

1. Introduction

Systems-Level Interactive Data Exploration (SLIDE) is a user-driven interactive visualization tool for large-scale –omics data. SLIDE can organize and visualize quantitative –omics data in expression based heatmaps on a standard web browser. It allows users to interactively navigate through the heatmaps and create sub-analyses of selected feature sets. It can be used to visualize the data at different levels of granularity through multiple simultaneous views.

This manual is a step-by-step installation and configuration guide for running SLIDE on Microsoft Windows.

2. Installation

2.1 System requirements

SLIDE has been tested on various systems. The table below shows a typical system configuration that would work well with SLIDE:

Operating System	Windows 10 or Windows 7
CPU	Intel Xeon CPU E5-1620 v4 @ 3.50 GHz Intel Core i7-6700HQ CPU @2.60 GHz Intel Core i7-4600U CPU @2.10 GHz
Memory	16 GB RAM
Web browser	Microsoft Internet Explorer (recommended)

2.2 Prerequisites

SLIDE requires the following software to be available on the system before you can configure it to run. To install the prerequisites you must have administrative permissions. For detailed instructions with screen captures on installing the prerequisites, see [section 2.5](#). The process is also briefly described below.

Java Development Kit (JDK)

<http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>

For 32-bit systems, `jdk-8uxxx-windows-i586.exe` is the JDK installer

For 64-bit systems, `jdk-8uxxx-windows-x64.exe` is the JDK installer

Detailed instructions for JDK installation for Microsoft Windows are available [here](#).

GlassFish Server

<http://download.oracle.com/glassfish/4.1.1/release/index.html>

1. Download `glassfish-4.1.1.zip`
2. Unzip the folder
3. Place it in your preferred installation directory

A detailed GlassFish server installation guide can be found in Page 12 of this [document](#).

MongoDB

<https://www.mongodb.com/download-center#community>

MongoDB requires creating a specific directory that it uses as its repository. Create `data\db` directories in the same drive where MongoDB was installed to set up the MongoDB environment as shown in Figure 8.

Detailed instructions for Windows MongoDB installation can be found [here](#).

Python

<https://www.anaconda.com/download/#windows>

Download Python 3.6, 64-bit or 32-bit depending on system architecture.

Detailed installation instructions for Anaconda's implementation of Python are available [here](#).

Note: Select the option 'Add Anaconda to my PATH environment variable' during installation as shown in Figure 10.

Numpy (Python Package)

Anaconda's implementation of Python has Numpy pre-installed, so no additional configuration steps are required here. For other implementations of Python Numpy may have to be installed separately.

Scipy (Python Package)

<https://anaconda.org/anaconda/scipy>

To install Scipy:

1. Start 'Command Prompt' with administrator privileges as shown in Figure 1.
2. Issue the following command:

```
conda install -c anaconda scipy
```

fastcluster (Python Package)

<https://anaconda.org/conda-forge/fastcluster>

To install fastcluster 1.1.23 use the following command in 'Command Prompt':

```
conda install -c conda-forge fastcluster
```

After the dependencies are installed, go to Section 2.3 for instruction on how to download and configure SLIDE.

2.3 SLIDE Download and Configuration

SLIDE can be downloaded from <https://github.com/soumitag/SLIDE/raw/master/application/slide.zip>. To install SLIDE unzip `slide.zip` into your preferred installation directory.

To setup SLIDE:

Open a *Command Prompt* (as administrator)

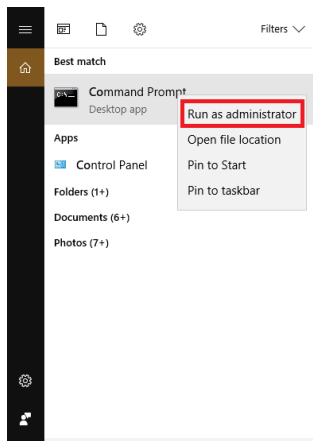


Figure 1. Start *Command Prompt* as administrator

```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\WINDOWS\system32>D:
D:\>cd slide
D:\slide>configure_slide.bat
Please Provide Path to Java Installation Directory (For instance if the path to java.exe on
Java Installation Path as C:\Program Files\Java\jdk1.8.0_102\bin):C:\Program Files\Java\jdk
D:/slide/
C:/Program Files/Java/jdk1.8.0_144/bin
WINDOWS
Please Provide Path to Glassfish Server Installation Directory:
C:\glassfish-4.1.1\glassfish4\bin
Please Provide Path to the "bin" folder in MongoDB Installation Directory:
C:\Program Files\MongoDB\Server\3.4\bin
Please Provide Path to python.exe:
C:\ProgramData\Anaconda3
Generating SLIDE configuration files...
Done.
Generating SLIDE web configuration files...
Done.
Checking python dependencies...
Python dependency check successful.
Done.
Creating executables...
Done.
Validating MongoDB storage...
Done.
Creating databases in MongoDB...
Importing collection 1 of 5...done
Importing collection 2 of 5...done
Importing collection 3 of 5...done
Importing collection 4 of 5...done
Importing collection 5 of 5...done
Done.
SLIDE configured successfully!
To start SLIDE run D:\slide\bin\start-slide.bat
To stop SLIDE run D:\slide\bin\stop-slide.bat

D:\slide>
```

