

# CAINTEGRATOR2 V.1.0

## *Local Installation Guide*



Center for Biomedical Informatics  
and Information Technology

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## Introduction

This *calIntegrator2 v.1.0 Installation Guide* provides you with the instructions to install and configure a fresh calIntegrator 2.0 v.1.0 application. The calIntegrator2installation installs and configures a JBoss application server and creates a calIntegrator2-specific schema within a pre-existing database on a preinstalled MySQL server.

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

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 <p><b>NOTE</b></p>	<p>Published calIntegrator2 v.1.0 development documentation can be found on the calIntegrator2 page of the NCI wiki: <a href="https://wiki.nci.nih.gov/display/calIntegrator2/calIntegrator2+Wiki">https://wiki.nci.nih.gov/display/calIntegrator2/calIntegrator2+Wiki</a></p>
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### Overview of calIntegrator2 Installation

The process for installing calIntegrator2 v1.0 includes the following tasks described in this document:

1. Downloading and installing required software
  2. Setting environment variables
  3. Downloading calIntegrator2 v.1.0 distribution files
  4. Installing
    - a. GUI Installer Method
    - b. Command-Line Method
      - Editing `install.properties` file
  5. Configuring JBoss servers and MySQLserver to run as a service
  6. Post-Installation Tasks
    - a. Using UPT to Add calIntegrator2Users
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## calIntegrator2 v.1.0 Software and Technology Requirements

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### Tested Environment

The calIntegrator2 v.1.0 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.

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### Required Software—Not Included in calIntegrator

Many of the servers and services that make up calIntegrator2 are automatically installed as part of this installation. However, certain tools that you must manually install and configure are listed in Table 1. The software name, version, description, and URL hyperlinks (for download) are indicated in the table.

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Prior to the calIntegrator2 v.1.0 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.

<b>Required Software Name Version</b>	<b>Description</b>
Java 2 Platform Standard Edition 5.0 Update 10 (J2SE 5.0) <a href="http://java.sun.com/products/archive/j2se/5.0_10/">http://java.sun.com/products/archive/j2se/5.0_10/</a> Be sure to download the correct Java SDK for your operating environment. For example, for Linux AMD 64, you would download <code>jdk-1_5_0_10-linux-amd64-rpm.bin</code> . For Windows, you might download <code>jdk-1_5_0_10-windows-i586-p.exe</code> .	The J2SE Development Kit (JDK) supports creating J2SE applications.
Apache Ant, 1.7.0 <a href="https://gforge.nci.nih.gov/svnroot/lcd/trunk/tools/apache-ant-1.7.0-bin.zip">https://gforge.nci.nih.gov/svnroot/lcd/trunk/tools/apache-ant-1.7.0-bin.zip</a>	Apache Ant is a Java-based build tool.
MySQL, 5.0.27 <a href="http://downloads.mysql.com/archives.php?p=mysql-5.0&amp;v=5.0.27">http://downloads.mysql.com/archives.php?p=mysql-5.0&amp;v=5.0.27</a>	MySQL is an open-source database software application.

Table 1 Required Software

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**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, if you are going to install UPT.

## Java SDK Installation

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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

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- 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

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**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	<p>As the root user, enter the following in the <code>/etc/profile</code> file. A <code>PATH</code> variable should already be created in this file, so be sure to define the <code>JAVA_HOME</code> and <code>ANT_HOME</code> export before the <code>PATH</code> export. Replace <code>&lt;some_path&gt;</code> with the correct path fragment for Java and Ant installations.</p> <pre>export JAVA_HOME=&lt;some_path&gt;/jdk1.5.0_10 export ANT_HOME=&lt;some_path&gt;/apache-ant-1.7.0 export PATH=\$JAVA_HOME/bin:\$ANT_HOME/bin:\$PATH</pre>
2	Log out and log back in so that the system recognizes your changes.


### Verifying the Environment Variables in Linux

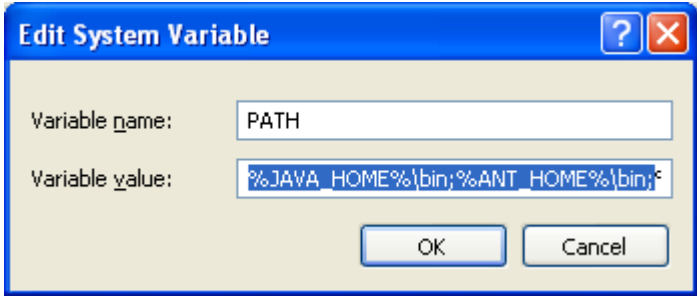
To verify that environment variables have been set correctly, follow these steps:

Step	Action
1	<p>From the command line, enter:</p> <pre>echo \$JAVA_HOME echo \$ANT_HOME</pre> <p>Both of these commands should return the location where you installed these tools.</p>
2	To verify your Java SDK installation, enter <code>java -version</code> from a command prompt. You should see <code>java version "1.5.0_10"</code> .
3	To verify your Ant installation, enter: <code>ant -version</code> from a command prompt. You should see: <code>Apache Ant version 1.7.0 compiled on December 13 2006</code> .

### Windows

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

<p><b>NOTE</b></p> 	The <code>JAVA_HOME</code> , <code>ANT_HOME</code> and <code>PATH</code> environment variables are set in the Systems Properties.
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Step	Action
1	In Windows, select <b>Control Panel</b> , then select the <b>Systems</b> application. In the Systems window, select the <b>Advanced</b> tab.
2	On the <b>Advanced</b> tab, click the <b>Environment Variables</b> button. To add a new system variable, select the <b>New</b> button. a. In the <b>Variable name</b> text box, enter <b>JAVA_HOME</b> . b. In the <b>Variable value</b> text box, enter the location of your Java installation.
3	Click the <b>New</b> button again. a. In the <b>Variable name</b> text box, enter <b>ANT_HOME</b> . b. In the <b>Variable value</b> text box, enter the location of your Ant installation.
4	Select the PATH system environment variable, and select the <b>Edit</b> 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 <b>Variable Value</b> field.  <b>%JAVA_HOME%\bin;%ANT_HOME%\bin;</b>  Click <b>OK</b> .

### 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:  <code>echo %JAVA_HOME%</code> <code>echo %ANT_HOME%</code>  Both of these commands should return the location where you installed these tools.


