

Procedure: Movo Ros Indigo to Kinetic Migration

IMPORTANT: Before attempting to migrate to ROS Kinetic, you should make backups of both of your MOVO computers. The process is risky and you could lose data.

Step 1: Uninstall movo-core

From your computer, open a shell on Movo2:

```
ssh movo@movo2
```

Then stop the robot service and uninstall it:

```
movostop  
roslaunch movo_bringup uninstall_movo_core
```

Step 2: Upgrade Movo1

- A. Connect MOVO2 to the internet with an Ethernet-to-USB converter. You can verify the connection in a terminal with the command:

```
ping 8.8.8.8
```

If it pings, you should see a line like that:

```
64 bytes from 8.8.8.8: icmp_seq=1 ttl=55 time=4.46 ms
```

- B. Stay in the terminal and checkout to the ROS Kinetic branch on MOVO2.

```
cd ~/movo_ws/src  
git fetch  
git checkout kinetic-devel
```

Make sure your local changes are committed before the checkout. To checkout anyway and reject the local changes, add the -f flag like so :

```
git checkout -f kinetic-devel
```

- C. Run the script `setup_internet_on_movo1` on **MOVO2** and say yes to the prompt. This will setup MOVO2 as an internet bridge for MOVO1.

```
./movo_common/si_utils/scripts/setup_internet_on_movo1
```

- D. Start an SSH terminal to MOVO1.

```
ssh movo@MOVO1
```

- E. Upgrade the packages on MOVO1.

```
sudo apt-get update -y  
sudo apt-get upgrade -y
```

- F. Stay in the terminal for the next step.

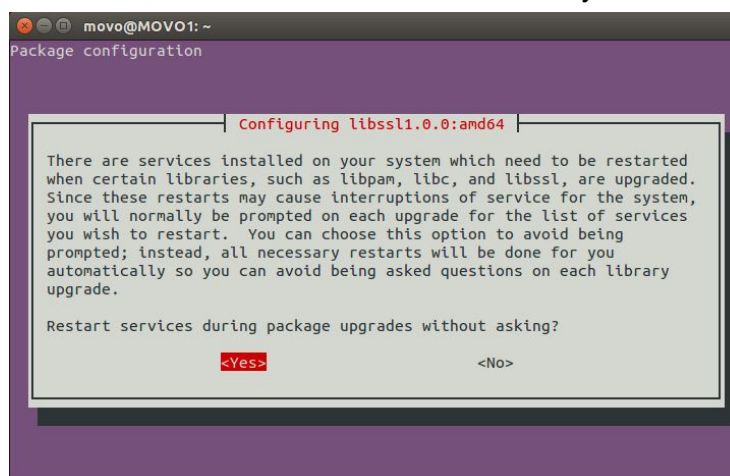
Step 3: Install Ubuntu 16.04 on Movo 1

A. Install Ubuntu 16.04 by following the next commands:

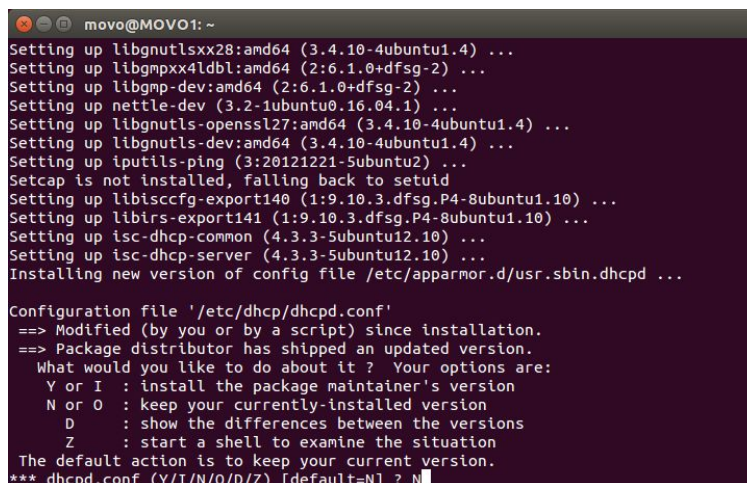
```
sudo do-release-upgrade
```

B. Install Ubuntu 16.04 by following the next commands:

When asked about the auto-restart of libraries, answer yes:

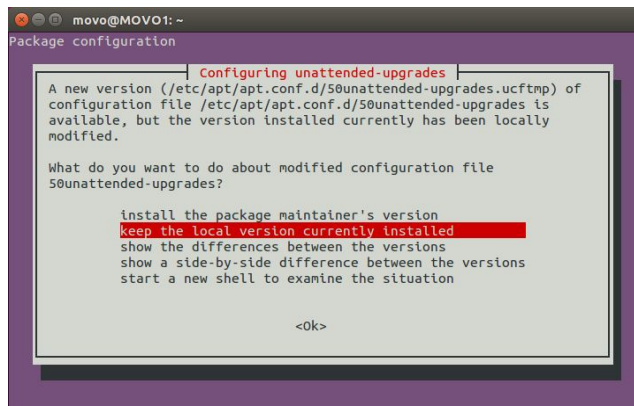


When asked about the dhcp config, keep the one you have (N or O option)

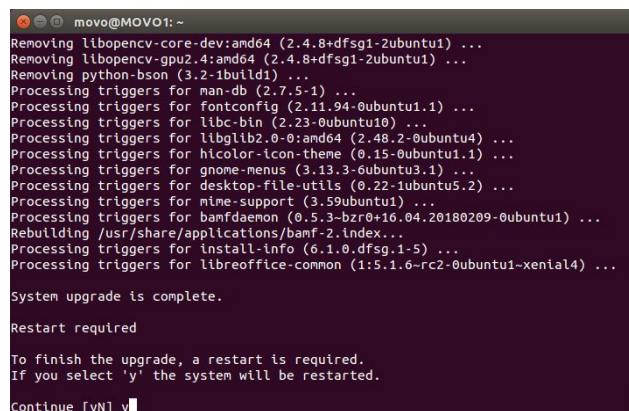


When asked about the ssh_config, keep the one you have (N or O option).

When asked about the unattended-upgrades, keep the local version.



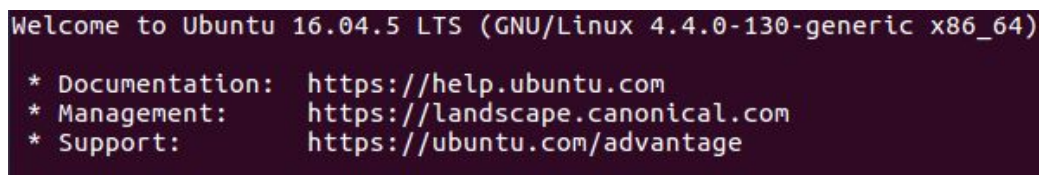
When asked if you want to remove packages, answer yes
 Finally, when asked to reboot, answer No and power off MOVO. Then close the terminals.



- C. Boot on the MOVO back up again.
 - a. Open an ssh session on Movo2.
 - b. cd to movo_ws.
 - c. Run the setup_internet_on_movo1 script. (see step 2-C).
 - d. From another movo2 terminal, open a Movo 1 SSH:

```
ssh movo@MOVO1.
```

You should see this message:



If you don't, power off then power on MOVO and try again. If the problem persists, you should flash MOVO1 with your Ubuntu 14.04 image and try the migration procedure again. **It requires you taking off the skin on the Movo base. Call us.**

- D. From the SSH terminal, update your MOVO ROS code on MOVO1:

```
cd ~/movo_ws/src
git fetch
git checkout kinetic-devel
```

- E. Run the packages update script and say yes to all prompts.

```
./movo_common/si_utils/scripts/setup_movo_pc_migration
```

- F. Build the Kinova MOVO ROS Kinetic package after restarting the SSH connection

```
exit
ssh movo@MOVO1
cd ~/movo_ws
rm -rf build/ devel/
catkin_make
```

- G. Close the SSH connection.

```
exit
```

Step 4: Upgrade Movo 2

Connect directly to Movo 2. Don't do it by SSH because the Movo is reconfiguring its Wi-Fi during the update.