Figure 2. Configuring SLIDE

1. Run the `configure_slide.bat` file located inside the `slide` folder. To run the `.bat` file use the following command (as marked in 1 and 2 of Figure 2):
`configure_slide.bat`
2. On running the `.bat` file you will be prompted to enter the following information:
 - a. Path to Java Installation Directory
Provide the path to the folder containing the target `java.exe` on your system as shown in 3 of Figure 2.
 - b. Path to GlassFish Server Installation Directory

Provide the path to the “bin” folder inside the GlassFish Server Installation Directory as shown in 4 of Figure 2.

c. Path to MongoDB Installation Directory

Provide the path to the “bin” folder inside the target MongoDB installation directory as shown in 5 of Figure 2.

d. Path to Python Installation Directory

Provide the path to the directory containing the target python.exe file as shown in 6 of Fig. XX.

```
REM script - but ONLY to define AS_JAVA. Any calling script should not
REM rely on the other settings because the relative paths will be resolved
REM against the current directory when the calling script is run, not the
REM installation directory of GlassFish, and such resolution will not work
REM correctly unless the script happens to be run from the GlassFish installation
REM directory.
REM

set AS_IMQ_LIB=..\..\mq\lib
set AS_IMQ_BIN=..\..\mq\bin
set AS_CONFIG=..\config
set AS_INSTALL=..
set AS_DEF_DOMAINS_PATH=..\domains
set AS_DEF_NODES_PATH=..\nodes
set AS_DERBY_INSTALL=..\..\javadb
set AS_JAVA=C:\Program Files\Java\jdk1.8.0_144
```

Figure 3. Updating asenv.bat to set the Java used by GlassFish

3. Set JDK path used by GlassFish Server

Append the following line to the asenv.bat file as shown in Fig. XX:

```
SET AS_JAVA=C:\Program Files\Java\jdk1.8.0_144
```

(where C:\Program Files\Java\jdk1.8.0_144 is the path to your JDK installation. Note that this path does not include the “bin” folder)

The asenv.bat file can be found in the glassfish\config folder inside GlassFish installation directory. For instance, if GlassFish is installed on your PC at: C:\Program Files\glassfish-4.1.1 the asenv.bat file can be found at C:\Program Files\glassfish-4.1.1\glassfish\config\asenv.bat.

2.4 Start and Stop SLIDE

To start SLIDE run slide\bin\start-slide.bat.

To start using SLIDE open Microsoft Internet Explorer and go to <http://localhost:8080/VTBox/>.

To stop SLIDE run slide\bin\stop-slide.bat.

2.5 Installing Dependencies

2.5.1 JDK Installation

Download the appropriate JDK 1.8 from

<http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>

For 32-bit systems, download `jdk-8uxxx-windows-i586.exe`

For 64-bit systems, download `jdk-8uxxx-windows-x64.exe`

In the following figure, `jdk-8u144-windows-x64.exe` is for the 64-bit systems.

See also:

- Java Developer Newsletter: From your Oracle account, select **Subscriptions**, expand **Technology**, and subscribe to **Java**.
- Java Developer Day hands-on workshops (free) and other events
- Java Magazine

JDK 8u144 checksum

Java SE Development Kit 8u144

You must accept the [Oracle Binary Code License Agreement for Java SE](#) to download this software.
Thank you for accepting the Oracle Binary Code License Agreement for Java SE; you may now download this software.

