NBIA 4.2.2

Local Installation Guide

Center for Biomedical Informatics
and Information Technology

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Introduction

This *NBIA 4.2.2 Installation Guide* provides you with the instructions to install and configure a fresh NBIA 4.2.2 application, or upgrade an existing 4.2 application. The NBIA installation installs and configures one JBoss application servers, a grid service in Tomcat and creates a NBIA-specific schema within a pre-existing database on a preinstalled MySQL server. An upgrade of NBIA converts an existing 4.2 NBIA application and associated grid service to 4.2.2 version.

Directions are given in this document for both Linux and Windows operating systems.

Overview of NBIA Installation

The process for installing NBIA includes the following tasks described in this document:

1. Downloading and installing required software
2. Setting environment variables
3. Downloading NBIA 4.2.2 distribution files
4. Installing NBIA:
   a. GUI Installer Method
   b. Command-Line Method
      -- Editing `install.properties` file
5. Upgrading NBIA
   a. GUI Installer Method
   b. Command-Line Method
      -- Editing `upgrade.properties` file
6. Configuring JBoss servers and MySQLserver to run as a service
7. Post-Installation Tasks
   a. Using UPT to Add NBIA Users

Before You Proceed	If you have a 3.x version of NBIA installed, you must do a fresh installation as there is no way to upgrade a3.x NBIA installation to 4.2.2. Contact NCICB Application Support directly for 3.x data migration support:
	Web: http://ncicb.nci.nih.gov/NCICB/support E-mail: ncicb@pop.nci.nih.gov Telephone: 301-451-4384 Toll free: 888-478-4423

NBIA 4.2.2 Software and Technology Requirements

Tested Environment

The NBIA 4.2.2 installation has been tested on Linux Red Hat Enterprise Linux AS 4 64/32-bit (for AMD chipset) and the Windows XP/2003 environments. While the installation may work in other Linux and Windows environments, it has only been tested in these environments.

Required Software—Not Included in NBIA

Many of the servers and services that make up NBIA 4.2.2 are automatically installed as part of this installation. However, there are certain tools that you must manually install and configure. These tools are listed in Table 1. The software name, version, description, and URL hyperlinks (for download) are indicated in the table.

Prior to the NBIA 4.2.2 installation, you must download and install the following tools and recommended versions in the order they are listed in Table 1. Complete the directions for installing each, as directed on the corresponding website.

Required Software Name Version	**Description**
Java 2 Platform Standard Edition 5.0 Update 14 (J2SE 5.0) http://java.sun.com/products/archive/j2se/5.0_14/. Be sure to download the correct Java SDK for your operating environment. For example, for Linux AMD 64, you would download `jdk-1_5_0_14-linux-amd64-rpm.bin`. For Windows, you might download `jdk-1_5_0_14-windows-i586-p.exe`.	The J2SE Development Kit (JDK) supports creating J2SE applications.
Apache Ant, 1.7.0 https://gforge.nci.nih.gov/svnroot/lsd/trunk/tools/apache-ant-1.7.0-bin.zip	Apache Ant is a Java-based build tool.

Required Software Name Version	Description
MySQL, 5.0.45 http://downloads.mysql.com/archives.php?p=mysql-5.0&v=5.0.45	MySQL is an open-source database software application.

Table 1 Required Software

IMPORTANT	As you install each application, record the installation directory path, and the hostname of your MySQL DB server, and the DB admin username/password.

Java SDK Installation

When you install the Java SDK, you will be prompted to select the installation directory. Record the path, as this directory will be used when you set the environment variables.

Apache Ant Installation

- Unzip the Apache Ant distribution files using a command line unzip tool or a zip utility, such as WinZip.

- After extracting the zip, you must set the environment variables, described in the following section, so that Ant is available in the system PATH.

Apache Ant Environment Variables

NOTE	The purpose of setting operating system environment variables is so that the Java SDK and Ant build tool are available to run from anywhere in the system.

Linux

To set the environmental variables in Linux, follow these steps:

NOTE	The `JAVA_HOME`, `ANT_HOME` and `PATH` environment variables are set in `/etc/profile`. You may need to create the variables, or modify them if they already exist.

Step	Action

1	As the root user, enter the following in the `/etc/profile` file. A PATH variable should already be created in this file, so be sure to define the JAVA_HOME and ANT_HOME export before the PATH export. Replace `<some_path>` with the correct path fragment for Java and Ant installations.
	
	`export JAVA_HOME=<some_path>/jdk1.5.0_14`
	
	`export ANT_HOME=<some_path>/apache-ant-1.7.0`
	
	`export PATH=$JAVA_HOME/bin:$ANT_HOME/bin:$PATH`

2	Log out and log back in so that the system recognizes your changes.

Verifying the Environment Variables in Linux
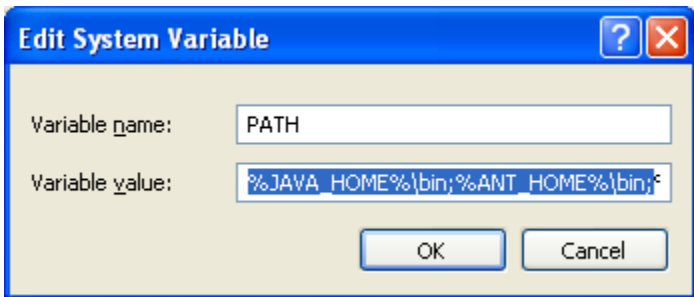
To verify that environment variables have been set correctly, follow these steps:

Step	Action

1	From the command line, enter:
	
	`echo $JAVA_HOME`
	`echo $ANT_HOME`
	
	Both of these commands should return the location where you installed these tools.

2	To verify your Java SDK installation, enter `java –version` from a command prompt. You should see `java version "1.5.0_14"`.
3	To verify your Ant installation, enter: `ant –version` from a command prompt. You should see: `Apache Ant version 1.7.0 compiled on December 13 2006`.

Windows

To set the environmental variables in Windows, follow these steps:

NOTE	
	The JAVA_HOME, ANT_HOME and PATH environment variables are set in the Systems Properties.

Step	Action
1	In Windows, select **Control Panel**, then select the **Systems** application. In the Systems window, select the **Advanced** tab.
2	On the **Advanced** tab, click the **Environment Variables** button. To add a new system variable, select the **New** button. a. In the **Variable name** text box, enter `JAVA_HOME`. b. In the **Variable value** text box, enter the location of your Java installation.
3	Click the **New** button again. a. In the **Variable name** text box, enter `ANT_HOME`. b. In the **Variable value** text box, enter the location of your Ant installation.
4	Select the PATH system environment variable, and select the **Edit** button. This opens the Edit System Variable dialog box, displayed here as an example.
5	In the Variable value text box, prepend the following text in front of the text that already exists in the **Variable Value** field. `%JAVA_HOME%\bin;%ANT_HOME%\bin;` Click **OK**.

Verifying the Environment Variables in Windows

To verify the environment variables have been set correctly, follow these steps:

Step	Action

1	From the command line, enter:
	`echo %JAVA_HOME%`
	`echo %ANT_HOME%`
	Both of these commands should return the location where you installed these tools.

2	To verify your Java SDK installation, enter `java –version` from a command prompt. You should see `java version "1.5.0_14".`
3	To verify your Ant installation, enter `ant –version` from a command prompt. You should see: `Apache Ant version 1.7.0 compiled on December 13 2006.`

NOTES	
	Environment variables for NBIA and, optionally, UPT are modified and set in those sections of this document: Installing a New NBIA 4.2.2 on page 9 and Downloading and Installing UPT (Optional) on page 8.

MySQL Installation and Configuration

A MySQL 5.0.45 server must be downloaded, installed and running in order for the NBIA installation to work successfully.

To download and install MySQL, follow the steps outlined on the MySQL website:
http://downloads.mysql.com/archives.php?p=mysql-5.0&v=5.0.45

TIP	You should consult the following three links to successfully set up secure and well-performing MySQL servers, in preparation for installing NBIA:
	
	 • MySQL Security Guide - http://dev.mysql.com/doc/refman/5.0/en/security-guidelines.html
	 • Performance –
	     o General performance tuning - http://dev.mysql.com/books/hpmysql-excerpts/ch06.html
	     o InnoDB engine performance tuning - http://dev.mysql.com/doc/refman/5.0/en/innodb-tuning.html

MORE TIPS	• Record the MySQL root username/password chosen during the MySQL installation process, as you will need to use this as your `database.system.user`/ `database.system.password` later in the NBIA installation process. • Note the MySQL port chosen during the MySQL installation process, as you will need to use this as your `database.port` later in the installation process. • As part of the installation process, the default character set is set to `latin1` for the NBIA MySQL database.

