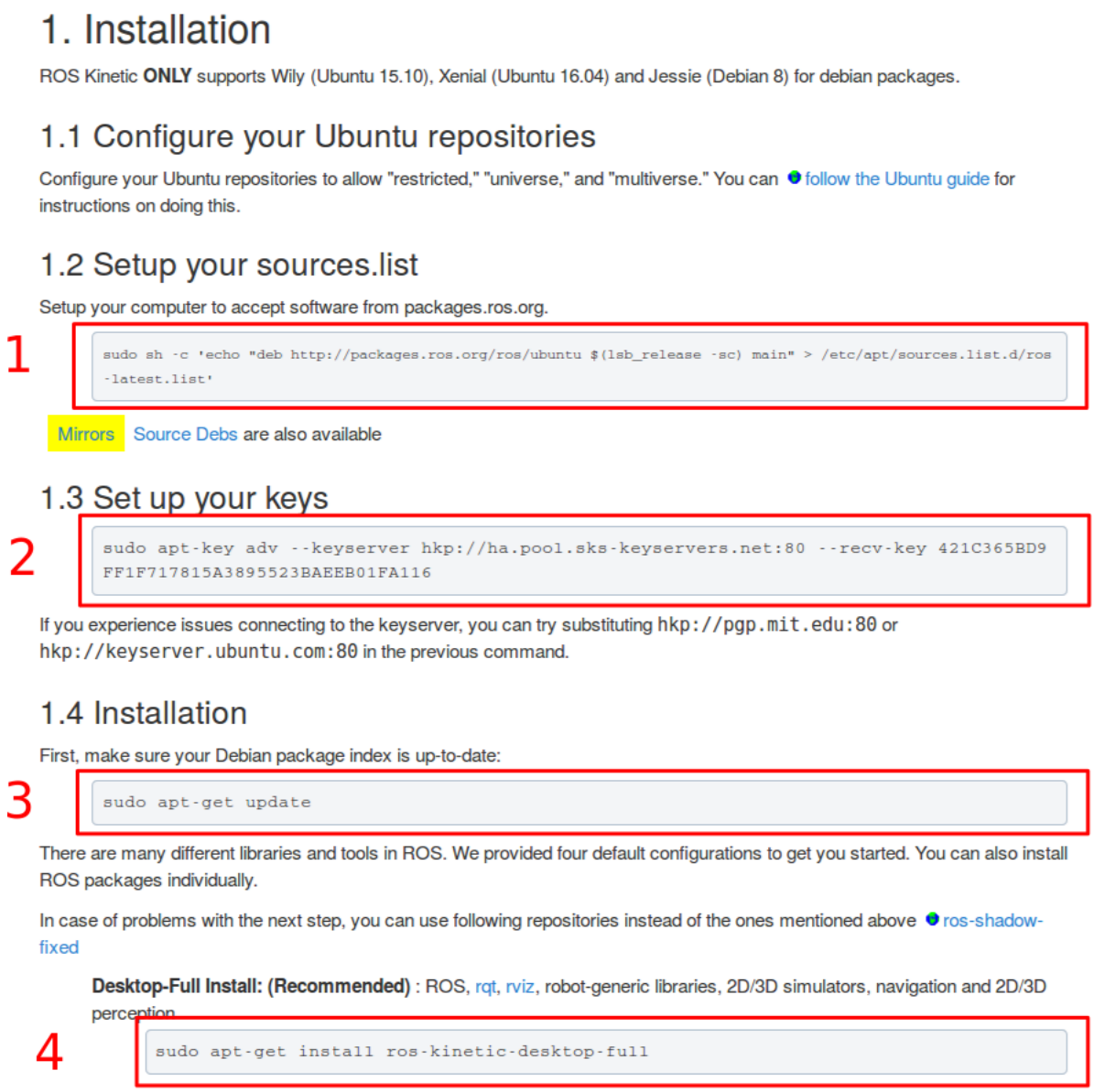
Installing the Ubuntu Linux Operating System

ME 4140 - Introduction to Robotics - Fall 2017

1. If your Ubuntu Operating System is running you are ready to install ROS! Website

2. Open a terminal and enter the commands in the red boxes in order.



1. Installation

ROS Kinetic **ONLY** supports Wily (Ubuntu 15.10), Xenial (Ubuntu 16.04) and Jessie (Debian 8) for debian packages.

1.1 Configure your Ubuntu repositories

Configure your Ubuntu repositories to allow "restricted," "universe," and "multiverse." You can follow the Ubuntu guide for instructions on doing this.

1.2 Setup your sources.list

Setup your computer to accept software from packages.ros.org.

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```
sudo sh -c 'echo "deb http://packages.ros.org/ros/ubuntu $(lsb_release -sc) main" > /etc/apt/sources.list.d/ros-latest.list'
```

Mirrors Source Debs are also available

1.3 Set up your keys

2

```
sudo apt-key adv --keyserver hkp://ha.pool.sks-keyservers.net:80 --recv-key 421C365BD9FF1F717815A3895523BAEEB01FA116
```

If you experience issues connecting to the keyserver, you can try substituting `hkp://pgp.mit.edu:80` or `hkp://keyserver.ubuntu.com:80` in the previous command.

1.4 Installation

First, make sure your Debian package index is up-to-date:

3