Step	Action
2	To verify your Java SDK installation, enter <code>java -version</code> from a command prompt. You should see <code>java version "1.5.0_10"</code> .
3	To verify your Ant installation, enter <code>ant -version</code> from a command prompt. You should see: Apache Ant version 1.7.0 compiled on December 13 2006.


<p><b>NOTE</b></p> 	<p>Environment variables for calIntegrator2and, optionally, UPT are modified and set in those sections of this document: Installing a New on page 9 and Downloading and Installing UPT (Optional) on page 8.</p>
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## MySQL Installation and Configuration

A MySQL 5.0.27 server must be downloaded, installed and running in order for the calIntegrator2 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=5.0.27>

<p><b>TIP</b></p> 	<p>You should consult the following three links to successfully set up secure and well-performing MySQL servers, in preparation for installing calIntegrator:</p> <ul style="list-style-type: none"> <li>• MySQL Security Guide - <a href="http://dev.mysql.com/doc/refman/5.0/en/security-guidelines.html">http://dev.mysql.com/doc/refman/5.0/en/security-guidelines.html</a></li> <li>• Performance – <ul style="list-style-type: none"> <li>○ General performance tuning - <a href="http://dev.mysql.com/books/hpmysql-excerpts/ch06.html">http://dev.mysql.com/books/hpmysql-excerpts/ch06.html</a></li> <li>○ InnoDB engine performance tuning - <a href="http://dev.mysql.com/doc/refman/5.0/en/innodb-tuning.html">http://dev.mysql.com/doc/refman/5.0/en/innodb-tuning.html</a></li> </ul> </li> </ul>
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<p><b>MORE TIPS</b></p> 	<ul style="list-style-type: none"> <li>• Record the MySQL root username/password chosen during the MySQL installation process, as you will need to use this as your <code>database.system.user/ database.system.password</code> later in the UPT installation process, should you choose to install UPT.</li> <li>• Note the MySQL port chosen during the MySQL installation process, as you will need to use this as your <code>database.port</code> later in both the calIntegrator2and UPT (if installing UPT) installation processes.</li> </ul>
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## Working with Properties Files

### About Properties


An important component of command-line installation of either caIntegrator2 or UPT, is configuring properties files.

Prior to initiating a command-line installation, property variables must be modified. Note the following points about changing or entering variables.


### Paths in Properties Files

<p><b>NOTE</b></p> 	<p>The paths in the <code>.properties</code> files should use <i>forward</i> slashes. For example, you would use <code>application.base.path=C:/apps/caIntegrator-app</code>, <b>not</b> <code>application.base.path=C:\apps\caIntegrator-app</code>. If you use backslashes, you will experience undesirable results.</p>
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### Spaces in Path Property Values

<p><b>NOTE</b></p> 	<p>You should not specify paths with spaces included as property values. In Windows, note that the <code>C:\Documents and Settings\&lt;username&gt;</code> path contains spaces and should not be used, or anything similar. If you are using Windows, use a path such as <code>C:/apps/caIntegrator</code>. Spaces are fine for property values which do not represent a path.</p>
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### More About Property Values

<p><b>NOTES</b></p> 	<ul style="list-style-type: none"> <li>• In each <code>*.properties</code> file, any property value marked with <u>uppercase</u> <code>REPLACE_*</code> must be manually updated with the appropriate value.</li> <li>• In each <code>*.properties</code> file, any property value marked with <u>lowercase</u> <code>replace_*</code> may be optionally updated with the appropriate value.</li> <li>• If there is reference to a <code>database.system.user</code> for your MySQL server, you can determine which users have full privileges to create and manage other databases, by executing <b><i>show grants</i></b> from a MySQL prompt to determine the correct level of privileges.</li> </ul>
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## 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 calIntegrator2 application, you **must** install UPT.

### Overview of UPT

UPT is used to provision users in the calIntegrator2 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 calIntegrator2 application in the UPT. Then you can assign users to calIntegrator2.

You can download UPT 4.2 through the following link:

[https://gforge.nci.nih.gov/frs/download.php/7298/CSM\\_UPT\\_42\\_Release.zip](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](https://gforge.nci.nih.gov/docman/view.php/12/18945/caCORE_CSM_v42_ProgrammersGuide.pdf)

## Installing calIntegrator2 v.1.0 Application and Services

To newly install the calIntegrator2 v.1.0 application and services, follow the steps in this section:

- [Downloading calIntegrator2 v.1.0 files](#) on page 9
- [Installing a New](#) on page 9
  - [GUI Installer Method](#) on page 9
  - [Command-Line Method](#) on page 17
- [Configuring JBoss](#) on page 28
  - [Configuring JBoss Servers and MySQL Server to Run as Services](#) on page 20
- [Post-Installation Tasks](#) on page 21
  - [Using UPT to Add calIntegrator2 Users](#) on page 21

### BEFORE YOU BEGIN



- **Important:** There must already be a pre-existing MySQL DB and connection username/password for calIntegrator2 to install into; calIntegrator2 does not create its own DB.

## Downloading caIntegrator2 v.1.0 files

To download the caIntegrator2 v.1.0 files, follow this step:

Step	Action
1	<p>The various installation files for caIntegrator2 v.1.0 are between 100-450MB in size. All of the files can be downloaded from the caIntegrator2 distribution folder here: <a href="https://gforge.nci.nih.gov/frs/?group_id=507">https://gforge.nci.nih.gov/frs/?group_id=507</a>.</p> <ul style="list-style-type: none"><li>• For a new command-line installer, download the <code>caIntegrator2_install_1_0.zip</code> file (around 285 MB).</li><li>• For a command-line upgrade installer, download the <code>caIntegrator2_upgrade_1_0.zip</code> file (about 285 MB).</li><li>• For a GUI installer that you can use to do a fresh caIntegrator 2.0 installation, download the <code>caIntegrator2_gui_distribution_1_0.jar</code> file (about 320 MB).</li></ul> <p>Remember the download location, as you will be using this file to run the installation in the steps that follow.</p>

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### Server Components in caIntegrator2 v.1.0

These server components are installed and configured as part of the caIntegrator2 v.1.0 installation. You do not need to do anything further to download or install these components.

- JBoss 4.0.5 (hosts the caIntegrator2 application)

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## Installing a New caIntegrator2 v.1.0

You can perform a new installation of caIntegrator2 v.1.0 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 17.

