

# Real Time Search and Analytics on Big Data

## About the READMEs

Markdown (.md) is a human readable text format often used in version control software like GitHub. MarkDown easily converts to HTML and PDF so users can choose which format their prefer. Several text editors like Sublime Text 2 and TextMate have markdown bundles in which users can use to view a color formatted version of the files. If you do not have one of these text editors you can always use your OS default text editor to open the MarkDown files, use a browser to view the HTML files, or a PDF viewer to view the PDF files.

## Introduction

Welcome to the Real Time Search and Analytics on Big Data tutorial. In this tutorial you will learn about Lucene, Solr, and how these search technologies can be used on big data in real time. Specifically we will cover:

- Lucene Indexing and Querying
- Running Solr Locally
- Using the Solr Administrative UI
- Creating a Solr Schema
- Indexing Documents in Solr
- Querying the Solr Index
- Demo - Real Time Indexing
- Demo - Big Data Indexing
- Running Solr Cloud

## Tips

- If you lose track or fall behind with the tutorial, read the READMEs! You should be able to complete the exercises with the instructions provided.
- If the classroom is large, it will be tough for the instructor to provide any kind of 1 on 1 help. Please wait for a break to ask questions, or quietly ask a neighbor.
- If you are running Windows, I would suggest you set up an Ubuntu 12.04 LTS (<http://www.ubuntu.com/download/desktop>) virtual machine with VirtualBox (<https://www.virtualbox.org/wiki/Downloads>).

## Prerequisites

### Setup

I would recommend the user has the following

- Internet connectivity will be required to build the Maven projects as Maven will automatically download any dependencies specified in the POM file.
- Linux based or Mac OS X Operating System. Windows users can use Cygwin.
- Eclipse IDE for J2EE (not required, but helpful to browse code and write JUnit tests). I use Eclipse Juno but older versions should work.
- Maven2Eclipse Plugin for Eclipse (not required, but aids in importing/building Maven projects)
- Maven version 3 or higher (required to build shaded executable jars)

### Environment

There are two kinds of exercises Internet connectivity will be required to build the Maven projects as Maven will automatically download any dependencies specified in the POM file.

### Knowledge

Students should have some unix knowledge (basic commands like cd, ls, mkdir, etc). It is helpful but not required to know Java and SQL.

### Set the properties

Make sure to set all of the variables in the tutorial.properties file found in the exercises directory. These properties will be picked up by the all of the jar files in the exercises.

For example:

### To Download Eclipse

- Navigate your web browser to <http://www.eclipse.org/downloads/>
- Download the version that corresponds with your system. I use the Eclipse IDE for Java EE Developers
- Installation instructions may vary per your OS. For Linux and Mac OS X the download will include an executable called eclipse that you can run directly from the download folder (or if you would prefer you can move the download into an applications directory).

### To install the M2E Plugin

- Eclipse -> Help -> Install New Software
- You will see the following page
- Select add next to the work with box
- Name: Whatever you would like to name the plugin
- Location: <http://download.eclipse.org/technology/m2e/releases>
- Select OK.
- Check the box that comes up, and press next.
- Continue to press next, accept agreement, etc until the plugin is installed.

### To import the project in Eclipse with the M2E Plugin

- File -> Import
- Maven -> Existing Maven Project
- Browse
- Find github directory on your computer -> open
- Select all projects -> finish
- Pat yourself on the back, all of the projects are imported

## Sample Data

Sample data is provided in the /data directory.