nnn-n-ros-for-bionic-w100-hl-2024-5-14.odp

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CTI One Corporation is located in the Silicon Valley in Santa Clara, California. We design, develop and manufacture AI enabled smart rollators/walkers and exoskeleton devices for senior living operators, physically challenged as well as aging population for a better independent living. We design Artificial Intelligence, Computer Vision, and Robotics to modernize next generation autonomous mobility devices. Our smart rollators/walkers are battery powered, can be driven with a remote controller, and can respond and recognize the user and drive up to the user.

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Install ROS (ros-melodic-ros-base) for Ubuntu 18.04 (5/13, 2024)

Per internet info, ROS does not support python 3.6, so we will have to go higher version, but since our JetPack on the jetson NANO from NVDA only works for Python 3.6, so we will have to create a conda virtual environment for ROS.

Ref for craeting conda environment
https://github.com/hualili/opencv/blob/master/deep-learning-2022s/2022F-106-README-Tiny-Yolo4-GPU-Ubuntu-YY-HL-v2-2022-10-20.pdf

$conda env create -f ros.yml

Then follow the instruction from here

https://www.theconstruct.ai/how-to-install-ros-on-ubuntu/

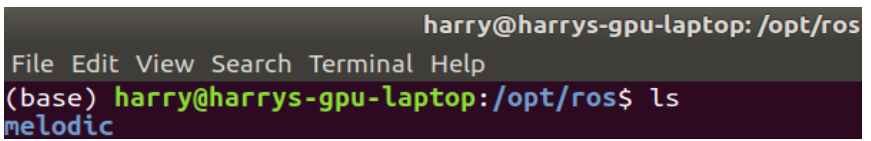
The bug: when you try to install the desktop-full version of the ros, there is dependency issue, so
Follow the instruction from here (the last recommendation)
https://answers.ros.org/question/299260/unmet-dependencies-when-installing-melodic-on-ubuntu-1804/

```
$sudo aptitude install ros-melodic-desktop-full
```

To use aptitude you will need to use sudo apt-get install aptitude to install it first.

Then
$sudo pip install -U rosdep
and
$sudo pip install -U rosdep
and
$rosdep update

Now configure ROS, since it is installed at /opt/ros/melodic. In order to have ROS commands available, it's needed to source the shell file inside of the installation folder by:



$source /opt/ros/melodic/setup.bash

We want to have ROS available in every terminal we open, so adding the abover command to the file "/home/<user>/.bashrc". The .bashrc file is called every time a new terminal is opened, hence we won't need to source ROS setup. In order to add the command to the file, edit it manually using an editor or just execute the command below:

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

ros.yml (ros-melodic) for Ubuntu 18.04 (5/13, 2024)

```
name: ros
# created by using yolov4-gpu.yml, HL 2024-5-14
dependencies:
  - python==3.7
  - pip
  - matplotlib
  - opencv
  - cudnn
  - cudatoolkit==10.1.243
  - pip:
    - tensorflow-gpu==2.3.0
    - opencv-python==4.1.1.26
    - lxml
    - tqdm
    - absl-py
    - easydict
    - pillow
```

Start ROS on Your Ubuntu 18.04 (5/13, 2024)

Open a console,
$roscore

```
roscore http://harrys-gpu-laptop:11311/
File  Edit  View  Search  Terminal  Help
(base) harry@harrys-gpu-laptop:/opt/ros$ source /opt/ros/melodic/setup.bash
(base) harry@harrys-gpu-laptop:/opt/ros$ roscore
... logging to /home/harry/.ros/log/7a082596-1278-11ef-8c72-3c58c26611e7/roslaun
ch-harrys-gpu-laptop-16698.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://harrys-gpu-laptop:44051/
ros_comm version 1.14.13


SUMMARY
========

PARAMETERS
 * /rosdistro: melodic
 * /rosversion: 1.14.13

NODES

auto-starting new master
process[master]: started with pid [16733]
ROS_MASTER_URI=http://harrys-gpu-laptop:11311/

setting /run_id to 7a082596-1278-11ef-8c72-3c58c26611e7
process[rosout-1]: started with pid [16759]
started core service [/rosout]
```

Then open another console
$rosnode list
And
$rosnode help

```
(base) harry@harrys-gpu-laptop:/media/harry/easystore3/backup-2020-2-15/Bionic-q
uadruped-wheeled/final$ rosnode list
/rosout
(base) harry@harrys-gpu-laptop:/media/harry/easystore3/backup-2020-2-15/Bionic-q
uadruped-wheeled/final$ rosnode help
rosnode is a command-line tool for printing information about ROS Nodes.

Commands:
        rosnode ping    test connectivity to node
        rosnode list    list active nodes
        rosnode info    print information about node
        rosnode machine list nodes running on a particular machine or list machi
nes
        rosnode kill    kill a running node
        rosnode cleanup purge registration information of unreachable nodes

Type rosnode <command> -h for more detailed usage, e.g. 'rosnode ping -h'
```