VIT®

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

CSE 3009

DIGITAL ASSIGNMENT - II

UNDER THE GUIDANCE OF

PROFESSOR ARUNKUMAR T

Slot: F2+TF2

PRESENTED BY

Utkarsh Sharma **16BCE0226**

Contiki: Open Source OS for the Internet of Things

Why choose Contiki?

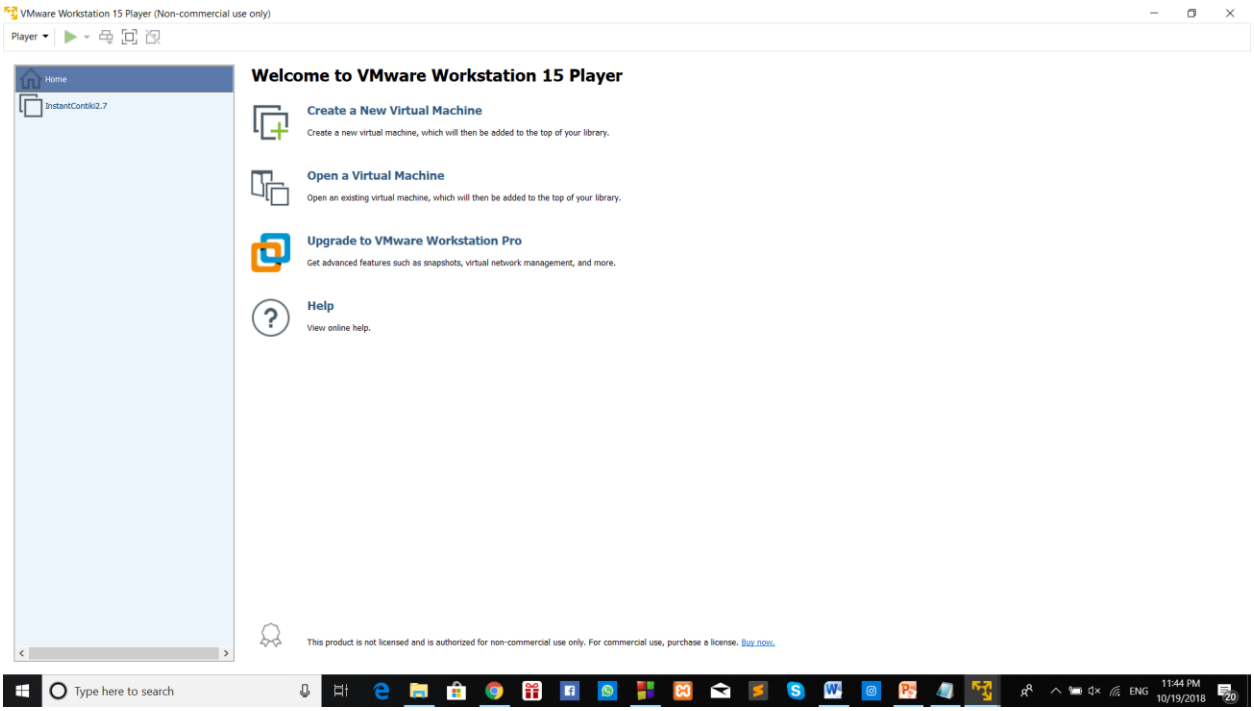
- Contiki is an open source operating system for the Internet of Things.
- Contiki connects tiny low-cost, low-power microcontrollers to the Internet.
- Contiki is an open source operating system that runs on tiny low-power microcontrollers and makes it possible to develop applications that make efficient use of the hardware while providing standardized low-power wireless communication for a range of hardware platforms.
- Contiki is used in numerous commercial and non- commercial systems, such as city sound monitoring, street lights, networked electrical power meters, industrial monitoring, radiation monitoring, construction site monitoring, alarm systems, remote house monitoring, and so on.