```
sudo apt-get update
```

There are many different libraries and tools in ROS. We provided four default configurations to get you started. You can also install ROS packages individually.

In case of problems with the next step, you can use following repositories instead of the ones mentioned above ros-shadow-fixed

Desktop-Full Install: (Recommended) : ROS, rqt, rviz, robot-generic libraries, 2D/3D simulators, navigation and 2D/3D perception

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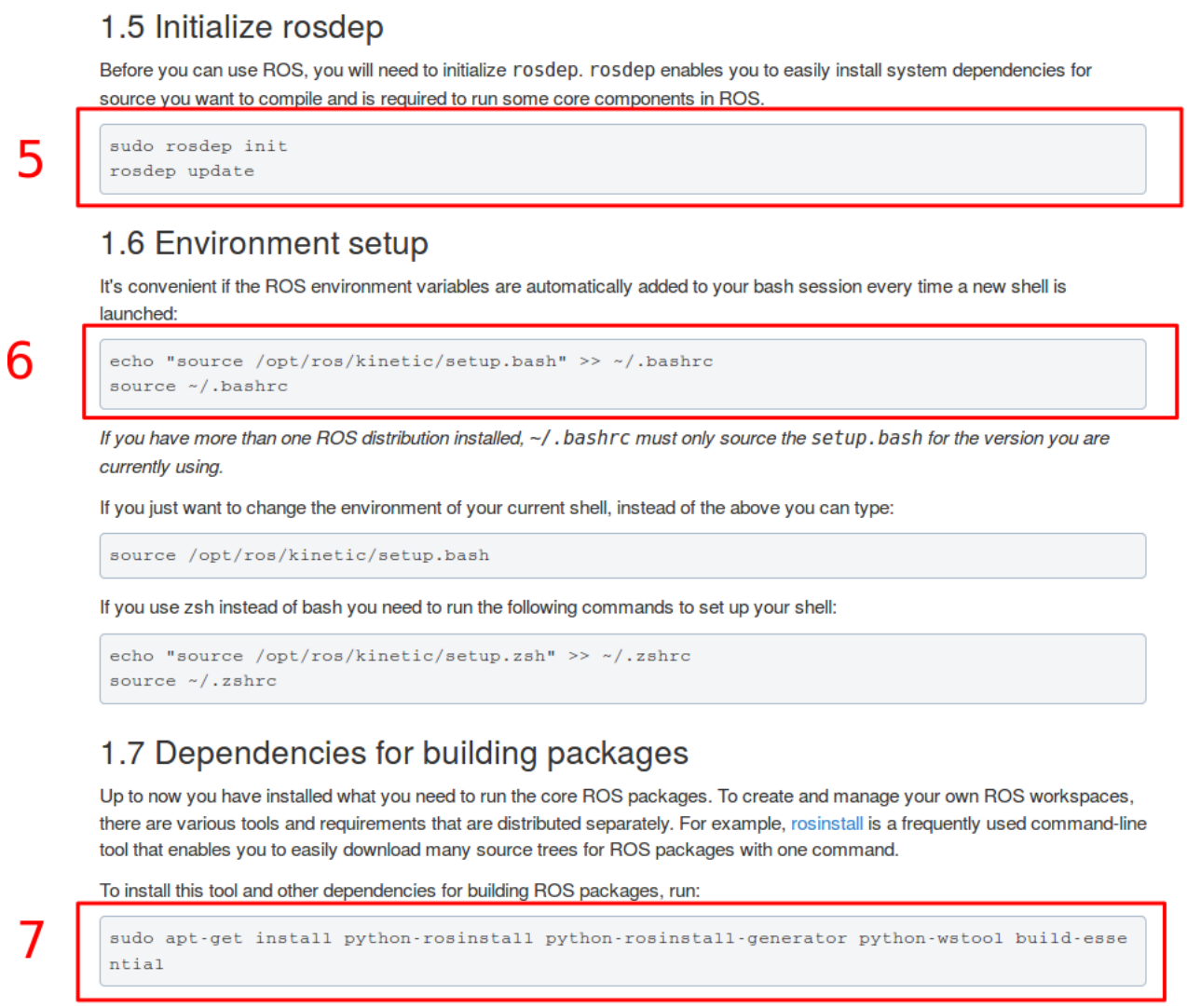
```
sudo apt-get install ros-kinetic-desktop-full
```



1.5 Initialize rosdep

Before you can use ROS, you will need to initialize `rosdep`. `rosdep` enables you to easily install system dependencies for source you want to compile and is required to run some core components in ROS.

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```
sudo rosdep init
rosdep update
```

1.6 Environment setup

It's convenient if the ROS environment variables are automatically added to your bash session every time a new shell is launched:

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```
echo "source /opt/ros/kinetic/setup.bash" >> ~/.bashrc
source ~/.bashrc
```

If you have more than one ROS distribution installed, `~/.bashrc` must only source the `setup.bash` for the version you are currently using.

If you just want to change the environment of your current shell, instead of the above you can type:

```
source /opt/ros/kinetic/setup.bash
```

If you use zsh instead of bash you need to run the following commands to set up your shell:

```
echo "source /opt/ros/kinetic/setup.zsh" >> ~/.zshrc
source ~/.zshrc
```

1.7 Dependencies for building packages

Up to now you have installed what you need to run the core ROS packages. To create and manage your own ROS workspaces, there are various tools and requirements that are distributed separately. For example, rosinstall is a frequently used command-line tool that enables you to easily download many source trees for ROS packages with one command.

To install this tool and other dependencies for building ROS packages, run:

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```
sudo apt-get install python-rosinstall python-rosinstall-generator python-wstool build-esse
ntial
```

3. Close the terminal. Open a new terminal and try the following command:

   $ roscore