echo]
================================================================================

BUILD SUCCESSFUL
```

Verify that you are pointing to the correct grid i.e. if you want certificates for production caGrid then this setup must be configured for production grid else you can set this up to point to training grid for example in above example caGrid is configured for training-1.3 as mentioned in the string '`CONFIGURED TO USE GRID: training-1.3`'. Following link mentions the steps to configure the grid http://cagrid.org/display/caGrid13/How+to+Change+Target+Grid. If you get a version number below 1.2 then, version update is required.

Check for MYSQL: While installing MYSQL server note down the MYSQL server hostname, DB admin username and password. You will require these in installation later.
Make sure MySQL is in *path* environment variable, refer Setting Environment Variables to set MySQL executable in path variable.
Run the command `mysql –u<username> -p<password>`

It should give something similar to below message-

```
Welcome to the MySQL monitor.  Commands end with; or \g.
Your MySQL connection id is 392
Server version: 5.0.45-community-nt MySQL Community Edition (GPL)
Type 'help;' or '\h' for help. Type '\c' to clear the buffer.
```

Where `<username>` and `<password>` are the DB admin username and password you noted earlier. If you get a version number that is below 5.0.27 then version update is required. It should show the mysql prompt.

Environment Prerequisites

After completing above steps, *path* environment variable will have entry for all of the above software applications. Now you need to get caGrid certificates.

Note: It is not necessary to follow these steps on the machine you are going to install caB2B. You can use any machine that has GUI (graphical User Interface) and place your generated certificates on the machine on which you are installing caB2B.

Getting Grid Certificates-

1. `cd <CAGRID_HOME>` at command prompt/console
2. Run target, `ant clean all`
3. Run target, `ant security`, to open up GAARDS screen.
4. Log in using your caGrid credentials. If you don't have a caGrid account, you can create one by registering on https://cagrid-portal.nci.nih.gov/web/guest/register
5. Click **My Account** tab and select **Request Host Certificate**.
6. Enter the host name of your machine, for which you want to generate the host certificate
7. Specify the directory where you want to create the certificate. Click **Request Certificate** button.
8. In the specified directory you will find two files for host certificate you requested which have extension `'-cert.pem'` and `'-key.pem'`.
9. In **My Account** tab, Click **My Host Certificates** option, to open up a pop-up
10. In pop-up select, your grid Id from **Credential** drop-down box and Click **Search** button, to see your host certificates you requested.
11. From the **Host Certificates** list, double click the host name for which you just made the host certificate request.
12. A pop-up showing detail of the certificate will appear.
13. Please note down the value of **Host Grid Identity** as this value is to be set in `project.properties` for property, `delegatee.identifier`.

Chapter 3 Preliminary Procedures

Check out the caB2B application from the NCI SVN https://ncisvn.nci.nih.gov/svn/cab2b or download zip from http://gforge.nci.nih.gov/frs/?group_id=172 and unzip in to a folder, say `C:/cab2b` for Windows or `/home/cab2b` for Linux (hereafter referred as **cab2b_home**).

For example if you are checking out from tags of SVN repository, use following command:

```
svn co https://ncisvn.nci.nih.gov/svn/cab2b/tags/tags_caB2B/caB2B_3.1_GA
```

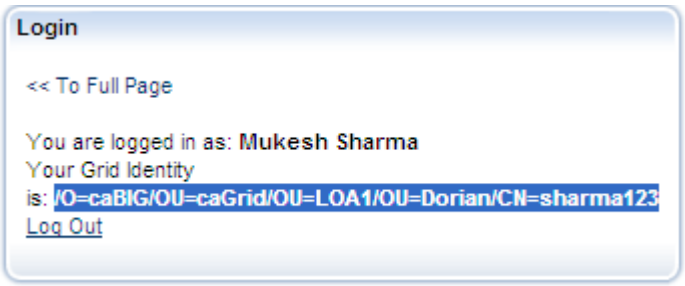
You need to configure two properties files to install the application. These files are present in `{cab2b_home}/software/build` folder. These files are:

1. `project.properties`
2. `install.properties`

By default, installer installs caB2B for SSL that is HTTPS. If you want non-secure (HTTP) installation, refer to property `jboss.ssl.enable` in *install.properties* section.

project.properties

This file contains the property values required for configuring and starting the caB2B server.