Product / File Description	File Size	Download
Linux ARM 32 Hard Float ABI	77.89 MB	jdk-8u144-linux-arm32-vfp-hflt.tar.gz
Linux ARM 64 Hard Float ABI	74.83 MB	jdk-8u144-linux-arm64-vfp-hflt.tar.gz
Linux x86	164.65 MB	jdk-8u144-linux-i586.rpm
Linux x86	179.44 MB	jdk-8u144-linux-i586.tar.gz
Linux x64	162.1 MB	jdk-8u144-linux-x64.rpm
Linux x64	176.92 MB	jdk-8u144-linux-x64.tar.gz
Mac OS X	226.6 MB	jdk-8u144-macosx-x64.dmg
Solaris SPARC 64-bit	139.87 MB	jdk-8u144-solaris-sparcv9.tar.Z
Solaris SPARC 64-bit	99.18 MB	jdk-8u144-solaris-sparcv9.tar.gz
Solaris x64	140.51 MB	jdk-8u144-solaris-x64.tar.Z
Solaris x64	96.99 MB	jdk-8u144-solaris-x64.tar.gz
Windows x86	190.94 MB	jdk-8u144-windows-i586.exe
Windows x64	197.78 MB	jdk-8u144-windows-x64.exe

Java SE Development Kit 8u144 Demos and Samples Downloads

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Product / File Description	File Size	Download
Linux ARM 32 Hard Float ABI	9.95 MB	jdk-8u144-linux-arm32-vfp-hflt-demos.tar.gz
Linux ARM 64 Hard Float ABI	9.94 MB	jdk-8u144-linux-arm64-vfp-hflt-demos.tar.gz
Linux x86	52.66 MB	jdk-8u144-linux-i586-demos.rpm
Linux x86	52.52 MB	jdk-8u144-linux-i586-demos.tar.gz
Linux x64	52.72 MB	jdk-8u144-linux-x64-demos.rpm
Linux x64	52.54 MB	jdk-8u144-linux-x64-demos.tar.gz
Mac OS X	53.09 MB	jdk-8u144-macosx-x86_64-demos.zip
Solaris x64	13.52 MB	jdk-8u144-solaris-x64-demos.tar.Z

Figure 4. JDK1.8 download

2.4.2 GlassFish Server Installation

To download GlassFish Server go to

<http://download.oracle.com/glassfish/4.1.1/release/index.html> and follow the steps shown in Figures 5 and 6.





Name	Last modified	Size
 Parent Directory		-
 nightly/	Jan 12 2017	-
 promoted/	Sep 19 2015	-
 release/	Sep 24 2015	-

Figure 5. GlassFish Server download step 1






	Name	Last modified	Size
	Parent Directory		-
	version-info-4.1.1.txt	Sep 24 2015	112
	nucleus-4.1.1.zip	Sep 24 2015	20M
	glassfish-4.1.1.zip	Sep 24 2015	105M
	glassfish-4.1.1-web.zip	Sep 24 2015	58M

Figure 6. GlassFish Server download step 2

2.4.3 MongoDB Installation

Download the Windows MongoDB installation from <https://www.mongodb.com/download-center#community> as shown in Figure 7.

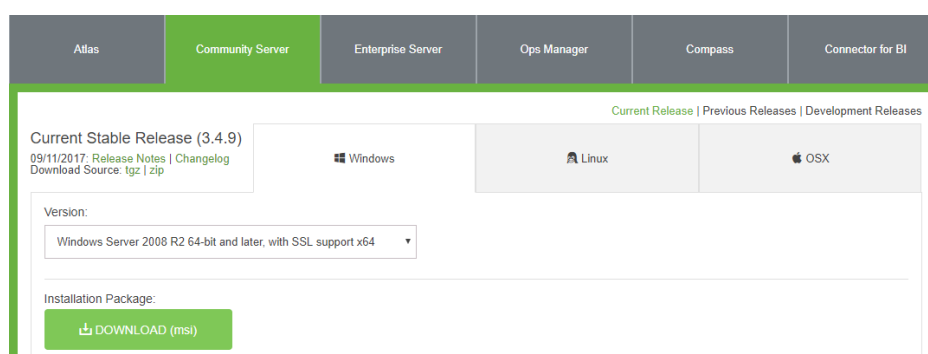


Figure 7. MongoDB download

MongoDB requires creating a specific directory that it uses as its repository. Create the `data\db` directories in the same drive where MongoDB was installed to set up the MongoDB environment, as shown in Figure 8.

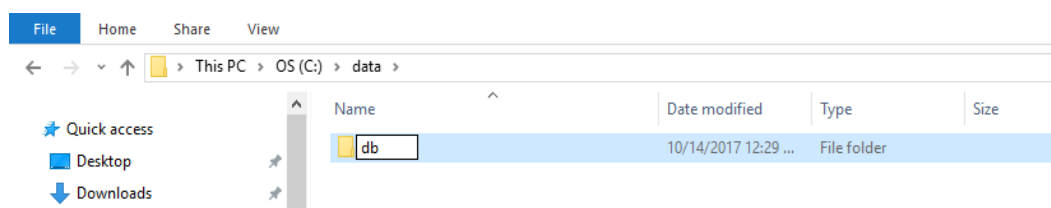


Figure 8. Creating `data\db` folder structure in same drive where MongoDB is installed

2.4.4 Anaconda Python Installation

Download Python 3.6, 64-bit or 32-bit depending on your system architecture from <https://www.anaconda.com/download/#windows>. During installation, select the option to add Anaconda to the system PATH variable as shown in Figure 10.