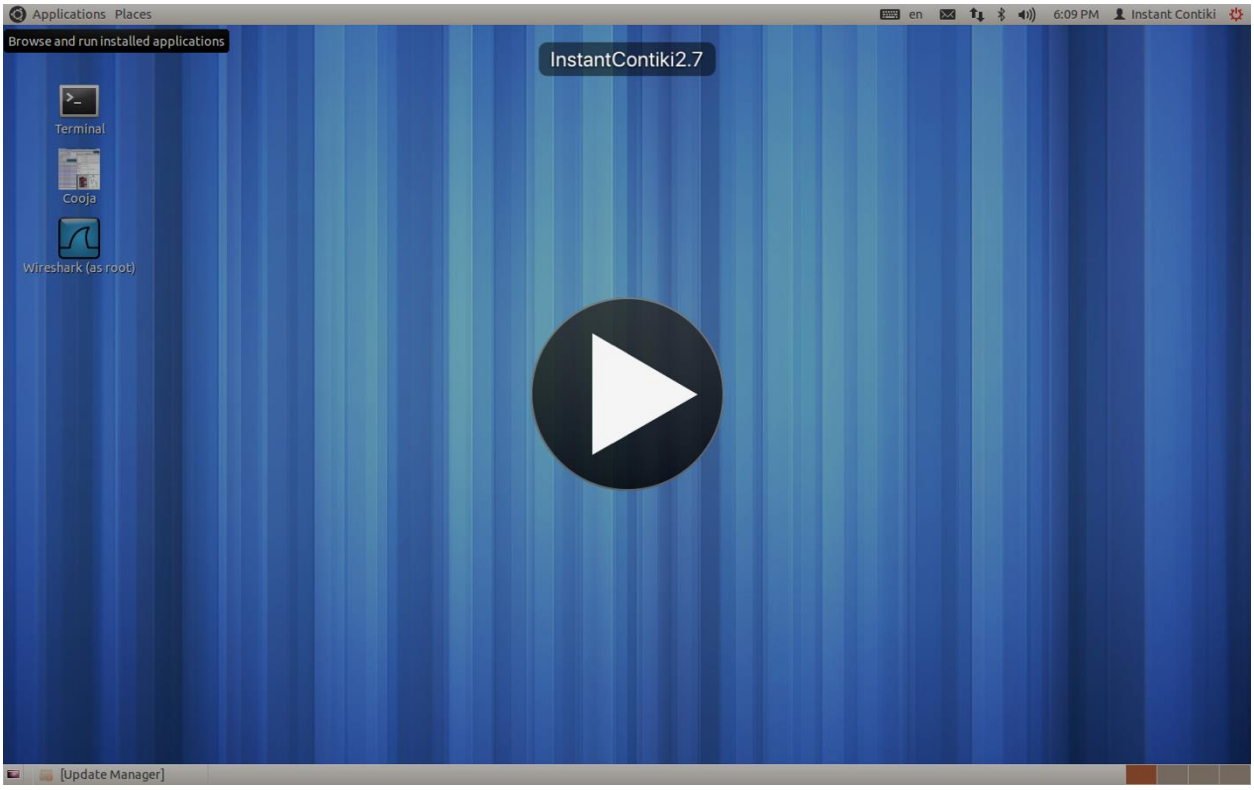
STEP:1

- Cooja makes Contiki easy to install and get started with it.
- Download Instant Contiki
- http://sourceforge.net/projects/contiki/files/Instant%20Contiki/
- Install VMWare Fusion for mac
- Register and reboot
- Start Instant Contiki
- Start Instant Contiki by running InstantContiki2.6.vmx. Wait for the virtual Ubuntu Linux boot up.
- Log into Instant Contiki.
- The password is user.

