

Setting up a Local Development Environment: IBIS-PH

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Setting up a development environment on your local machine. You could work directly on your IBIS-PH server, but it's safer to have a local development environment where you develop and test your work before putting it on the server, especially after your IBIS site goes public. So you'll need to have a local (your C:\drive) development environment set up. You will work in this environment, and make your changes/modifications here first, before deploying them to your server. Each state will probably have its own publishing policies (e.g., access rights to the server, test deployment on a test server prior to public deployment, etc.).

There are multiple ways to install these applications; I will just describe one that works at this point in time. You may want to check with your I.T. staff if you think you may need help, or may not have permission to install software on your computer.

Part One: Install Java Development Kit on your local development machine

The IBIS application and website won't work unless you have Java installed.

Java is a programming language and computing platform first released by Sun Microsystems in 1995. The language derives much of its syntax from C and C++ but has a simpler object model and fewer low-level facilities. Java is a general-purpose, concurrent, class-based, object-oriented language that is specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere". Java is currently one of the most popular programming languages in use, and is widely used from application software to web applications.



Java JRE 7 (either 32 or 64 bit) (Could be Java JRE 8 later...)

<http://www.oracle.com/technetwork/java/javase/downloads/jre7-downloads-1880261.html>

- 1) Go to the Sun Developer Network at: <http://www.oracle.com>
- 2) Hover over "Downloads" in the top menu and choose Java for Developers under Popular Downloads on the Left hand side.
- 3) Select "Java JDK" from the list of downloads available. This will take you to a new page.
- 4) Click on the "Download JDK" button in the second column of the first grey and white box under the four Java Product Buttons. This will take you to a new page.

- 5) Click on the circle to Accept License Agreement in the grey box.
- 6) Download the offline installation file for “Windows x86” which is near the bottom of the list: `jdk-7u21-windows-i586.exe`.
- 7) When the ‘Opening `jdk-7u21-windows-i586.exe`’ window pops up, select ‘Save File’.
- 8) Your computer will have a default location where it saves downloads. The easiest way to run the file you just downloaded is to click on it from the ‘Downloads’ window your browser will show when the file has completed downloading.
- 9) Run the `.exe` file, and follow the steps to install Java in your `C:\Program Files\Java` directory, using all of the default settings.
 - a. The first popup window is ‘Open Executable File?’ Select ‘OK’
 - b. The second popup window is ‘Java(TM) SE Development Kit 7 - Setup’. Select ‘Next’
 - c. The third popup window is ‘Java(TM) SE Development Kit 7 – Custom Setup’. Select ‘Next’
 - d. The fourth popup window shows you the installation progress. It will bring up another popup window, ‘Java Setup – Destination Folder’. It will default to Install to: `C:\Program Files\Java\jre7\`. This should be fine, so select ‘Next’.
 - e. The next popup window is ‘Java Setup – Close Programs’. Select ‘Close Programs and Continue’. Hit ‘Ok’ if you are prompted to.
 - f. The final popup window is ‘Java(TM) SE Development Kit 6 Update 25 – Complete’. Select ‘Finish’. This will take you to a new browser tab which will encourage you to register your Java Development Kit (JDK). I usually just close this tab.
- 10) You now need to set the PATH permanently for JAVA. To do this you will need to add the full path of the `jdk<version>\bin` directory to the PATH variable. Typically this full path looks something like `C:\Program Files\Java\jdk<version>\bin`. Set the PATH as follows on Microsoft Windows:
 - a. Click Start > Control Panel > System on Windows XP or Start > Settings > Control Panel > System on Windows 2000.
 - b. Click Advanced > Environment Variables.
 - c. Add the location of the JDK installation for PATH in the second box, (System Variables), by clicking on the ‘New’ button to bring up the ‘New System Variable’ dialog box.
 - i. Variable name: `JAVA_HOME`
 - ii. Variable value (January 19, 2012): `C:\Program Files\Java\jdk1.7.0 (No further folder name in order to make it work)`
 - d. Restart your computer

Part Two: Install Tomcat on your local development machine

The IBIS application and website won't work unless you have Tomcat installed.



