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Blackboard/zoom Session

Textbook for Course *RosRoboticsByExample* Text

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1. GO OVER ACCESS TO D158B

ACCESS TO D158 – FORM TO FILL OUT. I WILL SUBMIT NAMES.

Login and LOGOFF Instructions

1_LogIN_LogOFF_D158B.pdf

1a_New Prox Card FormToPost.pdf

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2. REVIEW OF HOMEWORK

2_HW3_5435_4391Fall2022__9_19.pdf

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3a_noetic_Installation_Ubuntu – Environment Setup, .bashrc ROS Wiki.pdf

<http://wiki.ros.org/noetic/Installation/Ubuntu>

(Page 5-8 in textbook for Kinetic)

1.5 Environment setup

You must source this script in every **bash** terminal you use ROS in.

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

It can be convenient to automatically source this script every time a new shell is launched. These commands will do that for you.

Bash

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

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

3b_Bashrc_9_12_2022.pdf Show the .bashrc and source alias

Alias foxy or noetic

harman@harman-VirtualBox:~\$ **noetic**

ROS_DISTRO was set to 'foxy' before. Please make sure that the environment does not mix paths from different distributions.

harman@harman-VirtualBox:~\$ **env | grep ROS**

ROS_VERSION=1

```

ROS_PYTHON_VERSION=3
ROS_PACKAGE_PATH=/opt/ros/noetic/share
ROSLISP_PACKAGE_DIRECTORIES=
ROS_DOMAIN_ID=231
ROS_ETC_DIR=/opt/ros/noetic/etc/ros
ROS_MASTER_URI=http://localhost:11311
ROS_LOCALHOST_ONLY=0
ROS_ROOT=/opt/ros/noetic/share/ros
ROS_DISTRO=noetic

```

RECAP OF TURTLESIM CLI COMMANDS: (PAGE 32 IN TEXT)

If you are communicating with ROS1 via the terminal window, it is possible to issue commands to ROS1 to explore or control nodes in a package from the command prompt, as listed in the following table:

ROS1 Command	Action	Example usage and subcommand examples
roscore	Starts the Master	\$ roscore
roslaunch	Runs an executable program and creates nodes	\$ roslaunch [package name] [executable name]
rostopic	Shows information about nodes and lists the active nodes	\$ rostopic info [node name] \$ rostopic<subcommand> Subcommand: list
rostopic	Shows information about ROS topics	\$ rostopic<subcommand><topic name> Subcommands: echo, info, and type
rostopic	Shows information about the message types	\$ rostopic<subcommand> [package name]/ [message type] Subcommands: show, type, and list
rosservice	Displays the runtime information about various services and allows the display of messages being sent to a topic	\$ rosservice<subcommand> [service name] Subcommands: args, call, find, info, list, and type
rosparam	Used to get and set parameters (data) used by nodes	\$ rosparam<subcommand> [parameter] Subcommands: get, set, list, and delete

The website (<http://wiki.ros.org/ROS/CommandLineTools>) describes many ROS commands. The table lists some important ones. However, these examples only cover a few of the possible variations of the commands.

Review ROS1 Command Line Tools

<http://wiki.ros.org/ROS/CommandLineTools>

```
harman@harman-VirtualBox:/opt/ros/noetic/share/turtlesim/msg$ ls
```

```
Color.msg Pose.msg
```

```
harman@harman-VirtualBox:/opt/ros/noetic/share/turtlesim/msg$ gedit Pose.msg
```

```
float32 x
```

```
float32 y
```

```
float32 theta
```

```
float32 linear_velocity
```

```
float32 angular_velocity
```

VIRTUAL BOX AND INSTALLATIONS

<https://www.virtualbox.org/manual/>

<https://download.virtualbox.org/virtualbox/UserManual.pdf> (396 Pages)

<https://www.oracle.com/virtualization/technologies/vm/downloads/virtualbox-downloads.html>

Oracle VM VirtualBox

The latest release is version 6.1.36.

- [Oracle VM VirtualBox Base Packages - 6.1.36](#)
- [Oracle VM VirtualBox Extension Pack](#)
- [Source Code for Oracle VM VirtualBox Base Packages](#)
- [Oracle VM VirtualBox Pre-built Appliances](#)
- [Oracle Vagrant Boxes for Oracle VM VirtualBox - GitHub](#)
- [Programming Guide and Reference](#) (PDF)
- [VBox GuestAdditions](#)

Oracle VM VirtualBox Extension Pack

Free for personal, educational or evaluation use under the terms of the [VirtualBox Personal Use and Evaluation License](#) on Windows, Mac OS X, Linux and Solaris x-86 platforms:

4_0_VIRTUAL BOX_9_26_2022.pdf (TLH Slides)