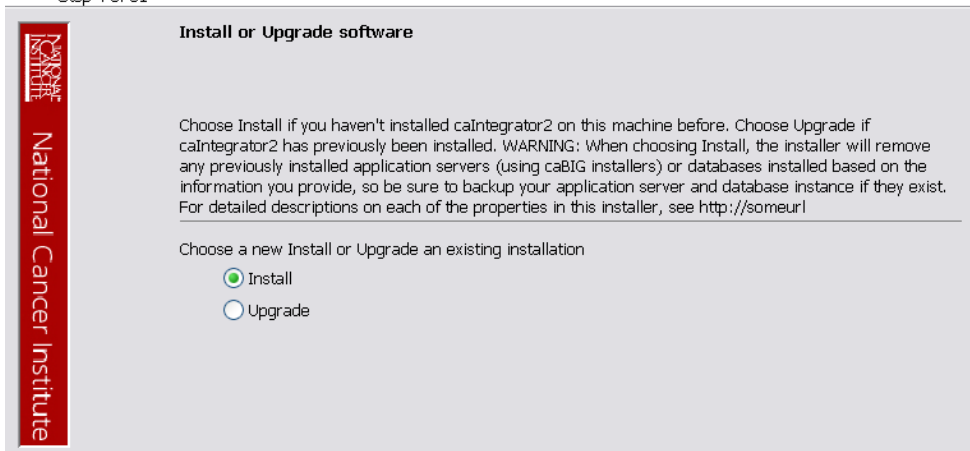
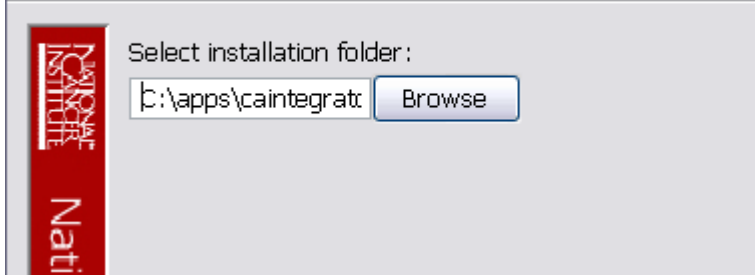
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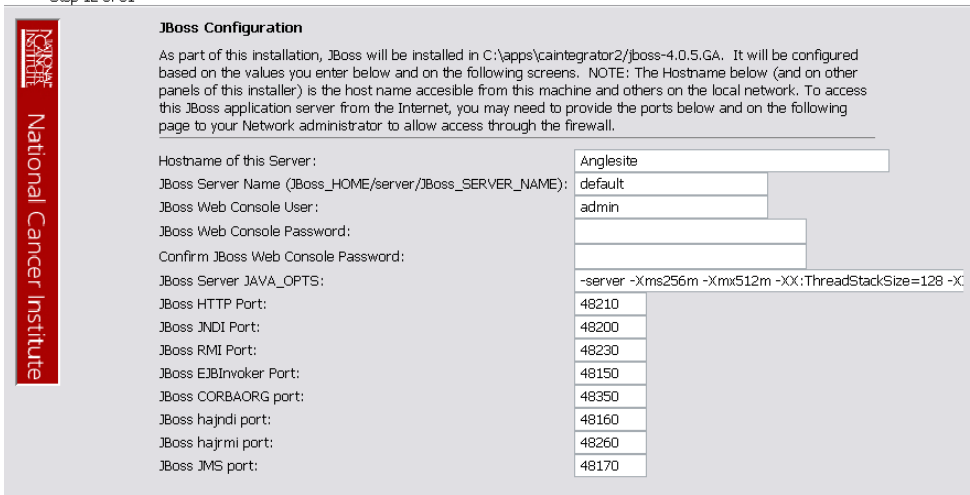
### GUI Installer Method of Installation

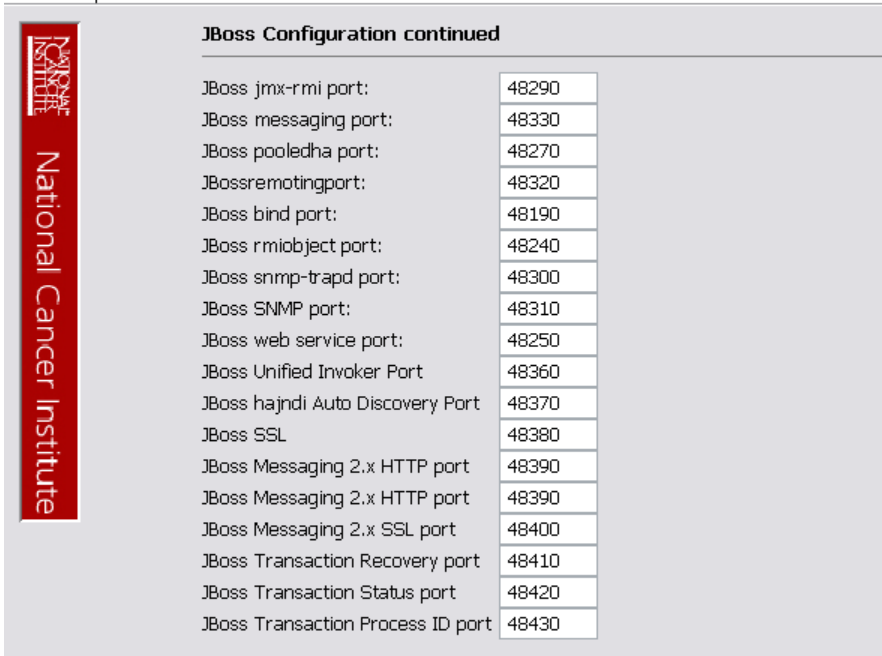
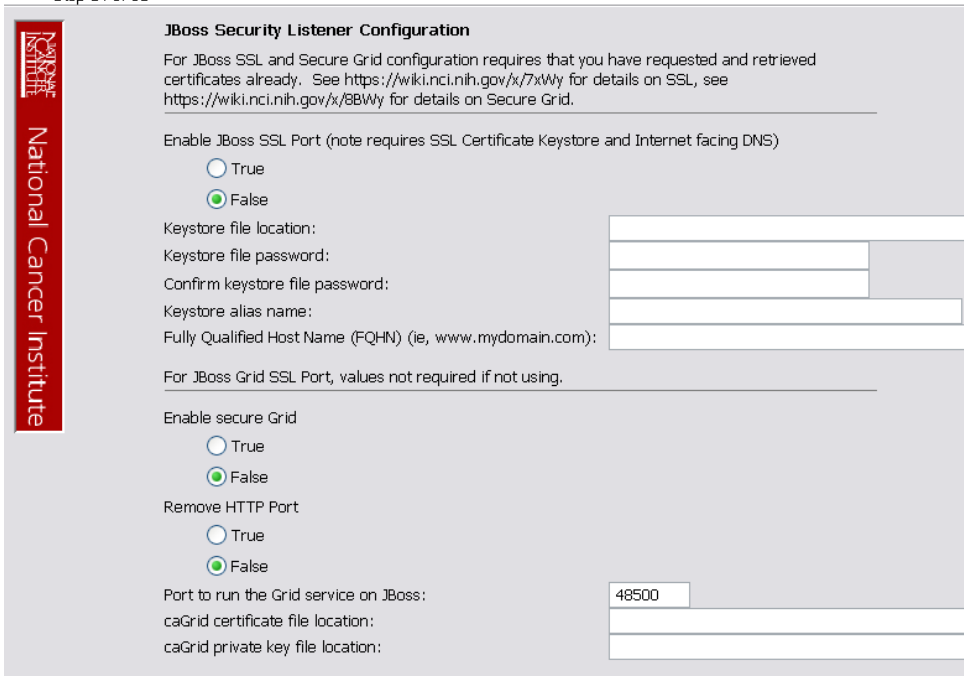
For detailed information on all of the GUI installer fields, refer to the documentation at this location: <https://wiki.nci.nih.gov/x/NAUuAQ>.