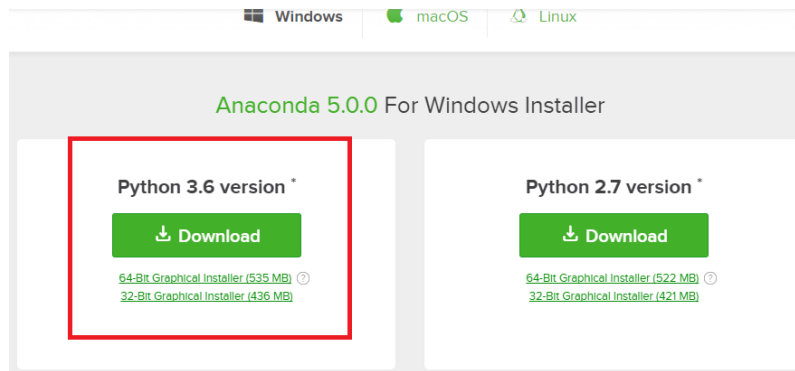


Figure 9. Anaconda download

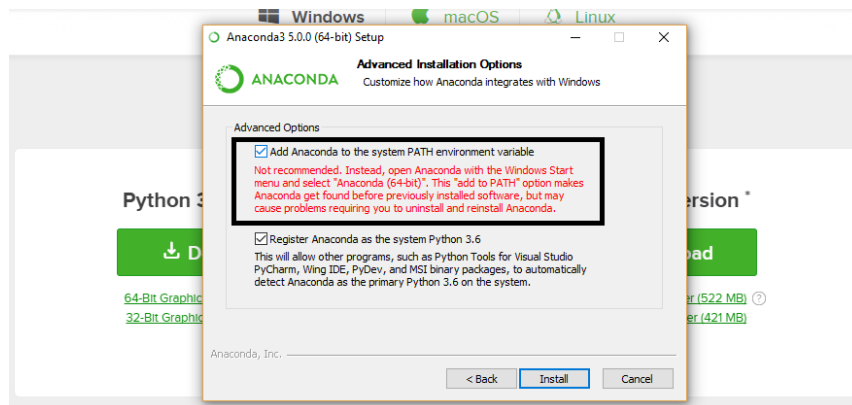


Figure 10. Select the option to add Anaconda to the system PATH variable

2.4.5 Scipy Installation

For the installation of Python package Scipy, open a *Command Prompt* as administrator as shown in Figure 1. Issue the command as highlighted in red in Figure 11.

```

C:\> Administrator: Command Prompt - conda install -c anaconda scipy
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\WINDOWS\system32>conda install -c anaconda scipy
Fetching package metadata .....
Solving package specifications: .

Package plan for installation in environment C:\ProgramData\Anaconda3:

The following packages will be UPDATED:

  conda:      4.3.27-py36hcbae3bd_0 --> 4.3.29-py36h7c1b203_0 anaconda

The following packages will be SUPERSEDED by a higher-priority channel:

  conda-env: 2.6.0-h36134e3_1 --> 2.6.0-h36134e3_1 anaconda
  scipy:     0.19.1-py36h7565378_3 --> 0.19.1-py36h7565378_3 anaconda

Proceed ([y]/n)? y

```

Figure 11. Conda install Anaconda Scipy

2.4.6 fastcluster Installation

For the installation of Python package fastcluster, open a *Command Prompt* as administrator as shown in Figure 1. Issue the command as highlighted in red in Figure 12.

```
C:\WINDOWS\system32>conda install -c conda-forge fastcluster
Fetching package metadata .....
Solving package specifications: .

Package plan for installation in environment C:\ProgramData\Anaconda3:

The following NEW packages will be INSTALLED:

    fastcluster: 1.1.23-np113py36_0    conda-forge

The following packages will be SUPERSEDED by a higher-priority channel:

    conda:         4.3.29-py36h7c1b203_0 anaconda    --> 4.3.29-py36_0 conda-forge
    conda-env:     2.6.0-h36134e3_1    anaconda    --> 2.6.0-0 conda-forge

Proceed ([y]/n)? y

conda-env-2.6. 100% |#####| Time: 0:00:00 66.06 kB/s
fastcluster-1. 100% |#####| Time: 0:00:01 37.48 kB/s
conda-4.3.29-p 100% |#####| Time: 0:00:03 147.38 kB/s

C:\WINDOWS\system32>
```

Figure 12. Conda install fastcluster package