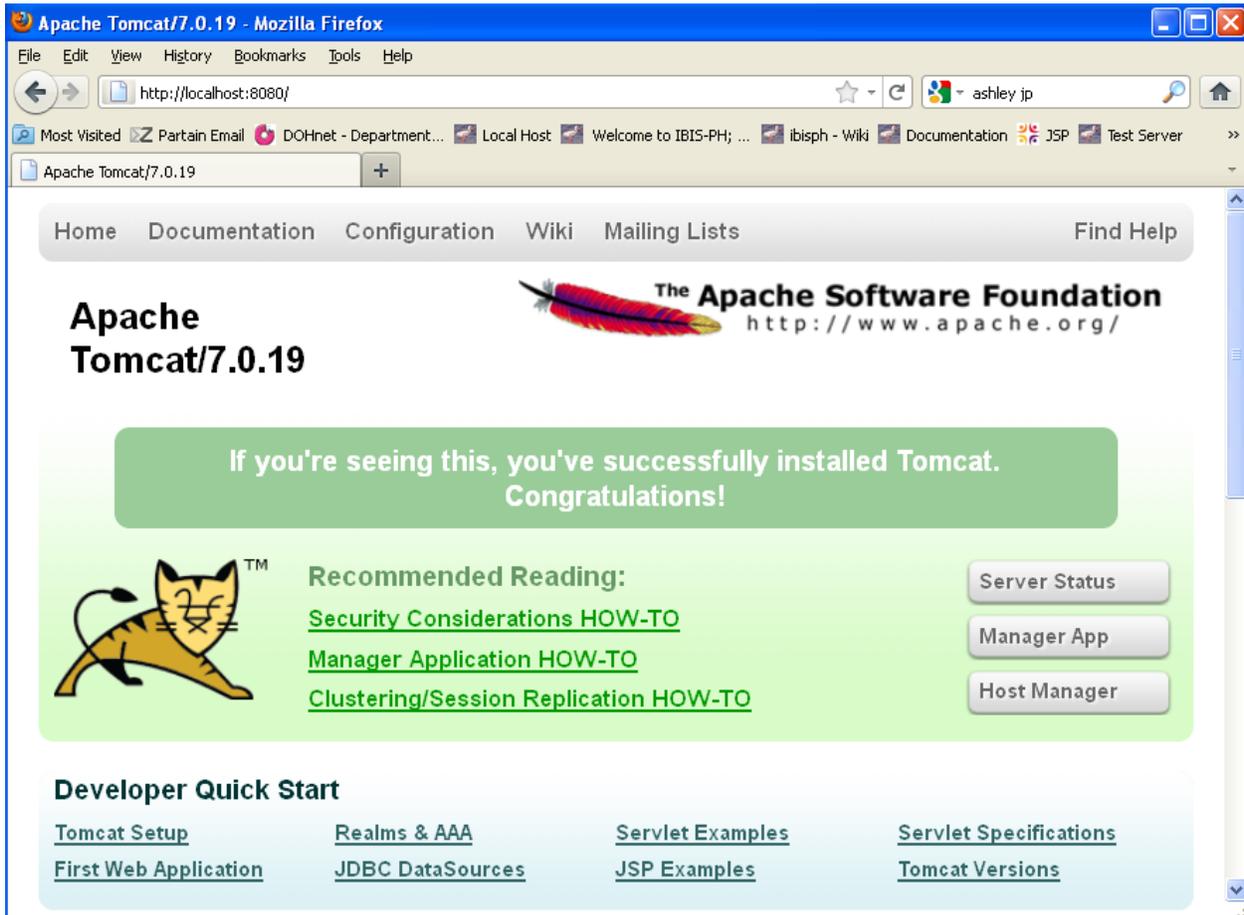
Apache Tomcat is an open source software implementation of the Java Servlet and JavaServer Pages technologies. Tomcat is like an operating system for web applications.

- 1) Go to The Apache Foundation Website at: <http://tomcat.apache.org/index.html>
- 2) Select “Tomcat 7.0” from the list of Apache projects on the left. As of January 19, 2012, the most recent version is 7.0.23. (Could be Tomcat 8.0 etc. later)
- 3) Scroll down to the section “Binary Distributions”. Under the “Core” bullet, select the file called 32-bit Windows zip (pgp, md5). If you have a newer machine, you might need to download the 64-bit version of the program. To find out what processor your computer has, follow the following steps:
 - a. On your window’s toolbar, click on the ‘Start’ button, then go to ‘My Computer’.
 - b. While your cursor is on ‘My Computer’, right click to bring up the menu.
 - c. Choose ‘Properties’
 - d. This will bring up a new window called ‘System Properties’. Make sure you are on the ‘General’ tab, which will show you what processor your computer uses. For example, the laptop I am currently using shows that it is using Microsoft Windows XP. XP is a 32-bit system. If your computer has a 64-bit processor it will say so.
- 4) Save the file to your C:\ drive or some place you will be able to find it, such as a dedicated “Downloads” folder.
- 5) Unzip the files to your C:\ drive. This will create a new folder you can use for the IBIS 2.1 set up. As of January 19, 2012, the file created is: **apache-tomcat-7.0.23**