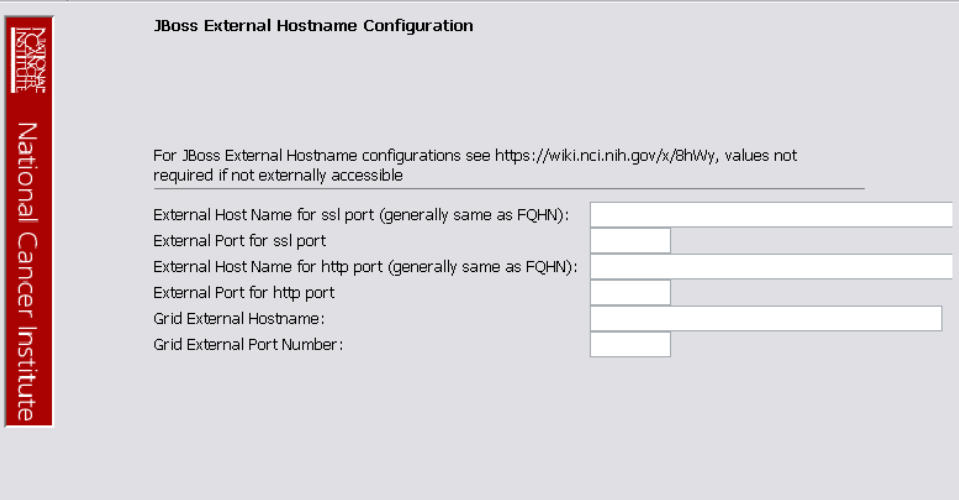
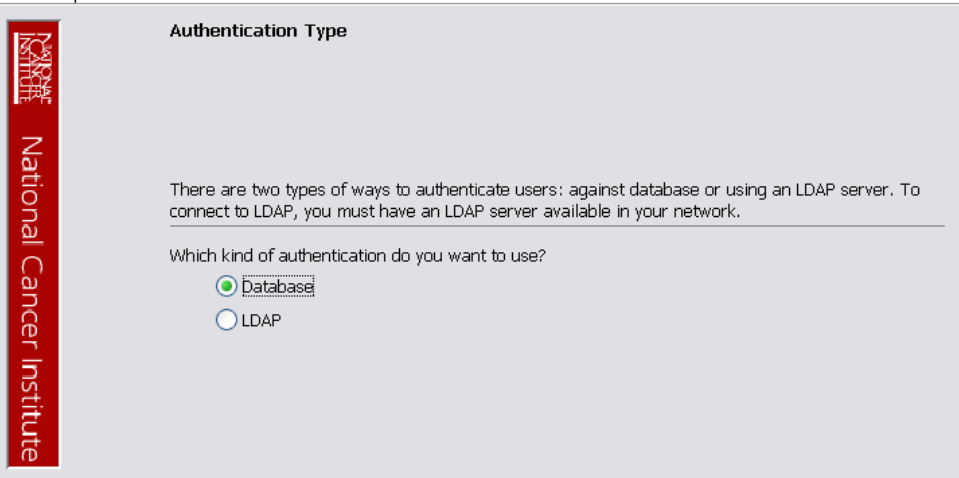
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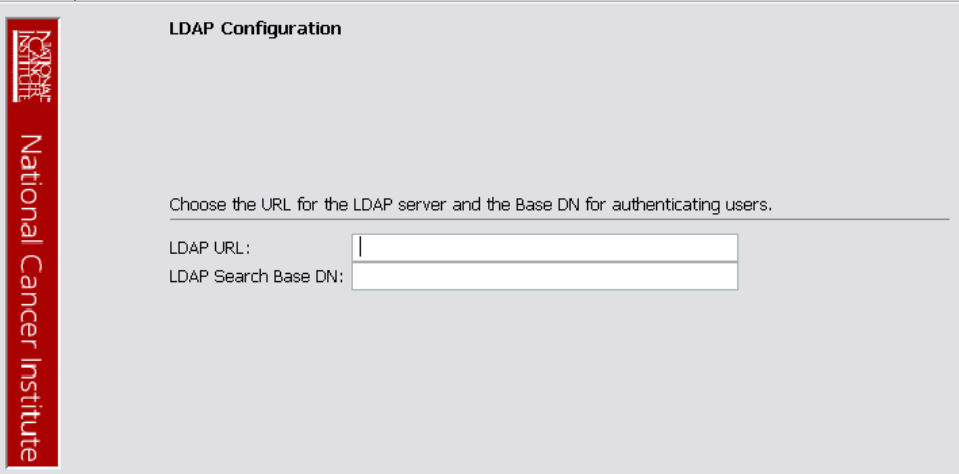
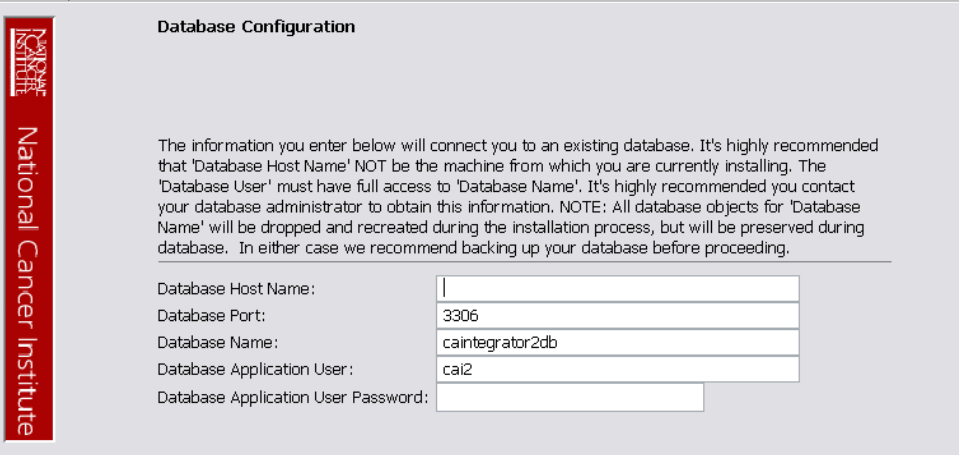
For performing an installation using the GUI Installer, follow these steps:

Step	Action
1	Open a command prompt in the directory where you downloaded the caIntegrator2_gui_distribution_1_0.jar. Enter this command to Invoke the GUI installer: <code>java -jar caIntegrator2_gui_distribution_1_0.jar</code> .
2	The Installation Wizard opens to facilitate the installation process. Click <b>Next</b> 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	<p>Select Install installation type. For a new installation, select <b>Install</b>.</p> <p><b>Installation Options</b> Step 4 of 31</p> 
6	<p>Navigate to the directory where you would like to install caIntegrator2.</p> <p><b>Installation Folder</b> Step 5 of 31</p>  <p>If the folder does not yet exist, click <b>OK</b> in the dialog box to indicate that you want the folder to be created.</p>

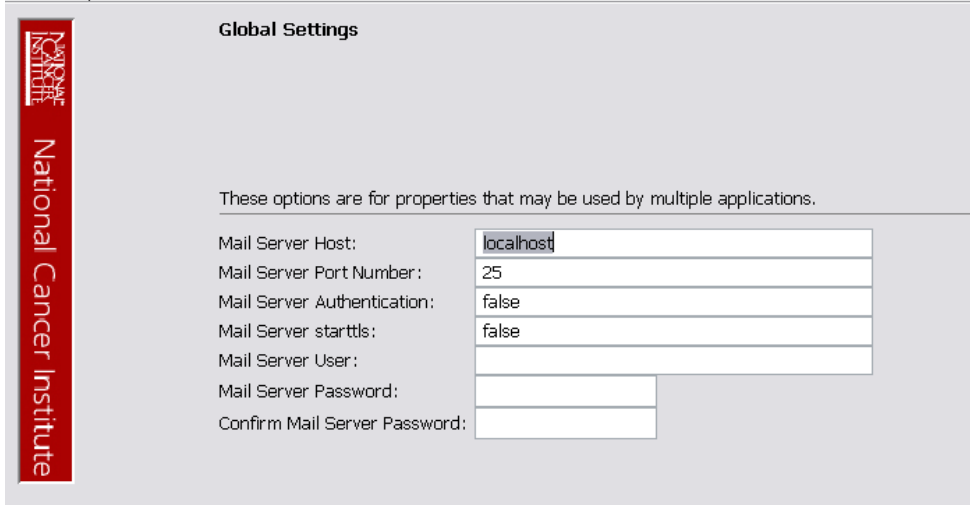
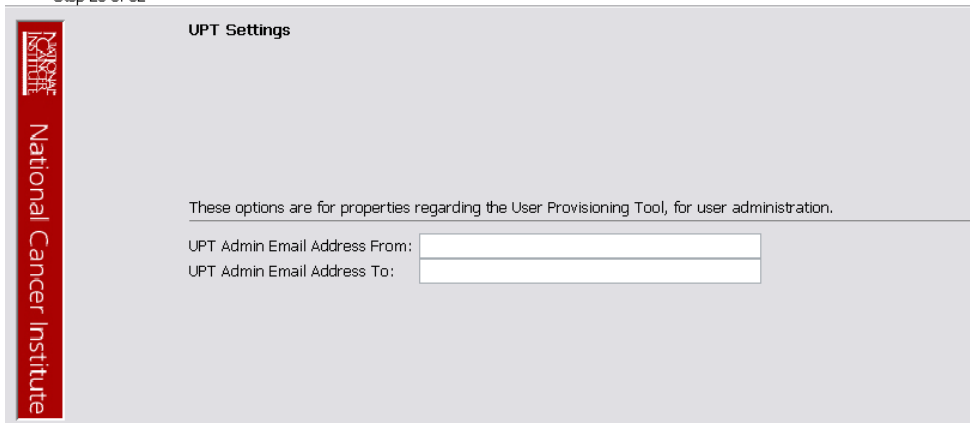
Step	Action
7	<p>Select the type of installation you would like to do, you can install everything, or just specific components (JBoss or Database only). The remaining sections in this guide will assume you chose to install everything.</p> <p><b>Installation Options</b> Step 6 of 31</p>  <p><b>Choose what to install</b></p> <p>Select whether you want to install or upgrade all components of this application, or just an individual component. If you want to install components on different servers, select the one component on this machine and other components on other machines.</p> <p>Choose what to install</p> <ul style="list-style-type: none"> <li><input checked="" type="radio"/> Everything</li> <li><input type="radio"/> JBoss</li> <li><input type="radio"/> Database - (must be run on JBoss machine)</li> </ul>
8	<p>Continue walking through the pages of the installer. Configure the calIntegrator2 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.</p> <p><b>Installation Options</b> Step 12 of 31</p>  <p><b>JBoss Configuration</b></p> <p>As part of this installation, JBoss will be installed in C:\apps\calintegrator2\jboss-4.0.5.GA. It will be configured based on the values you enter below and on the following screens. NOTE: The Hostname below (and on other panels of this installer) is the host name accessible from this machine and others on the local network. To access this JBoss application server from the Internet, you may need to provide the ports below and on the following page to your Network administrator to allow access through the firewall.</p> <p>Hostname of this Server: Anglesite</p> <p>JBoss Server Name (JBoss_HOME/server/JBoss_SERVER_NAME): default</p> <p>JBoss Web Console User: admin</p> <p>JBoss Web Console Password: </p> <p>Confirm JBoss Web Console Password: </p> <p>JBoss Server JAVA_OPTS: -server -Xms256m -Xmx512m -XX:ThreadStackSize=128 -X</p> <p>JBoss HTTP Port: 48210</p> <p>JBoss JNDI Port: 48200</p> <p>JBoss RMI Port: 48230</p> <p>JBoss EJBInvoker Port: 48150</p> <p>JBoss CORBAORG port: 48350</p> <p>JBoss hajndi port: 48160</p> <p>JBoss hajrmi port: 48260</p> <p>JBoss JMS port: 48170</p>