Once installed, you must configure My-SQL for NBIA (only for Linux).

Linux

Configure MySQL in Linux using the following steps:

Step	Action

1	*Lowercase Table Names in MySQL*
	
	 Edit the `/etc/init.d/mysqld (or mysql)` file as follows:
	
	 a. Locate the `start()` section and modify the `mysqld_safe` command (do not include the ellipses):
	
	     /usr/bin/mysqld_safe --lower_case_table_names=1 ...
	
	 b. Restart the MySQL service for the changes to take effect:
	
	     Restart **/etc/init.d/mysqld**

Downloading and Installing UPT (Optional)

If you do not already have a User Provisioning Tool (UPT) installed, and you wish to manage user accounts for your NBIA application, you **must** install UPT.

Overview of UPT	UPT is used to provision users in the NBIA application. Each CBIIT application installs with its own Common Security Module (CSM) schema that has sample/default users and a role/permissions structure. To add additional users you must provision the NBIA application (NCIA has to be the application name) in the UPT. Then you can assign users to NBIA.

You can download UPT 4.2 through the following link:

https://gforge.nci.nih.gov/frs/download.php/7298/CSM_UPT_42_Release.zip

For instructions on how to install UPT 4.2, refer to the chapter, UPT Installation and Deployment, in the following document:

https://gforge.nci.nih.gov/docman/view.php/12/18945/caCORE_CSM_v42_ProgrammersGuide.pdf

NOTE	UPT 4.2 is backwards compatible to previous versions of CSM. When you provision the application in UPT 4.2, you will be asked to specify the CSM version NBIA 4.2.2 is using. You should enter v. 4.0.

Installing NBIA 4.2.2 Application and Services

To newly install the NBIA 4.2.2 application and services, follow the steps in this section:

- Downloading NBIA 4.2.2 files from GForge on this page
- Installing a New on page 9
  - ○ GUI Installer Method on page 10
  - ○ Command-Line Method on page 19
- Configuring JBoss on page 28
  - ○ Configuring JBoss Servers and MySQL Server to Run as Services on page 30
- Post-Installation Tasks on page 32
  - ○ Starting Up NBIA on page 32
  - ○ Using UPT to Add NBIA Users on page 32

BEFORE YOU BEGIN	• **Important**: There must already be a pre-existing MySQL DB and connection username/password for NBIA to install into; NBIA does not create its own DB. • If you have installed a previous version of NBIA 4.2, you must follow the upgrade procedures described in [Upgrading NBIA 4.2 to *.2*](#) on page 25 to migrate to NBIA 4.2.2.

Downloading NBIA 4.2.2 files

To download the NBIA 4.2.2 files, follow this step:

Step	Action
1	The installation files for NBIA 4.2.2 are each over 300MB. All of the files can be downloaded from the NBIA distribution folder here: https://gforge.nci.nih.gov/frs/?group_id=312. • For a new command-line installer, download the [NBIA_install_4_2_2.zip](#) file. • For a command-line upgrade installer download the [NBIA_upgrade_4_2.1.zip](#) file. • For a GUI installer that you can use to do a fresh NBIA 4.2.2 installation, download [NBIA_gui_distribution_4_2_2.jar](#) file. Remember the download location, as you will be using this file to run the installation in the steps that follow.

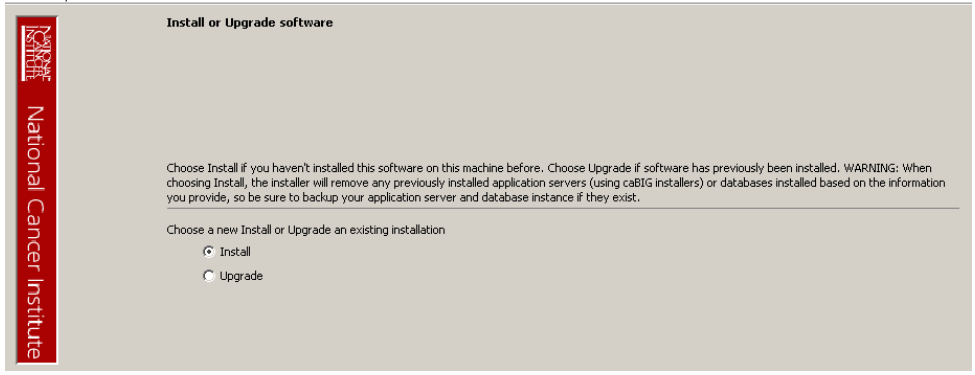| **Server Components in NBIA 4.2.2**	These server components are installed and configured as part of the NBIA 4.2.2 installation. You do not need to do anything further to download or install these components. • Tomcat 5.0.28 (hosts the NBIA grid service) • JBoss 4.0.5 (hosts the NBIA application)