Property Name	Value
`server-host`	Set this as the host name or IP address of the machine on which you want to install caB2B. If you are planning to run caB2B server behind a proxy server like Apache then this value will be name of your proxy server host) for example,- `server-host=cab2b.wustl.edu`
`default-user`	Set this to the caGrid identity of the user who will work as the administrator for the web application. Queries saved by this user will be visible in the caB2B Web Application. This entry typically looks like: `default.user=/O=caBIG/OU=caGrid/OU=LOA1/OU=Dorian/CN=<user name>` You can get this string by logging in to the caGrid portal http://cagrid-portal.nci.nih.gov/ as shown below  If you do not have a caGrid identity, you can create one by visiting the caGrid portal. In the example above, Mukesh Sharma is administrator for caB2B web Application. Queries created by Mukesh Sharma will be visible to all users in caB2B web application.

grid-cert and grid-key	Place the certificates you got in the section Environment Prerequisites, in any directory and set the absolute path of these files for these properties For example on Linux system if your certificate-key files are located in /usr/local/cab2b/cab2btest.wustl.edu-cert.pem /usr/local/cab2b/production/cab2btest.wustl.edu-key.pem then properties file should have following entries: grid-cert= /usr/local/cab2b /production/cab2btest.wustl.edu-cert.pem grid-key= /usr/local/cab2b /production/cab2btest.wustl.edu-key.pem
delegetee-identifier	After getting the Grid Certificates, the user gets the delegate-identifier details along with the certificates information as defined in section Environment Prerequisites This property defines the identity of the caB2B server. Update the host name of machine where the server will be deployed for example, delegetee-identifier= /O=caBIG/OU=caGrid/OU=LOA1/OU=Services/CN=cab2btest.wustl.edu

install.properties

This file contains property values required during installation of the application**.**

Property Name	Value
application.base.path.linux	For installation on Linux, set this to the absolute path of the directory where you want the JBoss to be installed, for example, application.base.path.linux=/usr/local/cab2b will install Jboss in /usr/local/cab2b
application.base.path.windows	For installation on Windows, set this to the absolute path of the directory where you want the JBoss to be installed, for example, application.base.path.windows= C:/cab2bInstall will install Jboss in C:/cab2bInstall
database.server	Set this to the host name or IP address of the MySQL server for example, database.server=cab2b.wustl.edu
database.port	Set this to the port on which above MySQL server is running, for example, database.port=3306
database.name	Set this to name of the database schema to be used by caB2B server, for example, database.name=cab2b
database.username	Set this to the database username, for example, database.username=root
database.password	Set this to the database password for the username mentioned above, for example, database.password=pass123

How to import existing database

After installing caB2B, before its first use, administrator has to populate caB2B's metadata repository by loading models, creating categories etc. To know more about Administrative module refer to Administrative Manual.

To avoid this additional setup, you can choose to use a pre-populated database published on http://gforge.nci.nih.gov/frs/?group_id=172 or use your own pre-populated database.

Installer supports importing existing database. Place the database dump you wish to load, in the directory `<cab2b_home>/software/cab2b/db/db-install/mysql` and mention the filename (only name not full path) in `project.properties` file against property `db.install.create.mysql.file.list`

for example, `db.install.create.mysql.file.list=cab2b_3_0.sql`

Chapter 4 Installing caB2B

Deploying caB2B

To deploy the caB2B application, open the shell-
Windows: **Start->All Programs-> Accessories-> Command Prompt**
Linux: **Main Menu-> System Tools-> Terminal** and run the following commands:

a. `cd <cab2b_home>/software/build`

b. `ant deploy:local:install`

Successful deployment will start JBoss server automatically. In case you see a ZipException, refer to appendix Troubleshooting. If Jboss does not start automatically then start it manually. You can find instructions to start and stop JBoss at http://www.jboss.org/community/wiki/StartStopJBoss.

Note: In Administrative Module, default username is 'Admin' and password is 'admin123'. You can change this password by running following database script on your database. Replace **PASSWD** by the desired password; ensure that your password does not contain any special character.