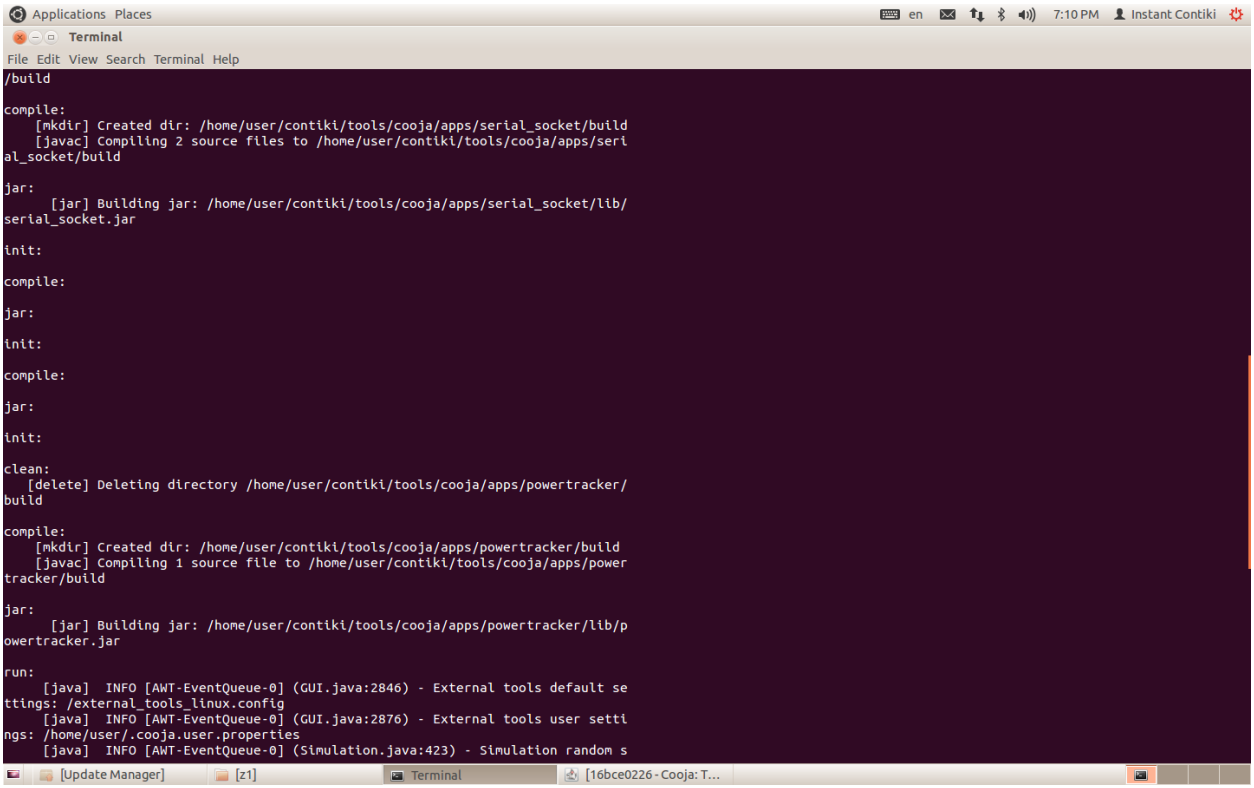
STEP:2

Open VMware Workstation 15 Player (Windows)