Installing a New NBIA 4.2.2

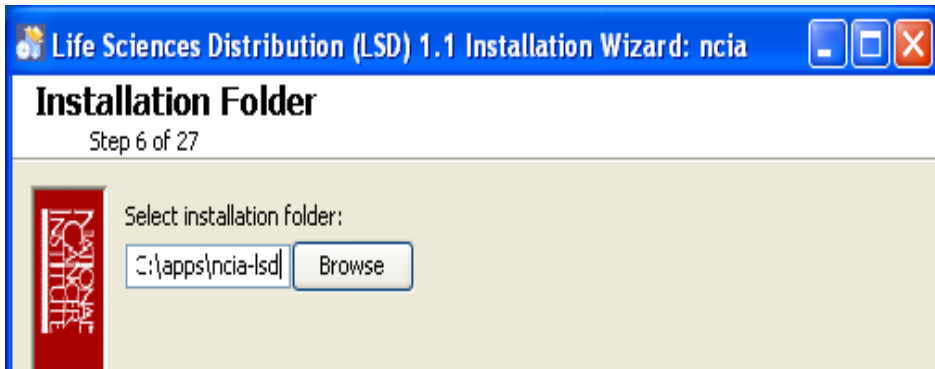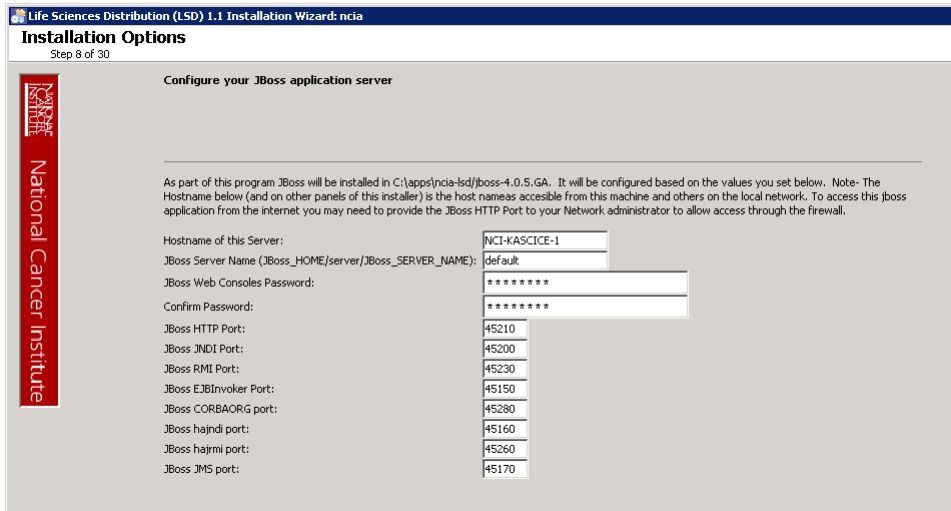You can perform a new installation of NBIA v.4.2.2 using either of these two methods:
- A GUI Installation wizard. Instructions for this method begin on this page
- A command-line installation. For instructions, see page 19.
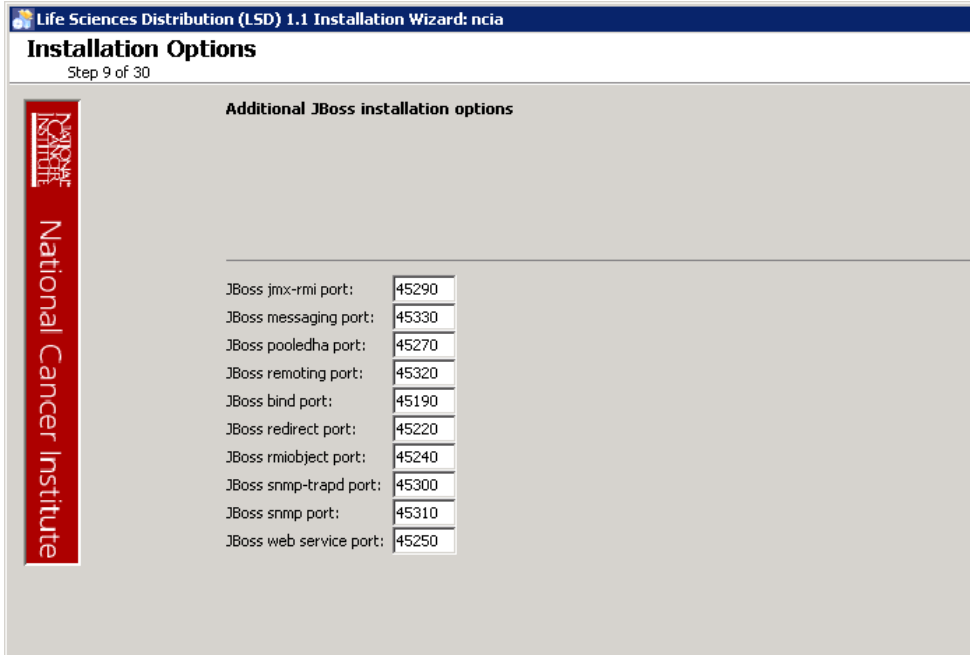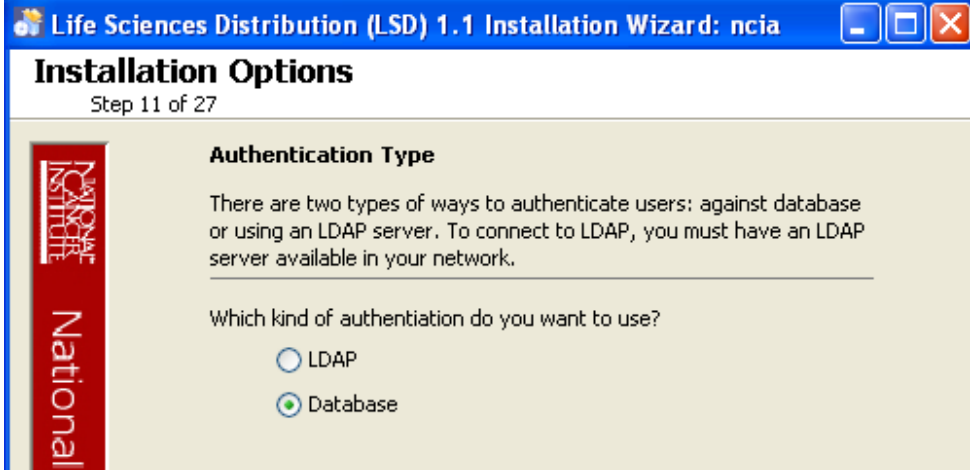
GUI Installer Method of Installation
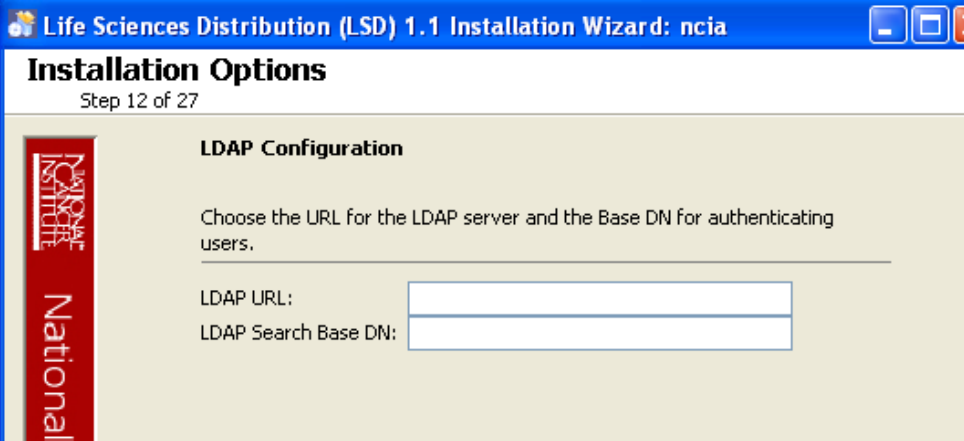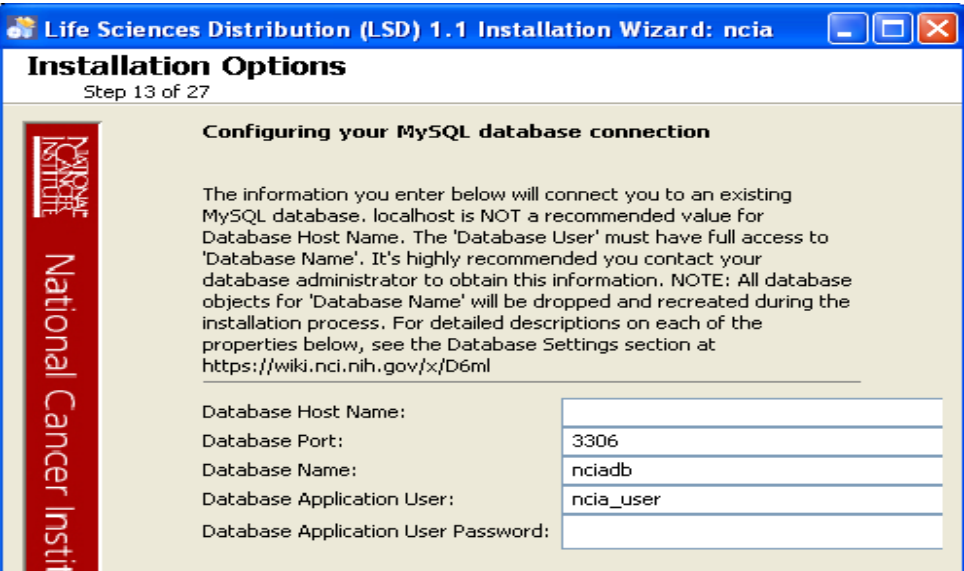
For detailed information on all of the GUI installer fields, refer to the documentation at this location: https://wiki.nci.nih.gov/x/D6ml.
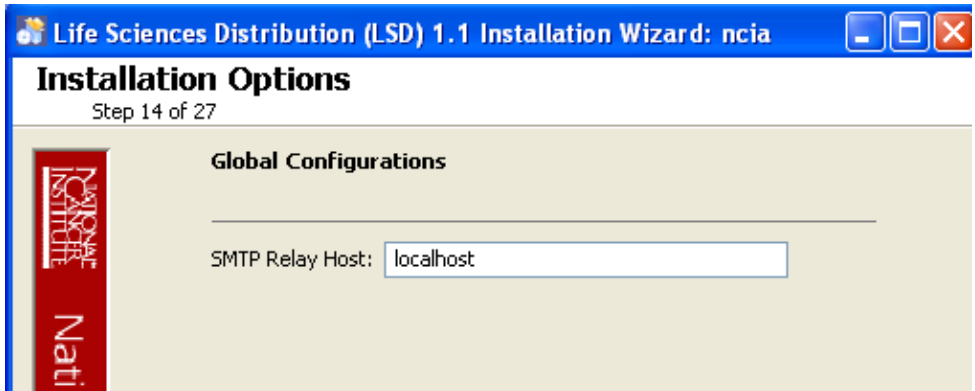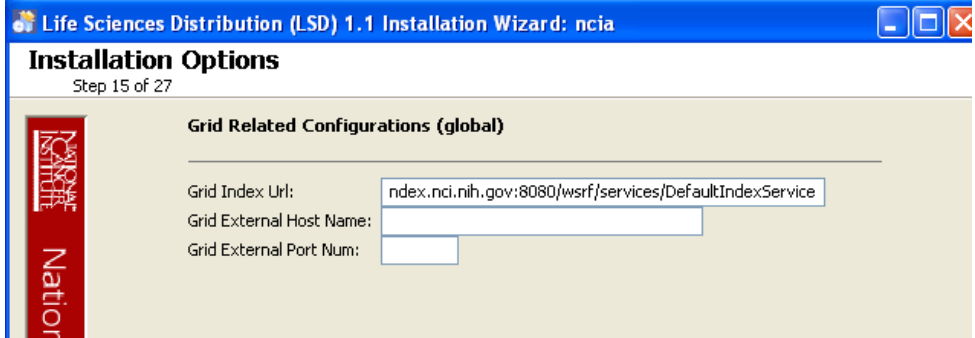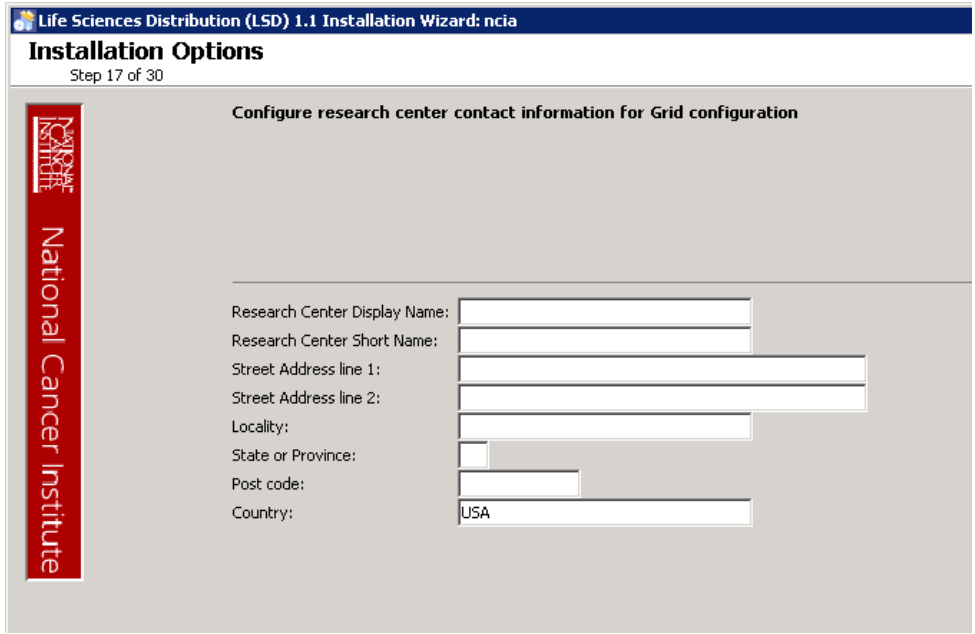
For performing an installation using the GUI Installer, follow these steps:
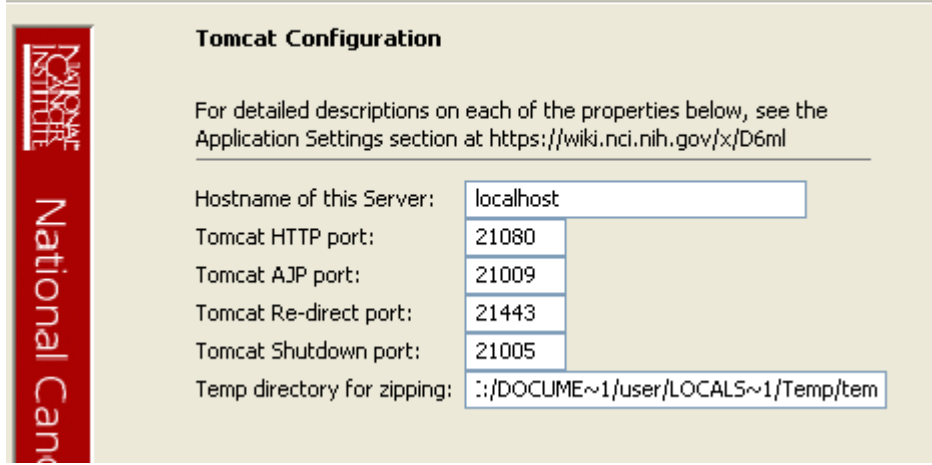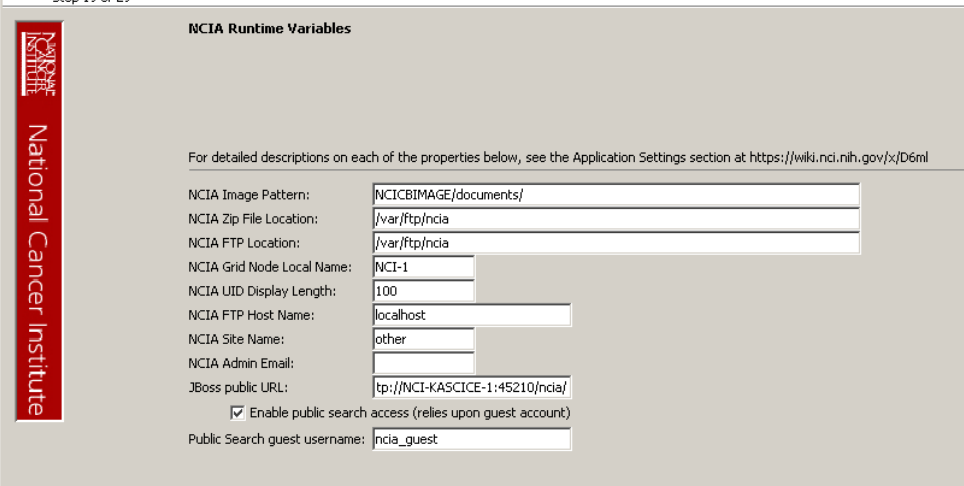
Step	Action
1	Open a command prompt in the directory where you downloaded the `NBIA_gui_distribution_4_2_2.jar`. Enter this command to Invoke the GUI installer : `java –jar NBIA_gui_distribution_4_2_2.jar`.
2	The Installation Wizard opens to facilitate the installation process. Click **Next** to proceed through the pages of the wizard, beginning with progressing past the Welcome page.
3	Review the release notes.
4	You must accept the license agreement.
5	Select Install installation type. For a new installation, select **Install**. **Installation Options** Step 4 of 29 **Install or Upgrade software** National Cancer Institute Choose Install if you haven't installed this software on this machine before. Choose Upgrade if software has previously been installed. WARNING: When choosing Install, the installer will remove any previously installed application servers (using caBIG installers) or databases installed based on the information you provide, so be sure to backup your application server and database instance if they exist. Choose a new Install or Upgrade an existing installation ⦿ Install ○ Upgrade