```
UPDATE cab2b_user SET password = PASSWD WHERE name = 'Admin';
```

Accessing the caB2B Application

To verify caB2B application deployment is successful, try accessing the following URLs:

	For HTTP installation	For HTTPS installation
Web Application	http://{server.name}/cab2b	https://{server.name}/cab2b
Web Page	http://{server.name}/cab2b/webpage	https://{server.name}/cab2b/webpage
Administrative Module	http://{server.name}/cab2b/admin	https://{server.name}/cab2b/admin

For HTTP, `{server.name} = <hostname/IP>:<jboss.server.port>`
For HTTPS, `{server.name} = <hostname/IP>:<jboss.server.port> + 363`
`jboss.server.port` is mentioned in `install.properties`
Refer
Miscellaneous for HTTP and HTTPS installation using `jboss.ssl.enable` property in `install.properties`. If you are unable to access application as mentioned, refer to appendix Troubleshooting.

If you shutdown JBoss server then you need to restart it manually. To start JBoss server run following command-

Linux (This will start JBoss as background process)	`cd <JBOSS_HOME>/bin/` `./run.sh &`
Windows	`cd <JBOSS_HOME>/bin/`

	`run.bat`

To run the caB2B Client Application, go to http://{server.name}:{server.port}/cab2b/webpage or https://{server.name}:{server.port}/cab2b/webpage and click webstart link to run caB2B Client on your machine. Other option is, from the same webpage download the client zip. Unzip the downloaded file and run following commands

Linux	`cd <cab2b-client>/bin/`
	`chmod u+x run.sh`
	`./run.sh`

Windows	`cd <cab2b-client>/bin/` `run.bat`

`<cab2b-client>` is the directory in which you unzipped downloaded cab2bClient.zip

Above steps will show a Login pop-up window. Provide your Grid credentials or login as anonymous user. After successful launch, you will see home page of caB2B client application.

Chapter 5 Upgrade from caB2B 2.1/3.0

In case you have any of the previous version of caB2B (like 2.1 or 3.0) installed, you can upgrade that to caB2B 3.1. This involves migration from your existing database and then installing caB2B on the migrated database. The migration will preserve all the data you had for the previous version of caB2B.

Before start migration, shutdown your JBoss server (refer to http://www.jboss.org/community/wiki/StartStopJBoss). Backup the JBoss that has caB2B server installation. Simplest way is just rename JBoss directory for example your jboss directory name is jboss-4.0.5GA then rename it to jboss-4.0.5GA_backup.

Upgrade is a two-step process

1. Database Migration as explained below and exporting the database
2. Performing a fresh installation using migrated database

Database Migration

To use your existing database (that has saved queries, categories, loaded models, virtual experiments etc) with caB2B 3.1, you would need to migrate your database to make it compatible with caB2B 3.1. This version provides migration script for below migration paths

1) caB2B 2.1 to caB2B 3.1
2) caB2B 3.0 to caB2B 3.1

Follow the steps given below:

1. Edit the following properties in `database.properties` file located at `<cab2b_home>/software/DatabaseMigration_3.0_to_3.1/conf` and set the values for the database to be migrated.

Property Name	Value
`database.server.ip`	Set this as the host name or IP address of the machine which has the MySQL server installed, for example, `database.server=cab2b.wustl.edu`
`database.server.port`	Set this to the port on which the above MySQL server is configured, for example, `database.port=3306`
`database.name`	Set this to the name of the database schema that is to be migrated, for example, `database.name=cab2b`
`database.username`	Set this to the database username, for example, `database.username=root`
`database.password`	Set this to the database password for the username mentioned above, for example, `database.password=root`

2. Open the command prompt and execute the following commands:
   a. `cd <cab2b_home>/software/DatabaseMigration_3.0_to_3.1`
   b. `ant migrate.db.3_0_to_3_1` for migration from 3.0 to 3.1
   c. `ant migrate.db.2_1_to_3_1` for migration from 2.1 to 3.1

After successful execution of above commands, you should uncomment the property `exclude.database=true` (to uncomment remove # and spaces, if any) in `{cab2b_home}/software/build /install.properties`. This will ensure that installer will use migrated database during installation.

Warning!	To use the migrated database, ensure that you set the property `exclude.database=true` in `install.properties,`.

This will complete your migration to the caB2B 3.1 version. To verify the upgrade you need to start JBoss (as mentioned in http://www.jboss.org/community/wiki/StartStopJBoss). Then access the caB2B 3.1 application as mentioned in section Accessing the caB2B Application.