The yellow highlighted name should be used consistently in the following set up.

- 6) Your Tomcat folder should have the following contents:
 - a. Subdirectories: bin, conf, lib, logs, temp, webapps, and work
 - b. Files: LICENSE, NOTICE, RELEASE-NOTES, RUNNING.txt
- 7) Create a shortcut on your desktop for starting up Tomcat:
 - a. Go to your desktop and right click on an empty spot to bring up the menu.
 - b. Select New → Shortcut
 - c. Use the browse function get to the location of the startup item: **C:\apache-tomcat-7.0.23\bin\startup.bat**. For some reason, when we typed the path in instead of using browse to point to it, the Tomcat shortcut did not work.
 - d. Name the shortcut “Tomcat-2” or something similar
- 8) Test Tomcat to make sure it is installed properly
 - a. Double click on your new shortcut to start Tomcat

- b. Start any browser
- c. In the address bar, type in <http://localhost:8080>
- d. Hit enter
- e. You should be directed to an Apache Tomcat page with the message “If you're seeing this page via a web browser, it means you've setup Tomcat successfully. Congratulations!” (see Figure 1)



- 9) (**Must have**) You will now need to download 3 dependent *.jar files and place in your C:/local tomcat name/lib folder:

Additional jar files not included in application (or must be renamed to make active), or required for additional functionality that must be placed in tomcat\lib - available in the UT repository

- a. commons-logging-1.1.3.jar
http://www.ibisph.org/trac/browser/adopters/tools/additional_jars/jars_for_logging/commons-logging-1.1.3.jar
- b. log4j-1.2.17.jar
http://www.ibisph.org/trac/browser/adopters/tools/additional_jars/jars_for_logging/log4j-1.2.17.jar

- c. javamail - mail.1.4.4.jar
http://www.ibisph.org/trac/browser/adopters/tools/additional_jars/javamail/mail-1.4.4.jar

If you need help installing Tomcat, please see
<http://ibis.health.utah.gov/docs/view/install/Tomcat.html> for more detailed information.

Part Three: Install Tortoise SVN on your machine



TortoiseSVN

We use TortoiseSVN as a tool to communicate between our local desktop files and our repository.

TortoiseSVN is a software program that allows you to access the file repository from your WINDOWS EXPLORER window (the "file manager" Explorer, not Internet Explorer). If you're an IBIS software adopter, you'll want to use Tortoise because it allows you to download entire directories from the file repository, and allows you to update your version to the latest repository version.

- 1) Download the most recent version of TortoiseSVN 32-bit from <http://tortoisesvn.net/downloads.html> by clicking on the blue button which says 'TortoiseSVN 32-Bit'. As of January 19, 2012, the current version is 1.7.4. (If you are unsure of your processor, follow the steps in Part Two of this document, section 3), a-d.
- 2) A new dialog box will come up titled "Opening TortoiseSVN-1.7.4.22459-win32-svn-1.7.4.msi". Select "Save File"
- 3) Your computer will have a default location where it saves downloads. The easiest way to run the file you just downloaded is to click on it from the 'Downloads' window your browser will show when the file has completed downloading.
- 4) Run the *.msi file, and follow the steps to install TortoiseSVN in your C:\Program Files\Java directory.
 - a. The first popup window is 'Open Executable File?' Select 'OK'.
 - b. The second popup window is 'TortoiseSVN 1.7.4.22459 (32 bit) Setup'. Select 'Next', then follow the prompts to install the program using the default settings.
 - c. The last window which will pop up will tell you that you need to restart your system. Select "Yes" to restart your system.