Step	Action
6	Navigate to the directory where you would like to install NBIA 4.2.2. If the folder does not yet exist, click **OK** in the dialog box to indicate that you want the folder to be created.
7	Configure NBIA JBoss server on the next two pages of the installation wizard. The screen shots show example values. The port values which are specified are the defaults and can be used unless you want to reconfigure the values because of values already in use.
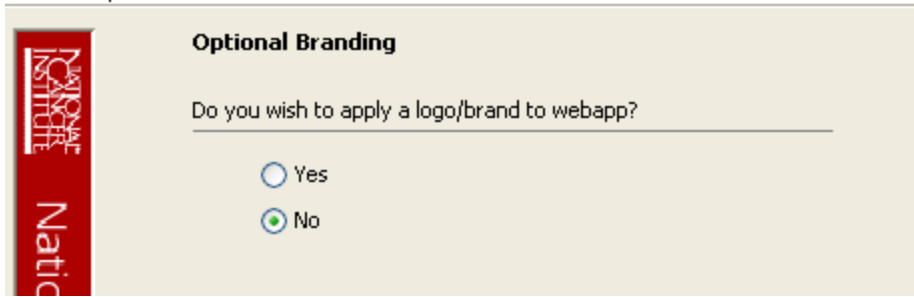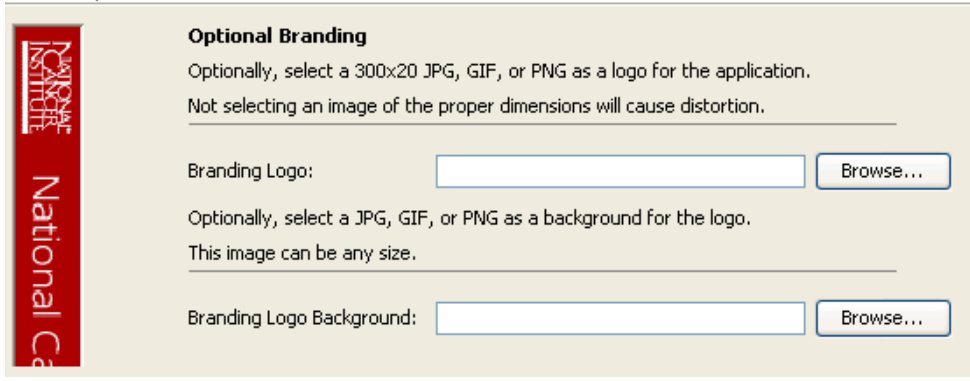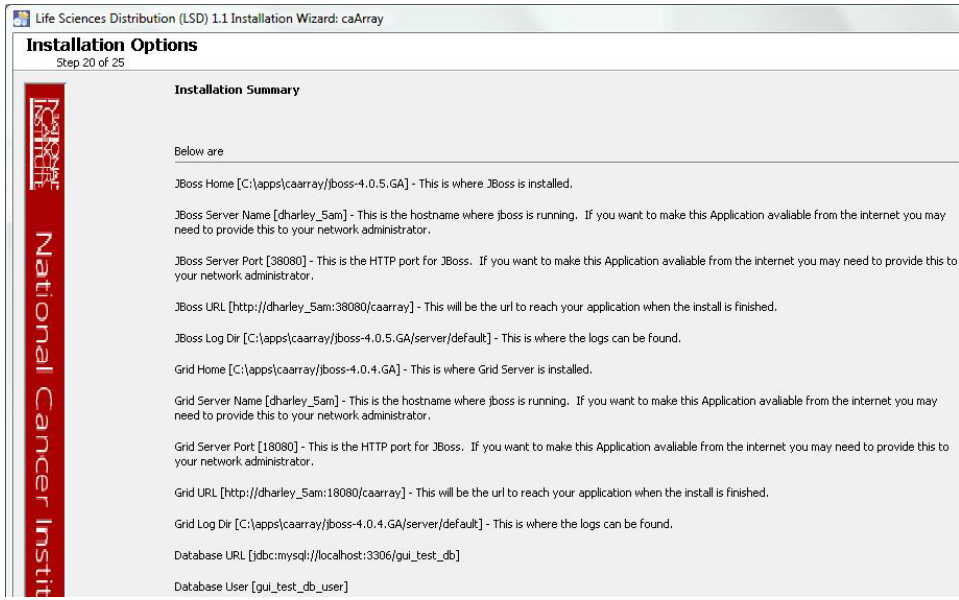
Step	Action
8	
9	Specify the authentication type that NBIA should use. Database is the most likely choice if you aren't sure what to select here.