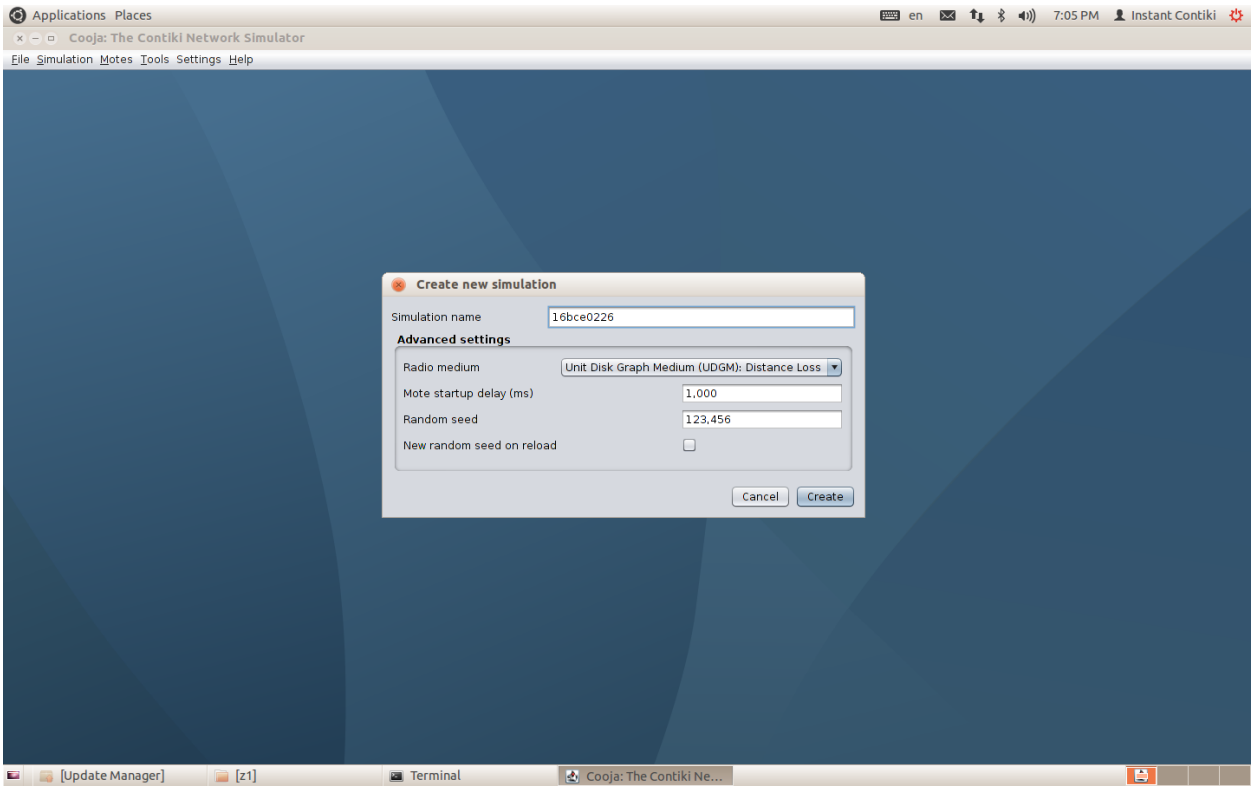




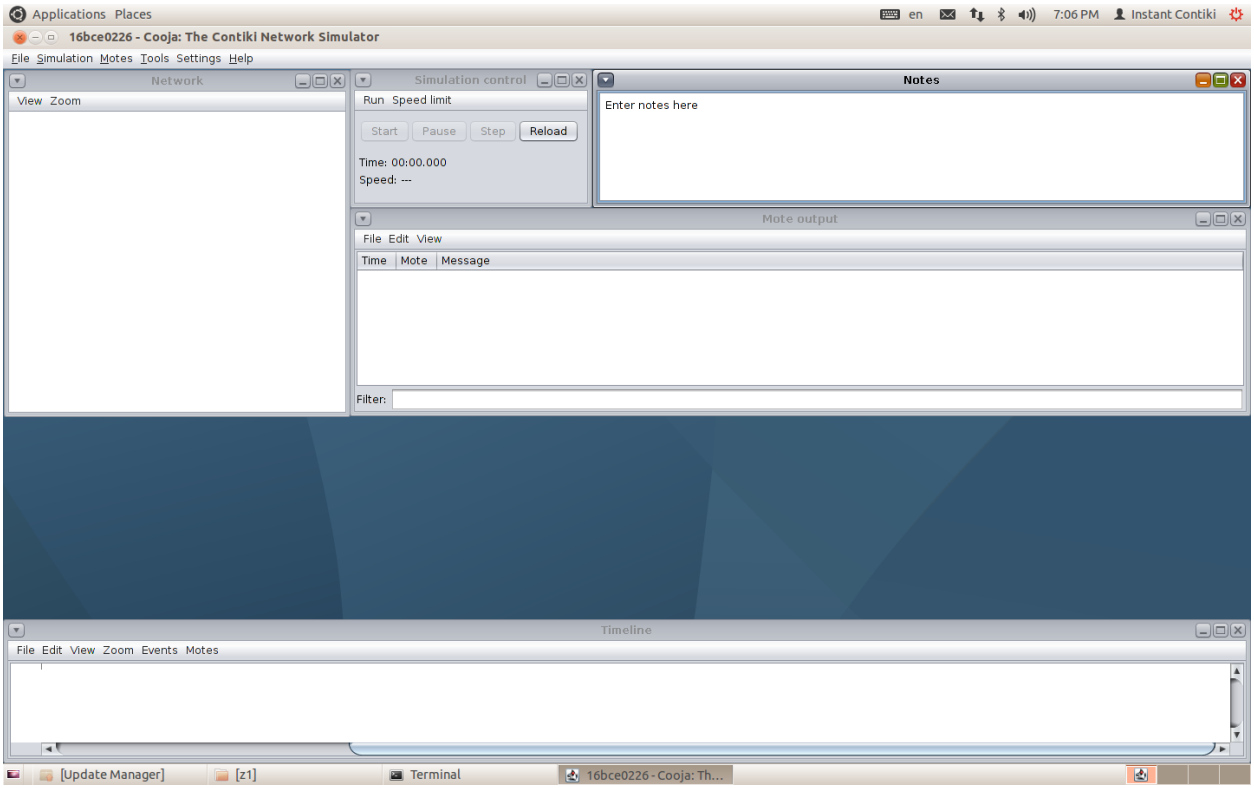
