Google code

Google App Engine

Using Apache Ant

If you are not using Eclipse and the Google Plugin for Eclipse, you'll probably want some other way to manage the process of building and testing your App Engine application. Apache Ant makes it easy to manage your project from the command line, or from other IDEs that work with Ant. The Java SDK includes a set of Ant macros to perform common App Engine development tasks, including starting the development server and uploading the app to App Engine.

This article describes an Ant build file useful for most projects. To skip the description and go directly to the complete file for copying and pasting, see The Complete Build File.

Installing Ant

If you do not already have Ant installed on your system, visit the Apache Ant web site to download and install it.

When Ant is installed and the `ant` command is on your command path, you can run the following command to verify that it works, and see which version is installed:

```
ant -version
```

The Project Directory

As described in the Getting Started Guide, your App Engine project must produce a directory structure using the WAR standard layout for Java web applications. (WAR archive files are not yet supported by the SDK.)

For these instructions, we will put all project-related files in a single directory named `Guestbook/` (for the guest book project described in the Getting Started Guide), with a subdirectory named `src/` for Java source code and a subdirectory named `war/` for the finished application files. The build process will compile the source code, and put the compiled Java bytecode in the appropriate location under `war/`. You will create other files for the WAR directly in the `war/` directory.

The complete project directory should look like this:

```
Guestbook/
  src/
    ...Java source code...
    META-INF/
      ...other configuration...
  war/
    ...JSPs, images, data files...
    WEB-INF/
      ...app configuration...
      classes/
        ...compiled classes...
      lib/
        ...JARs for libraries...
```

To create this directory structure from the command prompt, use the following commands. If you are using Windows, change the forward slashes `/` in these paths to backslashes `\`. (Within the Ant file itself, paths using forward slashes `/` work for all operating systems.)

```
mkdir Guestbook
cd Guestbook
mkdir src/META-INF
```

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