Appendix A Setting Environment Variables

Windows

a. Go to **Start-> Control Panel-> System->Advanced (Tab)->Environment Variables->System Variable**

b. Click **New** and set `ANT_HOME={root directory}:\apache-ant-1.7.0`, for example, `C:\apache-ant-1.7.0`

c. Click **New** and set `JAVA_HOME={root directory}:\Java\jdk1.6.0_10`, for example, `C:\Program Files\Java\jdk1.6.0_10`

d. Click **New** and set GLOBUS_LOCATION=`{root directory}:\Globus\wscore-4.0.3`, for example, `C:\Program Files\ Globus\wscore-4.0.3`

e. Click **New** and set CAGRID_HOME=`{root directory}:\caGrid\caGrid1.3`, for example, `C:\Program Files\caGrid\caGrid1.3`

f. Edit the PATH variable by adding the following string to the existing values: `%JAVA_HOME%\bin;%ANT_HOME%\bin;`

Linux

Add the following properties to the end of the $HOME/.profile to set the variables:

a. ANT_HOME=/opt/apache-ant-1.7.0

b. JAVA_HOME=/opt/jdk1.6.0_10

a. GLOBUS_LOCATION=/usr/local/cab2b/wscore-4.0.3

c. CAGRID_HOME=/usr/local/cab2b/caGrid

d. export ANT_HOME:JAVA_HOME:GLOBUS_LOCATION:CAGRID_HOME

e. export PATH=$JAVA_HOME/bin:$ANT_HOME/bin:$PATH

Appendix B Miscellaneous

Installation behind Proxy

In case the machine on which you are installing caB2B is behind a proxy server (to know more refer to http://en.wikipedia.org/wiki/Proxy_server) then follow the steps mentioned at https://wiki.nci.nih.gov/display/BuildandDeploymentAutomation/Frequently+Asked+Questions+%28FAQ%29#FrequentlyAskedQuestions%28FAQ%29-HowdoIconfigureAnttogothroughaProxyserver%3F

Below section includes properties that are not mandatory for installation but you can use according to your convenience and performance optimization of caB2B server.

project.properties

This file contains the property values required for configuring and starting the caB2B server.

Property Name	Value
`jndi.protocol`	By default it is set to `https`, this is dependent on `jboss.ssl.enable` in install.properties for example, 1. `jboss.ssl.enable=true` then, `jndi.protocol=https` 2. `jboss.ssl.enable=false` then, `jndi.protocol=http`
`jndi.invoker.url`	caB2B thick client uses this URL for JNDI communication. 1. `jboss.ssl.enable=true` then, `jndi.invoker.url=/invoker/JNDIFactorySSL` 2. `jboss.ssl.enable=false` then, `jndi.invoker.url=/invoker/JNDIFactory`
`jboss-bindings.file`	This is the JBoss binding file name to complete the URL in `jboss-bindings.src.url` property. So this must be set in order to use below property. for example,- `jboss-bindings.file=ncicb-jboss4.0.x-bindings.xml`
`jboss-bindings.src.url`	By default, this URL points to the NCICB port bindings file. But you can point it to your own custom binding file for example,- Linux: `jboss-bindings.src.url=/usr/local/cab2b/caB2B-Install/jboss-4.0.5.GA/server/default/conf/${jboss-bindings.file}` Windows: `jboss-bindings.src.url=E:\caB2B-Install\jboss-4.0.5.GA\server\default\conf\${jboss-bindings.file}`

install.properties

This file contains property values required during installation of the application**.** caB2B provides keystore for the release it is used for securing JBoss over SSL. The certificate expires after 3 months of the generation date. Please refer below link for generating new certificates and securing container.