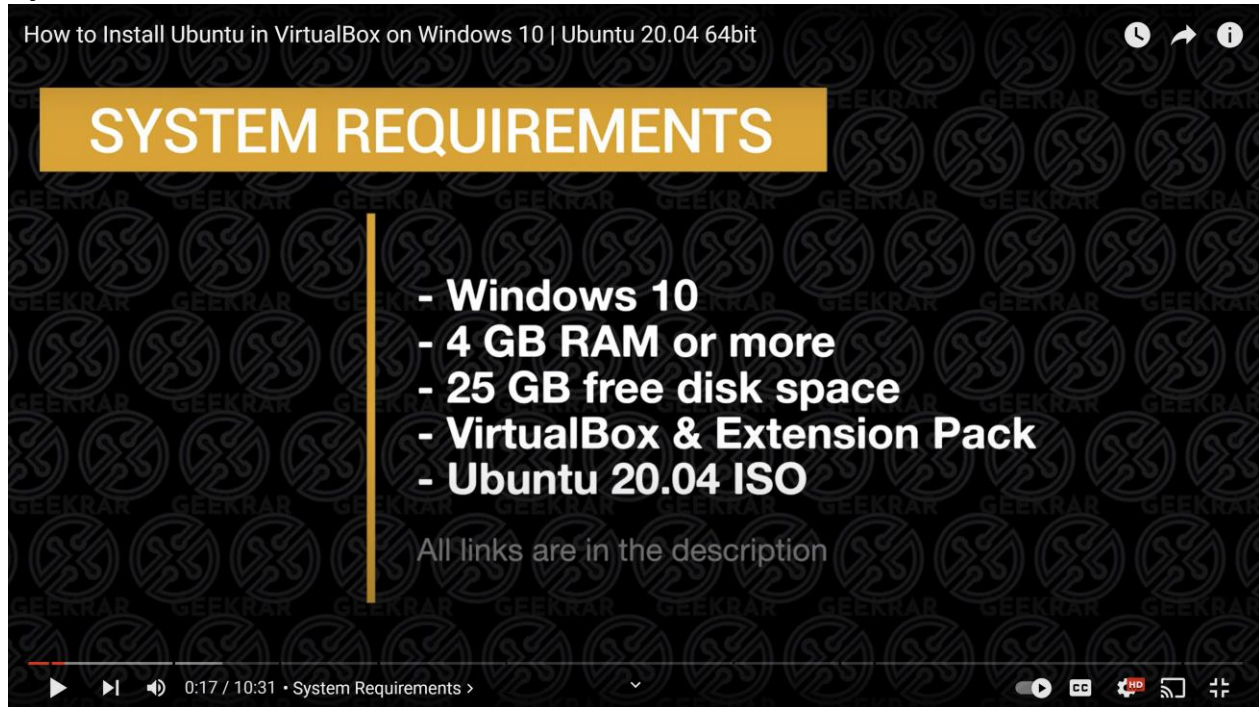
4_Instructions to install VirtualBox_DrNguyen_TLH.pdf

4a_VirtualBoxInstallFiles&Data_6_22_8_31_21_TLH.pdf

<https://releases.ubuntu.com/20.04/>

How to Install Ubuntu in VirtualBox on Windows 10 | Ubuntu 20.04 64bit
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System



<https://www.youtube.com/watch?v=IOwlnpWPuj0>

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UPDATED VIDEO: <https://youtu.be/-ClepTSsaNE>

In this video, I will show you how to install Ubuntu in VirtualBox, on a Windows 10 PC. To install the operating system you will require VirtualBox installed with the Extension Pack, as well as the Ubuntu ISO. Both are linked below. This is the full installation of the OS including the Guest Additions package.

=====

Video Notes

Ubuntu on VirtualBox Requirements

- Windows 10
- VirtualBox and Extension pack installed

- 4 GB RAM
- 25 GB Free disk space

=====

Time Stamps

- 0:00** Intro
- 0:11** System Requirements
- 1:15** Download Ubuntu ISO
- 2:10** Create New virtual machine
- 3:01** Modify virtual machine settings
- 4:07** Start Ubuntu Linux installation
- 6:06** Restart and login
- 7:01** Ubuntu desktop
- 7:18** Install Guest Additions
- 10:00** Expand desktop to full screen

=====

Commands Used for Guest Additions

- sudo apt-get update**
- sudo apt-get upgrade**
- sudo apt install build-essential dkms linux-headers-\$(uname -r)**

FROM SEPTEMBER 19, 2022 DEMO OF NOETIC

CHAPTER1 IN TEXTBOOK AND TURTLESIM - Shown 9/19/2022

3_Turtlesim Demo See Chapter 1 of our Book – updated for Noetic

Noetic means intellect.

As ROS's developer [Open Robotics describe Noetic](#), “there is perhaps no better way to describe the entire pursuit of ROS 1”.

For **Ninjemys**, it is **an extinct turtle** species in Australia, [according to Wikipedia](#). The Ninjemys turtles have a large pair of horns on its head stuck out to the sides.

<https://varhowto.com/ros-noetic/>

COMMANDS CHAPTER 1

PAGES 11-32 in ROS Robotics By Example 2nd

Fire up Virtual Box and Noetic!

Text Pages 11-19 General

5a_Chapter1_9_19_2022_ToPage19.txt

TurtlesimDemo_9_19_22

5b_Chapter1b 9_19_2022 Tsim

5c_ROS_TsimInfo_Run_9_19_2022.txt