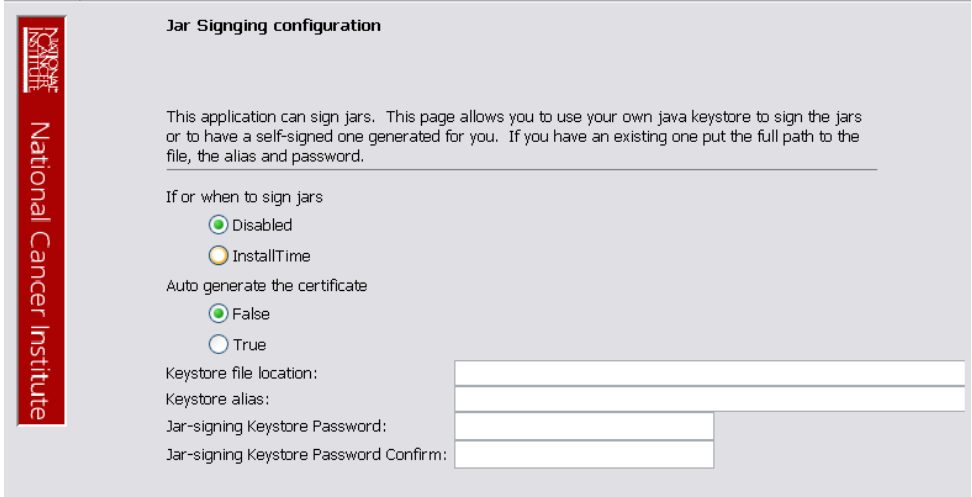
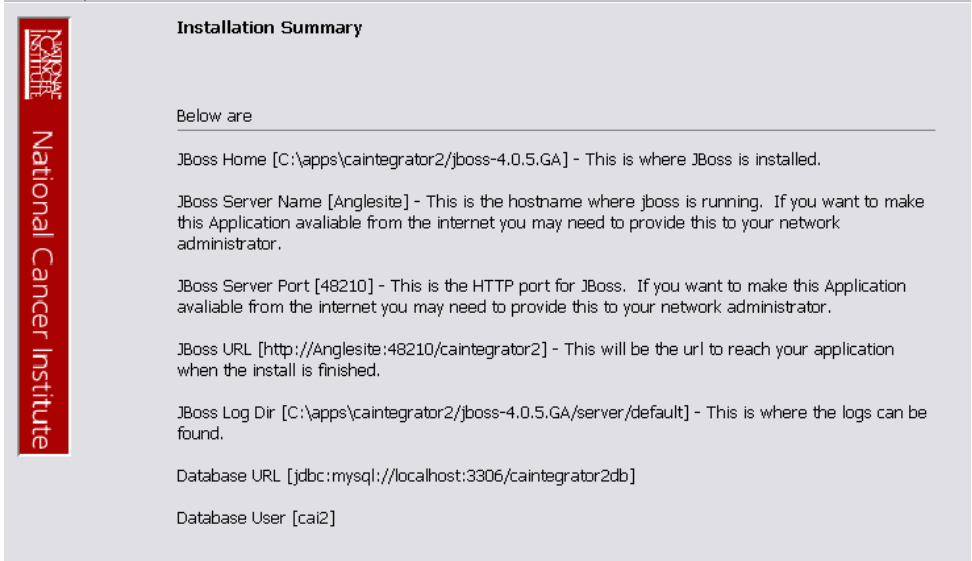
Step	Action																																				
9	<p><b>Installation Options</b> Step 13 of 31</p>  <p>The screenshot shows the 'JBoss Configuration continued' window. On the left is a vertical red banner with the National Cancer Institute logo and name. The main area contains a table of JBoss configuration options and their default ports:</p> <table border="1"> <tbody> <tr><td>JBoss jmx-rmi port:</td><td>48290</td></tr> <tr><td>JBoss messaging port:</td><td>48330</td></tr> <tr><td>JBoss pooledha port:</td><td>48270</td></tr> <tr><td>JBossremotingport:</td><td>48320</td></tr> <tr><td>JBoss bind port:</td><td>48190</td></tr> <tr><td>JBoss rmiobject port:</td><td>48240</td></tr> <tr><td>JBoss snmp-trapd port:</td><td>48300</td></tr> <tr><td>JBoss SNMP port:</td><td>48310</td></tr> <tr><td>JBoss web service port:</td><td>48250</td></tr> <tr><td>JBoss Unified Invoker Port</td><td>48360</td></tr> <tr><td>JBoss hajndi Auto Discovery Port</td><td>48370</td></tr> <tr><td>JBoss SSL</td><td>48380</td></tr> <tr><td>JBoss Messaging 2.x HTTP port</td><td>48390</td></tr> <tr><td>JBoss Messaging 2.x HTTP port</td><td>48390</td></tr> <tr><td>JBoss Messaging 2.x SSL port</td><td>48400</td></tr> <tr><td>JBoss Transaction Recovery port</td><td>48410</td></tr> <tr><td>JBoss Transaction Status port</td><td>48420</td></tr> <tr><td>JBoss Transaction Process ID port</td><td>48430</td></tr> </tbody> </table>	JBoss jmx-rmi port:	48290	JBoss messaging port:	48330	JBoss pooledha port:	48270	JBossremotingport:	48320	JBoss bind port:	48190	JBoss rmiobject port:	48240	JBoss snmp-trapd port:	48300	JBoss SNMP port:	48310	JBoss web service port:	48250	JBoss Unified Invoker Port	48360	JBoss hajndi Auto Discovery Port	48370	JBoss SSL	48380	JBoss Messaging 2.x HTTP port	48390	JBoss Messaging 2.x HTTP port	48390	JBoss Messaging 2.x SSL port	48400	JBoss Transaction Recovery port	48410	JBoss Transaction Status port	48420	JBoss Transaction Process ID port	48430
JBoss jmx-rmi port:	48290																																				
JBoss messaging port:	48330																																				
JBoss pooledha port:	48270																																				
JBossremotingport:	48320																																				
JBoss bind port:	48190																																				
JBoss rmiobject port:	48240																																				
JBoss snmp-trapd port:	48300																																				
JBoss SNMP port:	48310																																				
JBoss web service port:	48250																																				
JBoss Unified Invoker Port	48360																																				
JBoss hajndi Auto Discovery Port	48370																																				
JBoss SSL	48380																																				
JBoss Messaging 2.x HTTP port	48390																																				
JBoss Messaging 2.x HTTP port	48390																																				
JBoss Messaging 2.x SSL port	48400																																				
JBoss Transaction Recovery port	48410																																				
JBoss Transaction Status port	48420																																				
JBoss Transaction Process ID port	48430																																				
10	<p><b>Installation Options</b> Step 14 of 31</p> <p>JBoss SSL requires that you have requested and retrieved certificates already. If this doesn't apply to your installation, leave the values as false and continue.</p>  <p>The screenshot shows the 'JBoss Security Listener Configuration' window. It includes a National Cancer Institute banner on the left. The main content area contains the following configuration options:</p> <ul style="list-style-type: none"> <li><b>JBoss Security Listener Configuration</b> For JBoss SSL and Secure Grid configuration requires that you have requested and retrieved certificates already. See <a href="https://wiki.nci.nih.gov/x/7xWwY">https://wiki.nci.nih.gov/x/7xWwY</a> for details on SSL, see <a href="https://wiki.nci.nih.gov/x/8BWwY">https://wiki.nci.nih.gov/x/8BWwY</a> for details on Secure Grid.</li> <li>Enable JBoss SSL Port (note requires SSL Certificate Keystore and Internet facing DNS)  <input type="radio"/> True  <input checked="" type="radio"/> False         </li> <li>Keystore file location: <input type="text"/></li> <li>Keystore file password: <input type="password"/></li> <li>Confirm keystore file password: <input type="password"/></li> <li>Keystore alias name: <input type="text"/></li> <li>Fully Qualified Host Name (FQHN) (ie, www.mydomain.com): <input type="text"/></li> <li>For JBoss Grid SSL Port, values not required if not using.</li> <li>Enable secure Grid  <input type="radio"/> True  <input checked="" type="radio"/> False         </li> <li>Remove HTTP Port  <input type="radio"/> True  <input checked="" type="radio"/> False         </li> <li>Port to run the Grid service on JBoss: <input type="text" value="48500"/></li> <li>caGrid certificate file location: <input type="text"/></li> <li>caGrid private key file location: <input type="text"/></li> </ul>																																				