Property Name	Value
database.re-create	The default value for this property is false. If set as true, the installer scripts will drop the existing database. It will then create a fresh database. It requires user with create/drop db/user rights, thus the user will have to set database.system.* properties, for example, database.re-create=false
database.drop-schema	The default value for this property is set to true. This flag connects as database user and drops every object under the schema specified, for example, database.drop-schema=true
database.server	Set this as the host name or IP address of the machine, which has the MySQL server installed, for example, database.server=cab2b.wustl.edu
jboss.ssl.enable	By default this is set to true, which makes jboss container secure i.e. https enabled. But if you want it on http set it to false, for example, jboss.ssl.enable=false Setting it to false cause change in jndi.protocol and jndi.invoker.url properties in project.properties. Please refer project.properties section for details.
jboss.ssl.keystore.location	This points to the keystore location which is used to secure container, for example, jboss.ssl.keystore.location=/home/cab2b/cab2b-ssl.keystore Please refer http://tomcat.apache.org/tomcat-5.5-doc/ssl-howto.html for more information.
jboss.ssl.keystore.pass	This specifies the password value to access keystore and keystore is specified using 'jboss.ssl.keystore.location' property, for example, jboss.ssl.keystore.pass=keystore123
jboss.ssl.keystore.alias	Set this to the value of alias in keystore. for example, jboss.ssl.keystore.alias=cab2b-ssl-key
jboss.ssl.trusted.ca=true	Set this to true if you are using trusted CA certificates. If you have self-signed certificate then set this to false, for example, jboss.ssl.trusted.ca=true Please refer http://tomcat.apache.org/tomcat-5.5-doc/ssl-howto.html for more information.
jboss.ssl.truststore.filename	Set this to the value of file name of truststore, for example, jboss.ssl.truststore.filename=cab2b-ssl.truststore.
jboss.ssl.truststore.location	Set this to the truststore file URL, for example, jboss.ssl.truststore.location=/usr/local/cab2b/${jboss.ssl.truststore.filename}
jboss.ssl.truststore.pa	Set this to the password of the above truststore, for

ssword	example, jboss.ssl.truststore.password=cab2b!@#
org.jboss.security.ignoreHttpsHost	Set this to true if server is using certificate that is not issued for the server, for example, org.jboss.security.ignoreHttpsHost=true
jboss.java.opts	This value is used to set JAVA_OPTS environment variable, for example, jboss.java.opts=-server -Xms512m -Xmx1024m -XX:ThreadStackSize=128 -XX:SurvivorRatio=10 -XX:PermSize=128m -XX:MaxPermSize=128m -Dsun.rmi.dgc.client.gcInterval=3600000 -Dsun.rmi.dgc.server.gcInterval=3600000 -Djava.awt.headless=true Note: For more information about settings of JAVA_OPTS refer http://www.jboss.org/community/wiki/JavaOpts
jboss.ncicb-standard.port-config	By default it is commented. Set this to true if you want to use your binding.xml for standard port configuration, binding.xml file is specified using jboss-bindings.src.url property in project.properties. Also setting this to true imply jboss.server.ports.name property to point port configuration which is mentioned in your binding.xml, for example, jboss.ncicb-standard.port-config=true
jboss.server.ports.name	By default, it is commented. This must be set if you are setting jboss.ncicb-standard.port-config property to true. Its value corresponds to server tag's attribute called name in binding.xml file, for example, jboss.server.ports.name=bda-ports

cab2b_server.properties

This configuration file sets the values for server side resources that caB2B server utilizes. This is located at <cab2b_home>/software\cab2b\src\conf\cab2b_server.properties. By default, the caB2B server would use the following values. This file is already present in source code of caB2B and gets copied to Jboss server conf direcotry. Please note that default values are set considering Linux/Windows machine with 1 GB java heap space.

Property Name: cluster.master
Default value for Windows : true
Default value for Linux: true
Description: This property is only required when caB2B is installed on multiple Jboss servers for load balancing or / fail over. In such deployments, one of the Jboss will act as master. Only on master Jboss, this property will be "true". On all other Jboss it will be "false". Ignore this property if you are installing caB2B on single Jboss.

Property Name: global.thread.limit
Default value for Windows : 2000
Default value for Linux: 2000

Description: This parameter sets the maximum number threads caB2B server can use. The default value is the result of JVM limitations and multiple profiling cycles ran with caB2B deployed on single processor 2.5 GHz, 2GB RAM server running 32-bit operating system.
Property Name: `per.query.max.thread.limit`
Default value for Windows : 50
Default value for Linux: 50
Description: This parameter sets the maximum threads allocated per query. While reconfiguring this property please consider that this parameter is directly proportional to global thread limit. For example, if `per.query.max.thread.limit = 50` and `global.thread.limit=2000`
CaB2B server can support 2000/50 = 40 caB2B queries running in parallel. If you want to maximize/minimize support for number of queries, running in parallel please reset parameter accordingly.