- A. Upgrade the packages.

```
sudo apt-get update -y
sudo apt-get upgrade -y
```

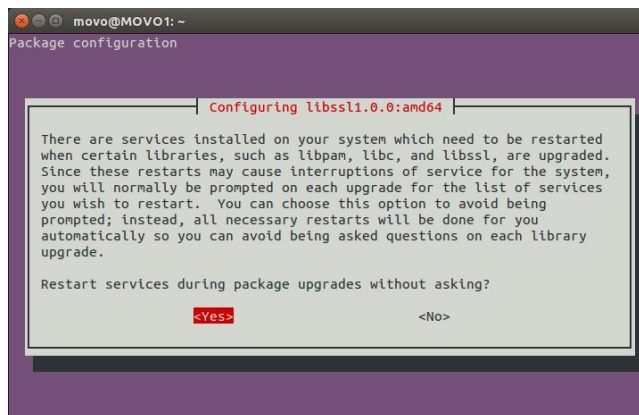
- B. Install Ubuntu 16.04 by following the instructions after this command:

```
sudo do-release-upgrade
```

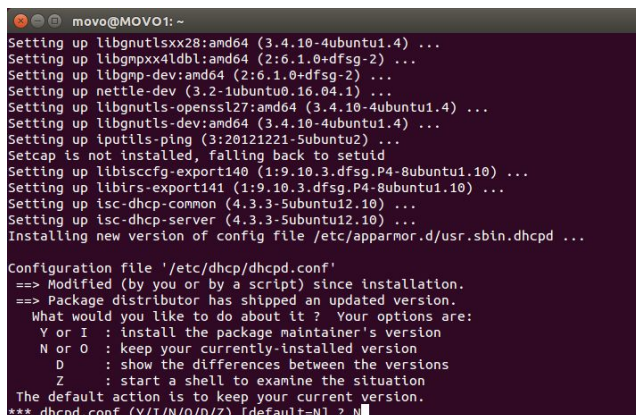
If you encounter an error message stating that the upgrade couldn't be calculated. Use these commands to unhold the specified packages:

```
sudo apt-mark unhold libassimp-dev
sudo apt-mark unhold libassimp3
sudo apt-mark unhold python-pyassimp
```

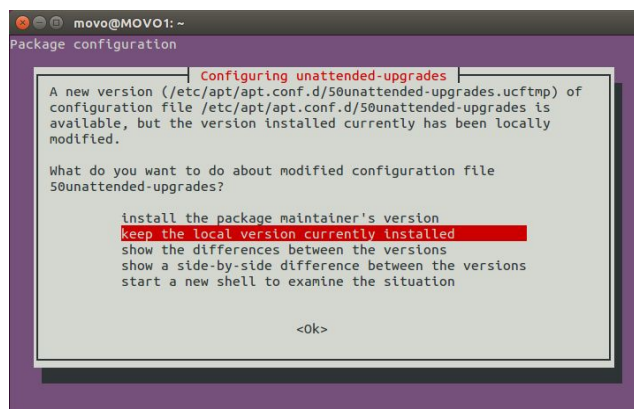
When asked about the auto-restart of libraries, answer yes:



When asked about the dhcp config, keep the one you have (N or O option)



When asked about the unattended-upgrades, keep the local version



When asked if you want to remove packages, answer yes

```
movo@MOVO1: ~  
Processing triggers for ureadahead (0.100.0-19) ...  
Processing triggers for libgdk-pixbuf2.0-0:amd64 (2.32.2-1ubuntu1.5) ...  
Processing triggers for dbus (1.10.6-1ubuntu3.3) ...  
Processing triggers for resolvconf (1.78ubuntu6) ...  
Processing triggers for shim-signed (1.33.1-16.04.1+13-0ubuntu2) ...  
No DKMS packages installed: not changing Secure Boot validation state.  
Processing triggers for bamfdaemon (0.5.3-bzr0+16.04.20180209-0ubuntu1) ...  
Rebuilding /usr/share/applications/bamf-2.index...  
  
Searching for obsolete software  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
Building data structures... Done  
Building data structures... Done  
Building data structures... Done  
  
Remove obsolete packages?  
  
372 packages are going to be removed.  
Removing the packages can take several hours.  
  
Continue [yN] Details [d]y
```

Finally, when asked to reboot, answer No and power off MOVO.

C. After the reboot, open a terminal, run the packages update script and say yes to all prompts.

```
./movo_ws/src/movo_common/si_utils/scripts/setup_movo_pc_migration
```

D. Build the Kinova MOVO ROS Kinetic package:

```
reset  
source /opt/rps/kinetic/setup.bash  
cd ~/movo_ws  
rm -rf build/ devel/  
catkin_make
```

If you have any problems during the migration, please send a mail to : support@kinova.ca