Step	Action
10	If LDAP was selected in the previous step, enter the appropriate configuration information for LDAP.
	If the authentication type is database: Specify the database connection information, including the name of the **pre-existing** database where the NBIA schema will be installed, and the **pre-existing** user which will be used by NBIA to connect to its database. Error messages inform you if the following occurs: • If the specified database host cannot be reached, or the field is blank. If the specified database does not already exist, or the NBIA DB user's credentials are wrong.

Step	Action
12	Specify SMTP mail server connection info so that NBIA can send emails from users with new account requests. **Life Sciences Distribution (LSD) 1.1 Installation Wizard: ncia** **Installation Options** Step 14 of 27 **Global Configurations** SMTP Relay Host: localhost
13	Specify the grid service index URL, an externally-visible hostname or IP address which the index service can use to communicate with your NBIA grid service . **Life Sciences Distribution (LSD) 1.1 Installation Wizard: ncia** **Installation Options** Step 15 of 27 **Grid Related Configurations (global)** Grid Index Url: ndex.nci.nih.gov:8080/wsrf/services/DefaultIndexService Grid External Host Name: Grid External Port Num:
14	Specify the point-of-contact information needed for grid service registration. This information will span several pages of the install wizard. **Life Sciences Distribution (LSD) 1.1 Installation Wizard: ncia** **Installation Options** Step 17 of 30 **Configure research center contact information for Grid configuration** Research Center Display Name: Research Center Short Name: Street Address line 1: Street Address line 2: Locality: State or Province: Post code: Country: USA An error message opens informing you of required fields you may have missed.

Step	Action
15	Specify the NBIA grid service port information and a temporary location to download images in a zip format. **Installation Options** Step 18 of 29 **Tomcat Configuration** For detailed descriptions on each of the properties below, see the Application Settings section at https://wiki.nci.nih.gov/x/D6ml Hostname of this Server: localhost Tomcat HTTP port: 21080 Tomcat AJP port: 21009 Tomcat Re-direct port: 21443 Tomcat Shutdown port: 21005 Temp directory for zipping: :/DOCUME~1/user/LOCALS~1/Temp/tem
16	Specify the runtime variables for NBIA. For detailed descriptions on each of the properties, see the Application Settings at https://wiki.nci.nih.gov/x/D6ml **Installation Options** Step 19 of 29 **NCIA Runtime Variables** For detailed descriptions on each of the properties below, see the Application Settings section at https://wiki.nci.nih.gov/x/D6ml NCIA Image Pattern: NCICBIMAGE/documents/ NCIA Zip File Location: /var/ftp/ncia NCIA FTP Location: /var/ftp/ncia NCIA Grid Node Local Name: NCI-1 NCIA UID Display Length: 100 NCIA FTP Host Name: localhost NCIA Site Name: other NCIA Admin Email: JBoss public URL: tp://NCI-KASCICE-1:45210/ncia/ ☑ Enable public search access (relies upon guest account) Public Search guest username: ncia_guest A new feature in 4.2 is the ability to open the repository so that public images can be searched without logging in. This will be enabled if "Enable public search access" is selected here. The account name to be used for public/guest search can be specified here. If the specified user doesn't exist in the database (as it would on a fresh install, but not necessarily on an upgrade) it will be created.

Step	Action
17	Specify the configuration for CTP (Clinical Trial Processor) Server. King user as a superadmin, has privilege to shutdown the CTP server and others. Admin user has all privileges as king but the privilege to shutdown the server. A new feature in 4.2.2 is the option to require authentication for data submission. To enable the authentication on Import Service, simply select the checked box here. **Installation Options** Step 20 of 29 **CTP Server Configuration** CTP Server HTTP port: `23080` CTP HTTP Import Service port: `23104` CTP Server Storage Service port: `23204` CTP Server Admin Password: Confirm Password: CTP Server King Password: Confirm Password: Directory for Storage Service: `storage` Index directory for Storage Service: `index` ☐ Require authentication on Import Service
18	Specify the configuration for CTP (Clinical Trial Processor) Client **Installation Options** Step 21 of 29 **CTP Client Configuration** CTP Client HTTP port: `24080` CTP Client HTTP Import Service port: `24104` CTP Client DICOM Import Service port: `24304` CTP Client Export Service port: `24204` CTP Client Admin Password: Confirm Password: CTP Server King Password: Confirm Password:

Step	Action
	To display a logo in the NBIA application's header select Yes. **Installation Options** Step 23 of 29 **Optional Branding** Do you wish to apply a logo/brand to webapp? ○ Yes ⊙ No
	Select two images files on the local system: one for the logo, and one for the background to be displayed behind the logo. The logo should be 300x20 or else it will be distorted. Both of these fields must have values. **Installation Options** Step 24 of 29 **Optional Branding** Optionally, select a 300x20 JPG, GIF, or PNG as a logo for the application. Not selecting an image of the proper dimensions will cause distortion. Branding Logo: [ ] Browse... Optionally, select a JPG, GIF, or PNG as a background for the logo. This image can be any size. Branding Logo Background: [ ] Browse...
19	Review the summary of the information you entered. Life Sciences Distribution (LSD) 1.1 Installation Wizard: caArray **Installation Options** Step 20 of 25 **Installation Summary** Below are JBoss Home [C:\apps\caarray\jboss-4.0.5.GA] - This is where JBoss is installed. JBoss Server Name [dharley_5am] - This is the hostname where jboss is running. If you want to make this Application avaliable from the internet you may need to provide this to your network administrator. JBoss Server Port [38080] - This is the HTTP port for JBoss. If you want to make this Application avaliable from the internet you may need to provide this to your network administrator. JBoss URL [http://dharley_5am:38080/caarray] - This will be the url to reach your application when the install is finished. JBoss Log Dir [C:\apps\caarray\jboss-4.0.5.GA/server/default] - This is where the logs can be found. Grid Home [C:\apps\caarray\jboss-4.0.4.GA] - This is where Grid Server is installed. Grid Server Name [dharley_5am] - This is the hostname where jboss is running. If you want to make this Application avaliable from the internet you may need to provide this to your network administrator. Grid Server Port [18080] - This is the HTTP port for JBoss. If you want to make this Application avaliable from the internet you may need to provide this to your network administrator. Grid URL [http://dharley_5am:18080/caarray] - This will be the url to reach your application when the install is finished. Grid Log Dir [C:\apps\caarray\jboss-4.0.4.GA/server/default] - This is where the logs can be found. Database URL [jdbc:mysql://localhost:3306/gui_test_db] Database User [gui_test_db_user]

17

Step	Action
20	Review the selected install type and the installation destination. After you click **Next** from reviewing the installation destination, the installer runs. The installation wizard displays the installation progress and completion.
21	When you are informed that the process is finished, click **Done** in the lower right corner of the wizard to close the installer.
22	To verify NBIA installation: • open your web browser to http://<jboss.server.hostname>.<jboss.server.port>/ncia (example; https://imaging.nci.nih.gov/ncia/ . Refer to the `<user home>/.installer-NCIA/NCIA_installer/install.properties` file for the correct values. • Enter *nciadevtest* as the user and ***changeme*** as the password.
23	To verify that the NBIA Grid Service is up and running: • Check that NBIA Grid Service appears on the local "services" page. o Point a browser to the "services" page. The URL for this page will be http://host:port/wsrf/services. o Examine the page and ensure that "cagrid/NCIACoreService" appears on the page. o Select the "wsdl" link next to "cagrid/NCIACoreService". o Examine the WSDL and check that the host and port in the //wsdl:import@location attribute are correct. o Examine the WSDL and check that the host and port in //soap:address@location attribute are correct. • Check that the NBIA Grid Service appears on the caGrid Portal.
24	After successfully installing NBIA, make a backup of the `<user home>/.installer-NCIA/NCIA_installer/install.properties` file in a different directory for future reference.