Part Four: Install the IBIS-View 2.1 application on your local machine

- 1) Once TortoiseSVN has been installed, you will need to **export the core code to your local tomcat**.
 - a. Open Windows Explorer
 - b. Browse to the new Tomcat folder you just created. In this example, the folder is called 'apache-tomcat-7.0.23'
 - c. From apache-tomcat-7.0.23, open the folder 'webapps'
 - d. Right click in the webapps folder and choose TortoiseSVN > Export
 - e. You will be prompted to fill in a path for the 'URL of Repository'. To do this you will need to type in <http://www.ibisph.org/svn/main> and then hit the ellipses '...' button
 - f. Once you hit the '...' button, you will be able to see the core documents
 - g. Browse to:
 - a) <http://www.ibisph.org/svn/main/tags/releases/2.2/2.2.0/ibisph-view/src/main/webapp>
 - b) *Make sure you have clicked on the 'webapp' folder and that the complete path shows in the URL: box at the top of the window*
 - h. Hit 'Ok' to confirm the path you selected
 - i. In the Export popup, make sure that
 - a) The URL of repository is:
<http://www.ibisph.org/svn/main/tags/releases/2.2/2.2.0/ibisph-view/src/main/webapp>
 - b) The Export directory default will say C:\apache-tomcat-7.0.29\webapps\webapp. **You will need to change it so that it looks like this: C:\apache-tomcat-7.0.29\webapps\ibisph-view.** If you do not make this change, your files will not load correctly.
 - j. Hit 'Ok' to download the files. You should see a popup window with purple text showing the files you are exporting. When it is done exporting, hit 'Ok' to close the popup.
- 2) You will now need to **export your state-specific files**
 - a. From C:\apache-tomcat-7.0.25\webapps\ibisph-view right click and choose TortoiseSVN Export
 - b. You will be prompted to fill in a path for the 'URL of Repository'. To do this you will need to type in <http://www.ibisph.org/svn/main> and then hit the ellipses '...' button
 - c. Once you hit the '...' button, you will be able to see the documents
 - d. Click on the '...' to set the URL Repository to <http://www.ibisph.org/svn/main/adopters/ut/trunk/src/main/webapps/ibisph-view>
 - e. Hit OK
 - f. The URL of repository should be set to <http://www.ibisph.org/svn/main/adopters/ut/trunk/src/main/webapps/ibisph-view>

- g. The Export directory default will say C:\apache-tomcat-7.0.29\webapps\ibisph-view\ibisph-view. You will need to delete the redundant 'ibisph-view' so that the line look like this: C:\apache-tomcat-7.0.29\webapps\ibisph-view. If you do not make this change, your files will not load correctly.
- h. Hit 'Ok' to export the files
- i. You will get a pop-up window that says "The target folder C:\apache-tomcat-7.0.14\webapps\ is not empty! Are you sure you want to checkout/export into that folder?"
- j. Hit 'Yes' to begin the export. When it is done, hit 'Ok' to close the Export box.

3) **Checkout IBISph-Content** to your local drive. This file will be on the same level as your ibisph-view folder

- a. From C:\apache-tomcat-7.0.29\webapps, right click and choose TortoiseSVN—RepoBrowser
- b. A generic URL box will come up. Click OK to continue to the next step.
- c. A new window will come up. From the left-hand nav screen navigate to <http://www.ibisph.org/svn/main/adopters/ut/trunk/src/main/webapps/ibisph-content>
- d. Hover over the 'ibisph-content' folder and right-click to select checkout.
- e. The URL of repository will be set to:
<http://www.ibisph.org/svn/main/adopters/ut/trunk/src/main/webapps/ibisph-content>
- f. The 'Export directory' should be set to: C:\apache-tomcat-7.0.29\webapps\ibisph-content
- g. The Checkout Depth should be fully recursive
- h. Hit 'Ok' to export the files

You should **make sure that your state files loaded properly**. To do this, follow these steps:

- a. Start your local host by double clicking on your 'apache-tomcat-7.0.23' shortcut on your desktop. This will bring up the black Tomcat dialog window
- b. Start any browser
- c. In the address bar, type in <http://localhost:8080/ibisph-view>
- d. Hit enter
- e. You should see the IBIS-PH page. *Utah can tell that this is our site because you will see Utah feel and look web site.*

At this point your local site will be totally functional. In order to make changes to your local code and submit them to your repository, you need to continue onto the next step to checkout your state files. This will create the link between your local development environment and the file repository on the server.