STEP:3 Start Cooja in terminal

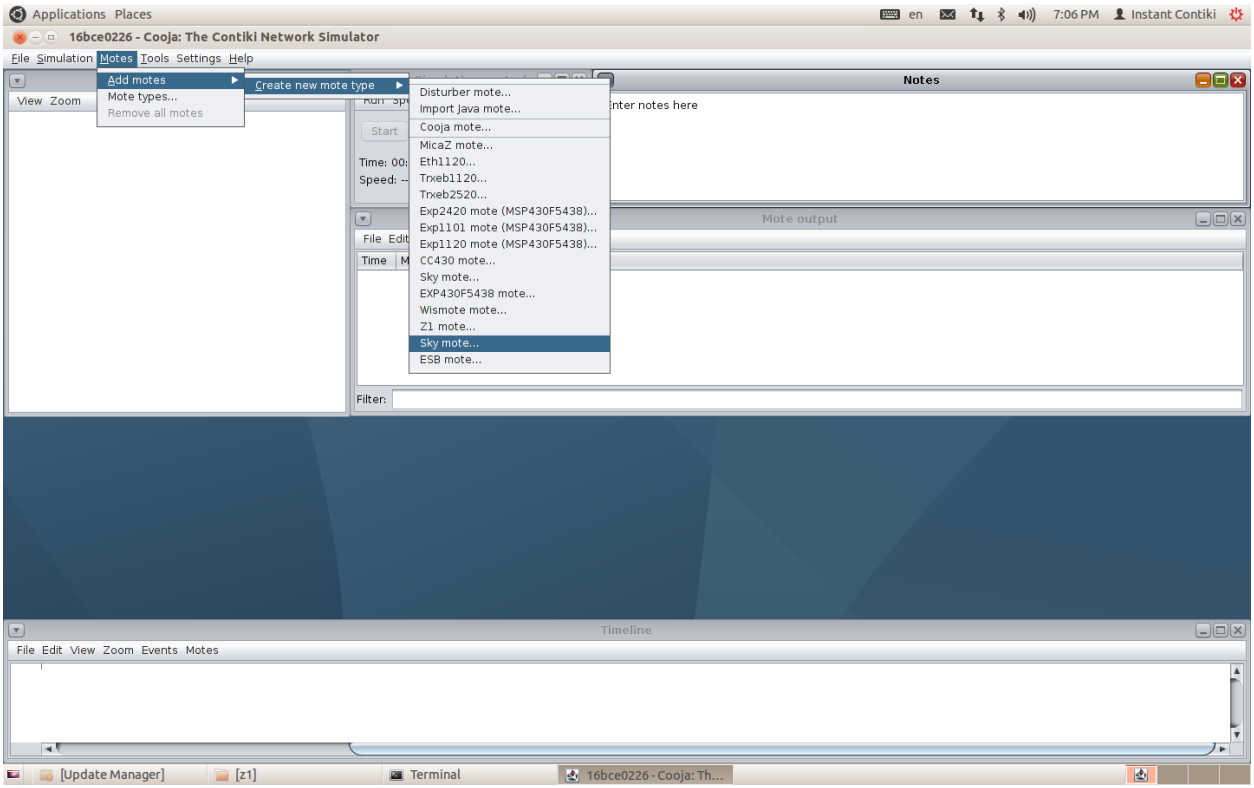