Command-Line Method of Installation

About Properties

An important component of NBIA 4.2.2 command-line installation is configuring properties.

Overview of NBIA 4.2.2 Command-Line Installer Properties Files

When you do a command-line installation of NBIA 4.2.2 for the first time, you will work with the properties file included in the `NBIA_install_4_2_2.zip`. The file is: `install.properties`.

If you are using the command-line to upgrade from the previous version of NBIA 4.2, you will work with the `upgrade.properties` file included in the `NBIA_upgrade_4_2_2.zip`. For more information about upgrading NBIA, see Overview of Properties Files on page 28.

In several instances in this section, property values must be modified. Note the following points about changing or entering variables.

Paths in .properties Files

NOTE	The paths in the `.properties` files should use *forward* slashes. For example, you would use `application.base.path.window=C:/apps/NBIA`, **not** `application.base.path.window=C:\apps\NBIA`. If you use backslashes, you will experience undesirable results.

Spaces in Property Values

NOTE	You should not put any spaces in the property values of `*.properties` files (e.g. `install.properties`). In Windows, note that the `C:\Documents and Settings\<username>` path contains spaces and the installation will likely fail. If you are using Windows, use a path such as `C:/apps/NBIA`.

More About Property Values

NOTES	• In the `install.properties` and the `upgrade.properties` files, any property value marked with <u>uppercase</u> `REPLACE_*` must be manually updated with the appropriate value.
	• In each `*.properties file`, any property value marked with <u>lowercase</u> `replace_*` may be optionally updated with the appropriate value.
	• In many of the steps below, there is reference to a `database.system.user` for your MySQL server. To determine which users are have full privileges to create and manage other databases, type ***show grants*** from a MySQL prompt to determine the correct level of privileges.

NBIA Port Usage

NOTE	Verify that default port values defined in `install.properties` files are not in use on your system by running `netstat -a` from the command line. If the ports are in use prior to installation, you will likely experience problems with your installation.

JBoss Errors During Installation

NOTE	You may receive an error such as Exception in thread "main" `java.lang.NoClassDefFoundError: org/jboss/Shutdown`. This should not be a problem, as the installer attempts to remove previously installed servers to prevent problems during the installation. If this is your first time installing NBIA, you may receive and disregard this error message.

Command-line Installation Steps

To install a new instance of NBIA 4.2.2 using the command-line, follow these steps:

Step	Action
1	From the directory where you downloaded the `NBIA_install_4_2_2.zip` from Downloading NBIA 4.2.2 files on page 9, unzip the files, using one of these two methods: a. Open a command prompt and use it to extract this file to a temporary location. For example, you may enter a command such as `unzip -q NBIA_install_4_2_0.zip` (you must have a ZIP tool installed). This location will be referred to as the `<installer_directory>` henceforth. b. Use WinZip or a similar utility to unzip the files to a temporary location. This location will be referred to as the `<installer_directory>` henceforth. *Example*: `<installer directory>` = C:\NBIA_4_2_installer
2	**Note:** Setting the property values is an important step in the install process. Before you complete steps 2 & 3, review About Properties on page 19. **Follow steps 2 and 3 carefully**. Open the `<installer_directory>/install.properties` file, modify the values for your environment and save the file. At a minimum, you will need to modify the values in the following table:

Property Name	*Description*
`application.base.path`	The location where you are going to install NBIA . For example in Windows, the `<application_base_path>` can be `C:/apps/NBIA`. Linux users can use `/apps/NBIA` or any other folder to which you have write permissions.
`database.type`	This value by default is 'MYSQL' and should not be changed. **Note:** mysql is the only database supported by NBIA 4.2.2 at this time. The use of any other database may cause the application to function improperly.
`database.system.user`	This value should correspond to a MySQL username that has full system privileges. This must correspond to the administrator account defined when MySQL was configured. See the first bullet in More Tips on page 7.
`database.system.password`	This value must correspond to the password for the `database.system.user` defined when MySQL was configured. See the first bullet in More Tips on page 7.

Step	Action	
	`database.server`	This value <u>must</u> correspond to the domain name of machine that hosts the MySQL server. Talk to your database administrator to learn the server name and port.
	`database.port`	This value <u>must</u> correspond to the port for the `database.server`. 3306 is the default port, but check with your database administrator to be certain.
	`database.name`	Choose a name for the NBIA MySQL database. This must be different than the UPT database name.
	`database.user`	Choose a user name to access `database.name`. This can be any valid name that you choose, but it must be different than `database.system.user`.
	`database.password`	Choose a password to access `database.name` for the username identified in `database.user`. This must be different than the database.system.password.
	`mail.smtp.server`	This value <u>must</u> correspond to an SMTP server available in your network. This will differ in your environment. Consult your email administrator for the SMPT server and port (next value).
	`grid.index.url`	The default value points to the production grid index server. To change to a different grid index, uncomment the desired one while commenting-out the production value.
	`jboss.web.password`	Set to a secure password to be used to secure the NBIA JBoss server's administrative functions (e.g, admin console, JMX console, command-line shutdown of JBoss server, etc.)
	`authentication.type`	This value (ldap/db) indicates to use either LDAP or Database to authenticate users. This determines whether passwords will be stored in the NBIA database or in an external LDAP server. Most sites will likely set this to 'db'.
	`research.center.displayName`	Set this value to the full name of the research center which is hosting the NBIA installation. This value will show in the caGrid Portal application (as will the other research.center.* property values).
	`research.center.shortName`	Set this value to the short name, or initials, for the research institution which is hosting the NBIA installation.

Step	Action	
	`research.center.address. country`	Set this value to the name of the country where the research institution which is hosting the NBIA installation resides.
	`research.center.address. locality`	Set this value to the name of the locality where the research institution which is hosting the NBIA installation resides.
	`research.center.address. postalCode`	Set this value to the postal code where the research institution which is hosting the NBIA installation resides.
	`research.center.address. stateProvince`	Set this value to the name of the state or province where the research institution which is hosting the NBIA installation resides.
	`research.center.address. street1`	Set this value to the street address of the research institution which is hosting the NBIA installation.
	`point.of.contact.affilia tion`	Set this value to the name of the institution with which the primary point of contact for the NBIA installation is affiliated.
	`point.of.contact.email`	Set this value to the email address of the primary point of contact for the NBIA installation.
	`point.of.contact.firstNa me`	Set this value to the first name of the primary point of contact for the NBIA installation.
	`point.of.contact.lastNam e`	Set this value to the last name of the primary point of contact for the NBIA installation.
	`point.of.contact.phoneNu mber`	Set this value to the phone number of the primary point of contact for the NBIA installation.
	`point.of.contact.role`	Set this value to the role of the primary point of contact for the NBIA installation.
	`gov.nih.nci.NBIA.imaging .server.url`	URL for image server location. An example of this URL would be: http://imaging.nci.nih.gov. This should be the protocol scheme combined with the public domain name for the host where the application server is running. This will usually be the actual domain name for the host, but if there is a proxy, the name may be different.