Step	Action
11	<p>If your JBoss is externally accessible then fill out this section, otherwise leave it blank and continue.</p> <p><b>Installation Options</b> Step 15 of 31</p>  <p>The screenshot shows a web form titled "JBoss External Hostname Configuration". On the left is a vertical red banner with the National Cancer Institute logo and name. The form contains a URL for JBoss External Hostname configurations, followed by input fields for: External Host Name for ssl port, External Port for ssl port, External Host Name for http port, External Port for http port, Grid External Hostname, and Grid External Port Number.</p>
12	<p>Specify the authentication type that calIntegrator2 should use. Database is the most likely choice if you aren't sure what to select here.</p> <p><b>Installation Options</b> Step 16 of 31</p>  <p>The screenshot shows a web form titled "Authentication Type". On the left is a vertical red banner with the National Cancer Institute logo and name. The form contains text explaining two authentication methods: against a database or using an LDAP server. Below this, it asks "Which kind of authentication do you want to use?" and provides two radio button options: "Database" (which is selected) and "LDAP".</p>

Step	Action
13	<p>If you selected LDAP in the previous step, enter the appropriate configuration information for LDAP.</p> <hr/> <p><b>Installation Options</b> Step 17 of 31</p> 
14	<p>If the authentication type is database:</p> <p>Specify the database connection information, including the name of the <b>pre-existing</b> database where the calIntegrator2 schema will be installed, and the <b>pre-existing</b> user which will be used by calIntegrator2 to connect to its database.</p> <p><b>Installation Options</b> Step 18 of 31</p>  <p>Error messages inform you if the following occurs:</p> <ul style="list-style-type: none"> <li>• If the specified database host cannot be reached, or the field is blank.</li> <li>• If the specified database does not already exist, or the calIntegrator2 DB user's credentials are wrong.</li> </ul>



Step	Action
15	<p>Specify SMTP mail server connection information so that calIntegrator2 can send emails from users with new account requests.</p> <p><b>Installation Options</b> Step 19 of 32</p> 
16	<p>Specify email addresses for the administrator to approve user requests.</p> <p><b>Installation Options</b> Step 20 of 32</p> 

Step	Action
17	<p>If jar signing is necessary for the installation, then enable it on this page, however this is optional and can be skipped over.</p> <p><b>Installation Options</b> Step 27 of 31</p> 
18	<p>Review the summary of the information you entered.</p> <p><b>Installation Options</b> Step 28 of 31</p> 
19	<p>Review the selected install type and the installation destination.</p> <p>After you click <b>Next</b> from reviewing the installation destination, the installer runs. The installation wizard displays the installation progress and completion.</p>
20	<p>When you are informed that the process is finished, click <b>Done</b> in the lower right corner of the wizard to close the installer.</p>

Step	Action
21	<p>To verify calIntegrator2 installation:</p> <ul style="list-style-type: none"> <li>Open your web browser to <a href="http://&lt;jboss.server.hostname&gt;.&lt;jboss.server.port&gt;/cainegrator2">http://&lt;jboss.server.hostname&gt;.&lt;jboss.server.port&gt;/cainegrator2</a> ; Refer to the &lt;user home&gt;/.installer-cainegrator2/cainegrator2_installer/install.properties file for the correct values.</li> <li>Enter <b>manager</b> as the user and <b>manager</b> as the password.</li> </ul>
22	<p>After successfully installing calIntegrator2, make a backup of the &lt;user home&gt;/.installer-cainegrator2/cainegrator2_installer/install.properties file in a different directory for future reference.</p>


## Command-Line Method of Installation

### Overview of calIntegrator 2.0 Command-Line Installer Properties Files


When you do a command-line installation of calIntegrator2 for the first time, you will work with the properties file included in the caIntegrator2\_distribution\_1\_0.zip. The file is: install.properties.