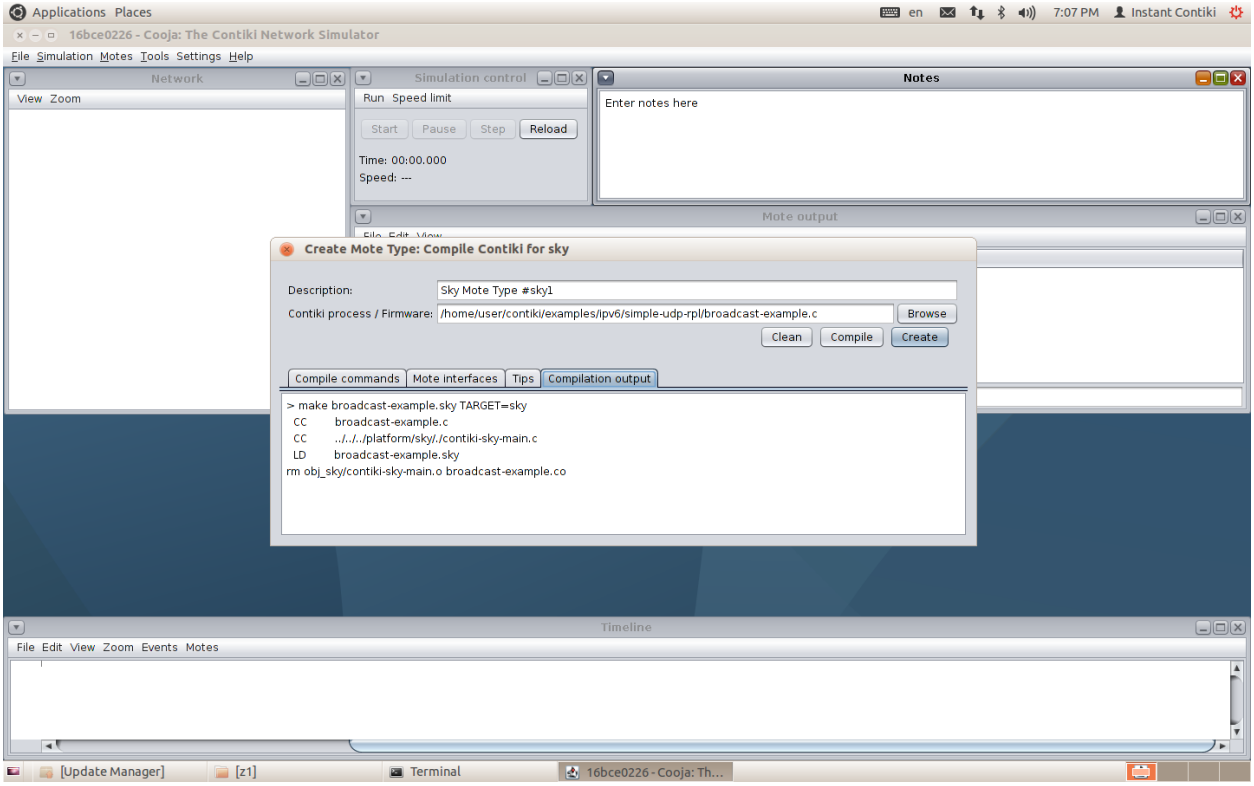