Step	Action
	<table><tr><td></td><td>If this is not set correctly, then thumbnail views on the "series page" will not show.</td></tr><tr><td>`gov.nih.nci.NBIA.grid.local.node.name`</td><td>Required Identification of the local instance of NBIA.</td></tr><tr><td>`gov.nih.nci.NBIA.ui.uid.display.length`</td><td>This property will determine the maximum length for DICOM UID values in the user interface. Any UID longer than this value will be truncated with a trailing ellipsis.</td></tr><tr><td>`gov.nih.nci.NBIA.jboss.mq.url`</td><td>The value of this property should ALWAYS be "localhost:<port>" where <port> have the exact same value as ${jboss.server.jndi.port}. If this is not configured properly curation upload and the zipping of DICOM image files for download will not work properly.</td></tr><tr><td>`gov.nih.nci.NBIA.admin.email`</td><td>The email address of the NBIA administrator</td></tr><tr><td>`ctp.server.admin.password`</td><td>Administration password for CTP server</td></tr><tr><td>`ctp.client.admin.password`</td><td>Administration password for CTP client</td></tr><tr><td>`gov.nih.nci.NBIA.jboss.public.url`</td><td> Public accessible url for NBIA instance.</td></tr></table>
3	**Record these property values**. **Note:** You shouldn't need to modify the other default values as we have chosen unique ports to reduce the risk of other applications using the same values. However, be sure to verify that the ports in this file are not being used by other applications.
4	From the command line, navigate to `<installer_directory>` (*Example*:`cd C:\NBIA_4_2_installer`), and type ***ant***. This initiates the installation process. The anticipated duration is anywhere from 7-15 minutes, depending on your system's speed, power and memory. The installer installs the NBIA schema in the specified **pre-existing** database on your MySQL server, and installs, configures, and starts the JBoss server and the Tomcat server for the grid service. The installer does not currently start the CTP server.
5	To verify NBIA installation, open your web browser to http://<jboss.server.hostname>.<jboss.server.port>/ncia (example; http://imaging.nci.nih.gov/ncia/. Refer to the `<installer_directory>/install.properties` file for the correct values. Enter ***nciadevtest***as the user and ***changeme*** as the password.

Step	Action
6	After successfully installing NBIA, make a backup of the `<installer_directory>/install.properties file` in a different directory for future reference.

Upgrading NBIA 4.2 to 4.2.2

This section describes how to upgrade your product from NBIA 4.2 to NBIA 4.2.2.
The instructions in this section apply only if you have already installed NBIA version 4.1.

You can perform an upgrade installation of NBIA v.4.2.2 using either of these two methods:
- A GUI Installation wizard. Instructions for this method begin on page 26.
- A command-line installation. For instructions, see page 28.

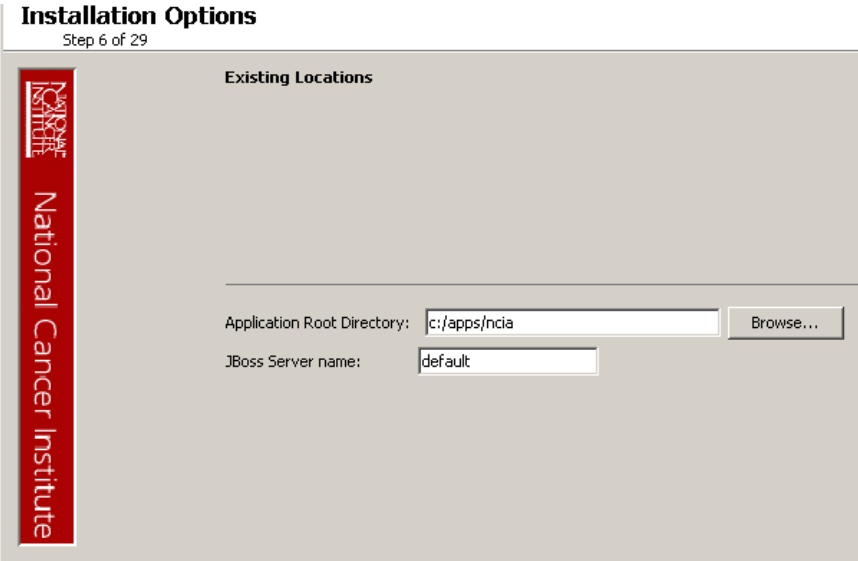| **Before You Begin**	• **Important:** Backup the 4.2 database. You need to create a reliable copy of your entire NBIA database—the DDL and DML.
	• **Important:** Backup the `jboss.home` directory. To do this, make a copy of the `NBIA.home` folder along with any artifacts from the initial installation, such as the property files, already mentioned.

If you are performing a new installation, go directly to the installation of version 4.2.2, Installing NBIA 4.2.2 Application and Services, on page 8.

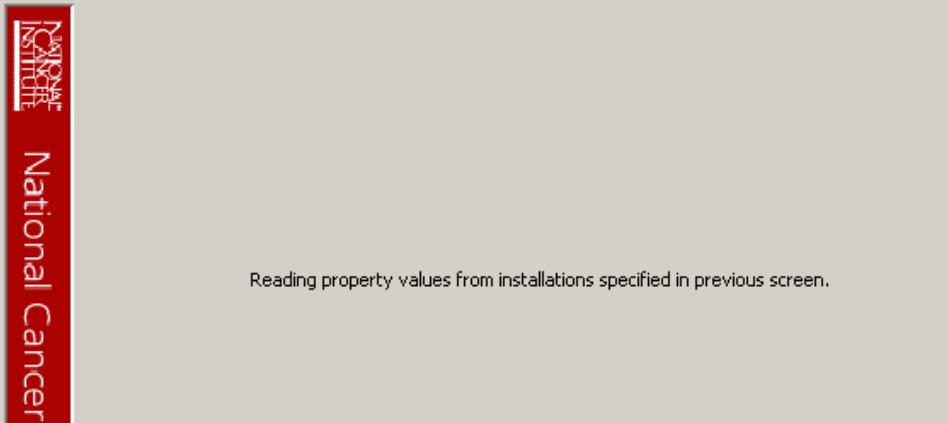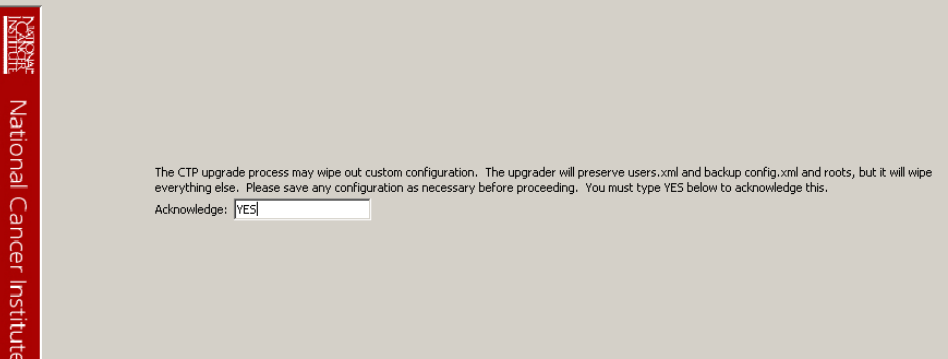| **NBIA 4.2 Users Upgrading to NBIA 4.2.2**	The directions in this section presume that you have a valid and functioning NBIA 4.2. That assumes that Java SDK, Apache Ant and MySQL have all been successfully uploaded and installed, as described on pages 3 in this document.

Upgrade Using the GUI Installer

For detailed information on all of the GUI installer fields, refer to the documentation at this location: https://wiki.nci.nih.gov/x/koQYAQ.

To perform an upgrade to NBIA 4.2.2 using the GUI Installation Wizard, follow these steps:

Step	Action
1	Open a command prompt in the directory where you downloaded the `NBIA_gui_distribution_4_2_2.jar` and invoke the GUI installer like this: `java -jar NBIA_gui_distribution_4_2_2.jar`.
2	The Installation Wizard opens to facilitate the installation process. Click **Next** to proceed through the pages of the wizard, beginning with progressing past the Welcome page.
3	Review the release notes.
4	You must accept the license agreement to continue.
5	Select the **Upgrade** installation type.
6	Select the location for the previous installation. If the path pointing to the NBIA installation to be upgraded is incorrect, an error message appears. Additionally, specify the "server name" in JBoss where NBIA is installed. If the server name is unknown, look in the application root directory under JBoss-4.0.5. Find out which directory NBIA.ear is in. The directory name after 'server' and before 'deploy' is the server name. **Installation Options** Step 6 of 29 **Existing Locations** National Cancer Institute Application Root Directory: `c:/apps/ncia` Browse... JBoss Server name: `default`

Step	Action
7	The installer software now inspects the application base path to determine the existing configuration (the best that it can). This page indicates this action. There is nothing for the user to enter here. **Installation Options** Step 7 of 29 National Cancer Reading property values from installations specified in previous screen.
8	From here on, the upgrade process will look almost exactly like the install process. The installer software has populated the defaults for all fields from the existing installation the best that it can. For fields that are new in this release (require CTP authentication, etc.) there are sensible defaults. Please see the install documentation for more details. One important variation between the install and upgrade path is a confirmation page. The upgrade includes a new CTP that will replace the old one in 4.2. The installer makes a best effort to preserve old configuration files and it even backs up some of them in the CTP directory. That said, if there are special customizations in the installation of 4.2, it is recommended that the CTP directory be manually backed up before commencing with the upgrade in case something gets wiped out. The installer asks the user to confirm that this is understood. **Installation Options** Step 22 of 29 National Cancer Institute The CTP upgrade process may wipe out custom configuration. The upgrader will preserve users.xml and backup config.xml and roots, but it will wipe everything else. Please save any configuration as necessary before proceeding. You must type YES below to acknowledge this. Acknowledge: YES

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Overview of Properties Files

When you installed the previous version of NBIA 4.2, you configured the `install.properties`. The `NBIA_upgrade_4_2_2.zip` that you must download to perform the upgrade to 4.2.2 includes another properties file, `upgrade.properties`. To complete the upgrade to NBIA 4.2.2, you must use values in the `install.properties` to configure values in the upgrade installer wizard GUI, or the `upgrade.properties` file if you are doing a command-line method of upgrade.

