Software Installation Guide: FireCloud Tool Developers Workshop - August 12th, 2016

Attendees, please download and install the following software on your laptop ahead of the workshop:

### **WDL**

WDL, pronounced “widdle”, stands for Workflow Description Language. FireCloud workflows are described using this language.

#### **wdltool**

The [wdltool](https://github.com/broadinstitute/wdltool) toolkit is a utility package that provides accessory functionality for writing and running WDL scripts, including syntax validation and input template generation. You can download the latest release of the pre-compiled executable [here](https://github.com/broadinstitute/wdltool/releases).

#### **Text editor**

You will need a text editor of some sort to write your WDL scripts. If you have no preferred text editor, we would recommend installing [SublimeText](http://www.sublimetext.com/), as we find that it displays code visually better than other text editors we've tried. As an added convenience when developing WDL scripted workflows, syntax highlighting has been developed for [SublimeText](https://github.com/broadinstitute/wdl/tree/master/highlighters/SublimeText#installation-sublimetext), [TextMate](https://github.com/broadinstitute/wdl/tree/master/highlighters/SublimeText#installation-textmate), [vim](https://github.com/broadinstitute/vim-wdl), and [IntelliJ](https://github.com/broadinstitute/winstanley#winstanley-an-intellij-plug-in-for-wdl). You can follow the links for installation instructions for your editor of choice.

### **Cromwell**

Cromwell is an execution engine capable of running scripts written in WDL, describing data processing and analysis workflows involving command line tools. FireCloud employs Cromwell as its workflow execution service. Cromwell may be run locally, providing tool developers with a test environment for their WDL workflows before uploading them to FireCloud for execution in the cloud.

The installation of a local instance of Cromwell itself is quite simple. The latest release can be downloaded [here](https://github.com/broadinstitute/cromwell/releases) in the form of a pre-compiled jar. For ease of use, you can also add an environment variable to your terminal profile pointing at the Cromwell jar file.

OS X users can install Cromwell with Homebrew: brew install cromwell.

#### **Java 8**

Cromwell requires Java version 8, which you can find [here](http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html).

### **Docker Toolbox**

In FireCloud, tasks (computational steps within a workflow) run in Docker containers. The dockerization and initial testing of tools is typically done in Docker containers running on a local machine (e.g., desktop/laptop). You will need to set up a local development environment for dockerizing and testing your bioinformatics tools. Docker Toolbox delivers all the Docker tools to your Mac OS X or Windows Desktop/Laptop. Docker Toolbox can be downloaded [here](https://www.docker.com/products/docker-toolbox). Install it according to your operating system, following the instructions given on the installation page.

### **Optional: Docker for Mac and Docker for Windows.**

### Docker recently released [Docker for Mac](https://docs.docker.com/) (OS X 10.10.3 Yosemite or higher) and [Docker for Windows](https://docs.docker.com/) (64 bit Windows 10 Pro or higher). The stable versions of [Docker for Mac](https://docs.docker.com/) and [Docker for Windows](https://docs.docker.com/) are both acceptable alternatives to Docker Toolbox. Download Docker for Mac [here](https://docs.docker.com/docker-for-mac/). Download Docker for Windows [here](https://docs.docker.com/docker-for-windows/).

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### **FireCloud CLI**

The FireCloud CLI enables tool developers to push, pull, list or redact methods and method configurations to or from FireCloud’s method repository. While it can be downloaded and installed (see instructions [here](https://github.com/broadinstitute/firecloud-cli)), we highly recommend you run the dockerized version (dockerhub pull command docker pull broadinstitute/firecloud-cli).

You can receive live support for software installation through a [Google Hangout](https://hangouts.google.com/hangouts/_/broadinstitute.org/software-installation-support)on **Wednesday, August 10th** from **1:00 PM to 2:00 PM EDT**. Or, post your installation questions in our [Help Forum](http://gatkforums.broadinstitute.org/firecloud).