If you are command-line upgrading from a previous version of calIntegrator 2.X, you will work with the upgrade.properties file included in the caIntegrator2\_upgrade\_1\_0.zip.

### calIntegrator2 Port Usage

<p><b>NOTE</b></p> 	<p>Verify that default port values defined in install.properties files are not in use on your system by running <code>netstat -a</code> from the command line. If the ports are in use prior to installation, you will likely experience problems with your installation.</p>
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### JBoss Errors During Installation


<p><b>NOTE</b></p> 	<p>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 stop previously installed servers to prevent problems during the installation. If this is your first time installing calIntegrator2, you may receive and disregard this error message.</p>
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## Command-line Installation Steps

To install a new instance of calIntegrator2 using the command-line, follow these steps:

Step	Action
	Refer to the command-line installation instructions found here: <a href="https://wiki.nci.nih.gov/x/NgUuAQ">https://wiki.nci.nih.gov/x/NgUuAQ</a> .
1	<p>From the directory where you downloaded the caIntegrator2_distribution_1_0.zip from <a href="#">Downloading 2.0 files</a> on page 9, unzip the files, using one of these two methods:</p> <ol style="list-style-type: none"> <li>Open a command prompt and use it to extract this file to a temporary location. For example, you may enter a command such as <code>unzip -q caIntegrator2_distribution_1_0.zip</code> (you must have a ZIP tool installed). This location will be referred to as the <code>&lt;installer_directory&gt;</code> henceforth.</li> <li>Use WinZip or a similar utility to unzip the files to a temporary location. This location will be referred to as the <code>&lt;installer_directory&gt;</code> henceforth.</li> </ol> <p><i>Example:</i> <code>&lt;installer_directory&gt; = C:\calIntegrator_20_installer</code></p>
2	<p><b>Note:</b> Setting the property values is an important step in the install process. Before you complete steps 2 &amp; 3, review Working with Properties Files <a href="#">on page 7</a>.</p> <p>Open the <code>&lt;installer_directory&gt;/install.properties</code> file, modify the values for your environment and save the file. For the latest details about configuring the properties for your environment, refer to this wiki page: <a href="https://wiki.nci.nih.gov/x/NAUuAQ">https://wiki.nci.nih.gov/x/NAUuAQ</a>.</p>
3	<p><b>Record the property values you have set.</b></p> <p><b>Note:</b> 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.</p>
4	<p>From the command line, navigate to <code>&lt;installer_directory&gt;/(Example:cd C:\calIntegrator_2_0_installer)</code>, and type <b>ant</b>. This initiates the installation process. The anticipated duration is anywhere from 1-15 minutes, depending on your system's speed, power and memory.</p> <p>The installer installs the calIntegrator2 schema in the specified <b>pre-existing</b> database on your MySQL server, and installs, configures, and starts the JBoss server for the calIntegrator2 application.</p>
5	<p>To verify calIntegrator2 installation, open your web browser to <a href="http://&lt;jboss.server.hostname&gt;:&lt;jboss.server.port&gt;/calIntegrator">http://&lt;jboss.server.hostname&gt;:&lt;jboss.server.port&gt;/calIntegrator</a> Refer to the <code>&lt;installer_directory&gt;/install.properties</code> file for the correct values. Enter <b>manager</b> as the user and <b>manager</b> as the password.</p>
6	<p>After successfully installing calIntegrator2, make a backup of the <code>&lt;installer_directory&gt;/install.properties</code> file in a different directory for future reference.</p>


## Configuring JBoss

<p><b>NOTE</b></p> 	<p>For optimal performance, you must modify your JBoss 4.0.5 configuration to increase the amount of available memory for the calIntegrator2 application. Directions for doing this in Windows are in the following step 1.</p>
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To configure JBoss in Windows, follow these steps:

Step	Action
1	<p>Add the following entry to the JBoss <code>run.bat</code> file which is located will be located at <code>&lt;application_root_directory&gt;/jboss-4.0.5.GA/bin/run.bat</code>. Add the text right after the line "rem Add -server to the JVM options, if supported".</p> <pre>-server -Xms2048m -Xmx2048m -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</pre> <p><b>Warning:</b> 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 ensure that the text has no unwanted space and unwanted characters is to copy the text into a blank NotePad first. Then you can correct the spacing and copy-paste back into the <code>run.bat</code> file.</p>
2	<p>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 <code>shutdown.bat</code> and then <code>run.bat</code> under <code>\$JBoss_HOME/bin</code>. Refer to the publicly available JBoss user's guide at <a href="http://www.jboss.org">www.jboss.org</a> for more information.</p>

## Configuring JBoss Servers and MySQL Server to Run as Services

<p><b>NOTE</b></p> 	<p>MySQL and the JBoss server that make up calIntegrator2, 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 calIntegrator2 deployment, there are at least three servers, and if UPT is installed, four servers:</p> <ul style="list-style-type: none"> <li>• JBoss 4.0.4 for UPT (optional)</li> <li>• JBoss 4.0.5 (for calIntegrator2application)</li> <li>• MySQL 5.0.27</li> </ul>
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### Running JBoss as a Service

<p><b>NOTE</b></p> 	<p>The default calIntegrator2 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 calIntegrator2. 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.</p>
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To run JBoss as a service, follow these steps:

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

## Running MySQL as a Service

<p><b>NOTE</b></p> 	<p>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.</p>
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To run MySQL as a service, follow these steps:

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

## Post-Installation Tasks

### Using UPT to Add caIntegrator2 Users

To use the UPT, follow these steps (these assume that UPT is already installed and uses the database local to caIntegrator2):

Step	Action
1	<p>Login to UPT. Use the following login profile:</p> <ul style="list-style-type: none"> <li>Login ID=<i>cai2admin</i></li> <li>Password= <i>cai2@dmin</i></li> <li>Application Name=<i>caintegrator2</i></li> </ul>
2	<p>Add users to the caIntegrator2 application (see the UPT guide for more information).</p>

Step	Action
3	Click <b>Logout</b> .

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## Appendix I: Default Users

The following users are provided by default by the caIntegrator2 installer.

- manager / manager
  - investigator / investigator
  - cai2admin / cai2@dmin - This is the UPT user who will have access to provision caIntegrator2 users.
- 

## Contacting Application Support

NCICB	<a href="http://ncicb.nci.nih.gov/NCICB/support">http://ncicb.nci.nih.gov/NCICB/support</a>
Application	Telephone: 301-451-4384
Support	Toll free: 888-478-4423