See the steps below for more information.

Upgrade Using Command-Line Installer

To perform an upgrade to NBIA 4.2.2 using the command-line, follow these steps.

Step	Action
1	From the directory where you downloaded the upgrade zip file, extract the files, using one of these two methods:
	a. Open a command prompt and use it to extract this file to a temporary location. For example, you may enter a command such as `unzip -q NBIA_upgrade_4_2_2.zip`. (You must have a ZIP tool installed).
	Note: It is recommended that you use a new directory for the unzipped files, rather than the one you used to unzip the installer for the previous version(s) of NBIA. This location will be referred to as the `<upgrade_installer_directory>` henceforth.
	b. Use WinZip or a similar utility to unzip the files to a temporary location. This location will be referred to as the `<upgrade_installer directory>` henceforth
	Example `<upgrade_installer directory>` = C:\NBIA41_upgrade_installer
2	Edit the default properties in the `<upgrade_installer_directory>/build/upgrade.properties` file. To do so, open both properties files, the one you configured originally when you installed the previous version of NBIA 4.1. (`<install properties file>`)and the `<upgrade_installer_directory>/build /upgrade.properties` file.
	Note: Where there are duplicate attributes, the values must be the same in both files.
	Copy each entry you modified in the `4.2 installation` file and paste it in the corresponding location in the `upgrade.properties` file, replacing the default text, as appropriate. All the properties that appear in upgrade.properties appear in install.properties (but not vice versa). Please consult the install section of this guide for more background on the meaning of the properties.

Step	Action
3	**Record these property values.** **Note:** You shouldn't need to modify the other default values as we have chosen unique ports to reduce the risk of other applications using the same values. However, be sure to check the `*.properties` to verify that the ports in this file are not being used by other applications.
5	From the command line, navigate to `<upgrade_installer_directory>/` (*Example*:`cd C:\NBIA42_upgrade_installer`), and type ***ant***. This initiates the upgrade process. The anticipated duration is anywhere 7-15 minutes depending on your system's speed, power and memory. The installer upgrades your existing NBIA database on your MySQL server, starts your existing JBoss servers and starts up the grid service for the NBIA application. **Notes regarding upgrade:** When the installer detects that a database exists, it warns you to back it up, which you were instructed to do earlier in this process. Press **Y** to proceed.
6	To verify NBIA installation, open your web browser to `http://<jboss.server.hostname>.<jboss.server.port>/NBIA` (example: http://imaging.nci.nih.gov/NBIA) and enter ***NBIAdevtest*** as the user and ***changeme*** as the password. Refer to the original `install.properties` for the correct `jboss.server.hostname` and `jboss.server.port` values.

Configuring JBoss

NOTE	For optimal performance, you must modify your JBoss 4.0.5 configuration to increase the amount of available memory for the NBIA application. Directions for doing this in Windows are in the following step 1.

To configure JBoss in Windows, follow these steps:

Step	Action
1	Add the following entry to the JBoss `run.bat` file which is located will be located at `<application_root_directory>/jboss-4.0.5.GA/bin/run.bat`. Add the text right after the line "`rem Add -server to the JVM options, if supported`". `-server –Xms1024m –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` **Warning**: Be careful when copying and pasting from this document, whether PDF or MS Word. No spaces must come before and after the columns. A safe way to

Step	Action
	ensure that the text has no unwanted space and unwanted characters is to copy the text into a blank NotePad first. Correct the spacing, then copy and paste back into the `run.bat` file.
2	Restart your JBoss 4.0.5 server for the changes to take effect. The method of doing this may depend on the start/stop/restart scripts you created after the installation. Most commonly, you can execute `shutdown.bat` and then `run.bat` under $JBOSS_HOME/bin. Refer to the publicly available JBoss user's guide at www.jboss.org for more information.

Configuring JBoss Servers and MySQL Server to Run as Services

NOTE	MySQL, and the two JBoss servers that make up NBIA, and the JBoss server optionally installed for UPT, must run continually as services. The instructions in this section cover all of these scenarios. For a NBIA 4.2.2 deployment, there are at least four servers, and if UPT is installed, five servers: • JBoss 4.0.4 for UPT • Tomcat 5.0.28 (for Grid services) • JBoss 4.0.5 (for NBIA application) • MySQL 5.0.27 • CTP (Clinical Trial Process)

Running JBoss as a Service

NOTE	The default NBIA installation runs JBoss as a command line process using the user currently logged on. Therefore, when you log out as this user, JBoss will no longer be available for NBIA. For that reason, it is recommended that you configure your JBoss servers to run as a Linux or Windows service. The instructions are contained in this section.

To run JBoss as a service, follow these steps:

Step	Action
1	**Linux** See http://wiki.jboss.org/wiki/Wiki.jsp?page=StartJBossOnBootWithLinux.
2	**Windows** To run an existing JBoss command line installation as a service, follow the directions for creating a user-defined service at http://support.microsoft.com/kb/137890/EN-US/ **Note:** You need to have access to the Windows Resource Kit.

Running MySQL as a Service

NOTE	It is assumed that your MySQL server was installed as a service. If it was not, follow these recommendations for installing this server as a service.

To run MySQL as a service, follow these steps:

Step	Action
1	**Linux** See http://www.redhat.com/docs/manuals/enterprise/RHEL-AS-2.1-Manual/cluster-manager/s1-service-mysql.html.
2	**Windows** When installing MySQL server on Windows, choose the option to run MySQL as a Windows service.

Post-Installation Tasks

Starting Up NBIA

Note that if JBoss, Tomcat, and CTP are not installed as services, they must be manually started/re-started. The following files will start the respective servers.

On Windows:
- JBoss: JBOSS_HOME/bin/run.bat
- Tomcat: CATALINE_HOME/bin/startup.bat
- CTP: ctp.bat

On Linux:
- JBoss: JBOSS_HOME/bin/run.sh
- Tomcat: CATALINE_HOME/bin/startup.sh
- CTP: ctp.sh

Using UPT to Add NBIA Users

To use the UPT, follow these steps:

Step	Action
1	Install UPT. For more information, see page **Error! Bookmark not defined.**.
2	Launch a browser and access UPT via value of application.url (from UPT's `install.properties`).
3	Login to UPT, using the following profile: • Login ID=*superadmin* • Password=*changeme* • Application Name=*csmupt*
4	Select the **User** tab at the top of the page, and click **Create a New User**.
5	Enter **Login Name**, **User First Name**, **User Last Name**, **User Password**, **User Password Confirm**. Click **Add**.
6	On the **Application** tab at the top of the screen, click **Create a New Application**.

Step	Action
7	Enter the following parameters: • Application Name=*NCIA* **(NOTE: it must be NCIA.)** • Application Description=*<Application Description>* • Application Declarative Flag=*Yes* • Application Active Flag=*Yes* • Application Database URL=jdbc:mysql://${database.server}:${database.port}/${NBIA.database.name} • Application Database User Name=*${NBIA.database.user}* • Application Database User Password= *${NBIA.database.password}* • Application Database Confirm Password= *${NBIA.database.password}* • Application Database Dialect=*org.hibernate.dialect.MySQLDialect* • Application Database Driver=*com.mysql.jdbc.Driver*
8	Click on **Add > Associated Admins**. then click on **Assign Admin**.
9	Highlight the user you want to be admin of the application, and click **Assign Admin**.
10	Logout of UPT.
11	Login to UPT (from UPT's install.properties). Use the following login profile: • Login ID=*<User created above>* • Password=*<Password for User created above>* • Application Name=*NCIA*
12	Add users to the NBIA application like you did above.
13	Click **Logout.**

Contacting Application Support