Note: caB2B application can contain special compound queries like multi-model category queries that may contain more than one caB2B queries as sub-queries. If your database contains multi-model category queries then per.query.max.thread.limit will be applicable for each sub query of the multi-model category query and not on multi-model category query as a whole. Refer to caB2B user manual to know more about Multi model category queries

Property Name: `per.query.min.thread.limit`
Default value for Windows : 50
Default value for Linux: 50
Description: This parameter sets the minimum threads allocated per query. Refer to description above for `per.query.max.thread.limit`

Property Name: `global.record.limit`
Default value for Windows : 600000
Default value for Linux: 600000
Description: This parameter sets the maximum number of records that caB2B server can manage at a particular instance of time. If the number of records goes beyond this limit, caB2B server will stop executing the query, which exceeds global record limit and will return results fetched until that point.
This number is decided after doing various profiling cycles on caB2B application and considering DCQL/CQL results size of various services for 2GB Java heap space parameter. As this number is directly proportional to Java Heap memory size, administrator can change this parameter according to availability of JAVA Heap space for the caB2B application.

Property Name: `per.query.record.limit`
Default value for Windows : 50000
Default value for Linux: 50000
Description: As caB2B server keeps the records coming from grid in memory, there is a limit on how many records caB2B server can handle at a time. This parameter sets the maximum number of records that a caB2B query can return. If record count goes beyond the limit, server will stop executing the query and will return results fetched until that point. Limit of 50000 is result of profiling cycles ran on a caB2B server with 1GB heap space and running 20 queries running in parallel.

Property Name: `ui.result.limit`

Default value for Windows : 100
Default value for Linux: 100
Description: This parameter sets the maximum number of records that can be shown on result web page. Administrator can configure this parameter and set limit on max number of results that can be shown to user on UI for example, if Administrator configures `ui.result.limit` value to 10 then end user can see only 10 records on webpage and after exporting the result file, he can see all the results for the executed query in exported spreadsheet.
Note: Increasing this value might reduce the UI response time due to the data and frequent processing. We recommend not modifying the default value of the parameters.

Appendix C Troubleshooting

You may encounter some problems during installation or after the installation. Some general problems and solutions are-

1. If you face java.util.zip.ZipException as a result of running ant target `deploy:local:install` as mentioned in section Deploying caB2B. Then check that you have configured your proxy settings as mentioned in section Installation behind Proxy. If you find everything is correct then you may need to open below URLs for direct internet connection-

    a. http://gforge.nci.nih.gov

    b. http://www.jboss.org

    If above exception, persist then remove `{cab2b_home}/software/common/target` folder and then follow steps mentioned in section Deploying caB2B.

2. After successful completion of build by Ant, if you are unable to access application as mentioned in *Accessing the caB2B Application* section. Then check that JBoss is started by accessing the URL http://<SERVER_NAME>:<SERVER_PORT>, for example http://abc.co.in:8080/

    If you can see the home page of JBoss then it means server is up but somehow application is not deployed. In such case, restart JBoss as mentioned in http://www.jboss.org/community/wiki/StartStopJBoss

Appendix D References

Java- version 1.6.03
http://java.sun.com/products/archive/j2se/6u10/

caB2B G-Forge link
https://gforge.nci.nih.gov/projects/cab2b/

MySQL download
http://downloads.mysql.com/archives.php?p=mysql-5.0&v=5.0.45

Ant 1.7.x
http://ftp.wayne.edu/apache/ant/binaries/apache-ant-1.7.1-bin.zip

caGrid
http://cagrid.org/display/downloads/Home

caGrid GAARDS
https://cabig-kc.nci.nih.gov/CaGrid/KC/index.php/GAARDS.

caGrid Download
http://gforge.nci.nih.gov/frs/download.php/6861/caGrid-1.3.0.1.zip

JAVA_OPTS for JBoss
http://www.jboss.org/community/wiki/JavaOpts

Securing Tomcat container
http://tomcat.apache.org/tomcat-5.5-doc/ssl-howto.html

Restart JBoss
http://www.jboss.org/community/wiki/StartStopJBoss

Proxy server
http://en.wikipedia.org/wiki/Proxy_server