STEP 4: Run Contiki in Simulation

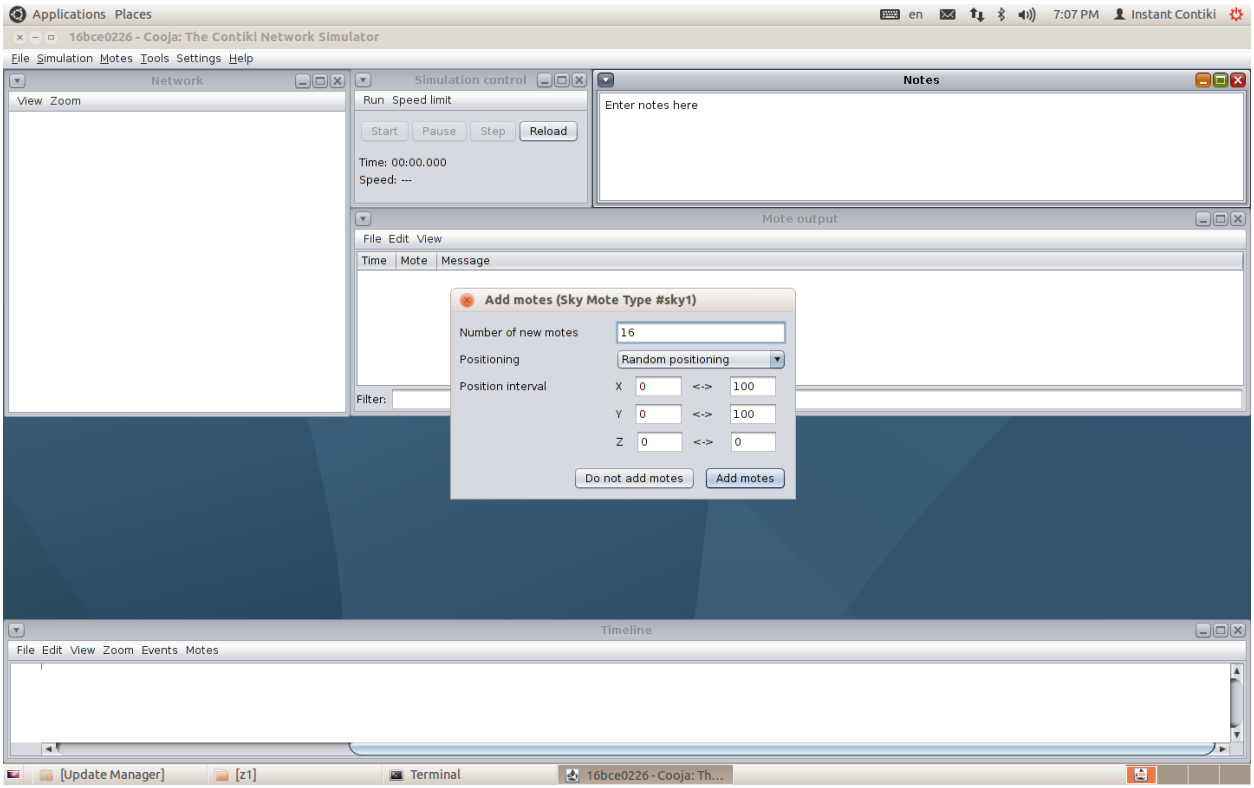


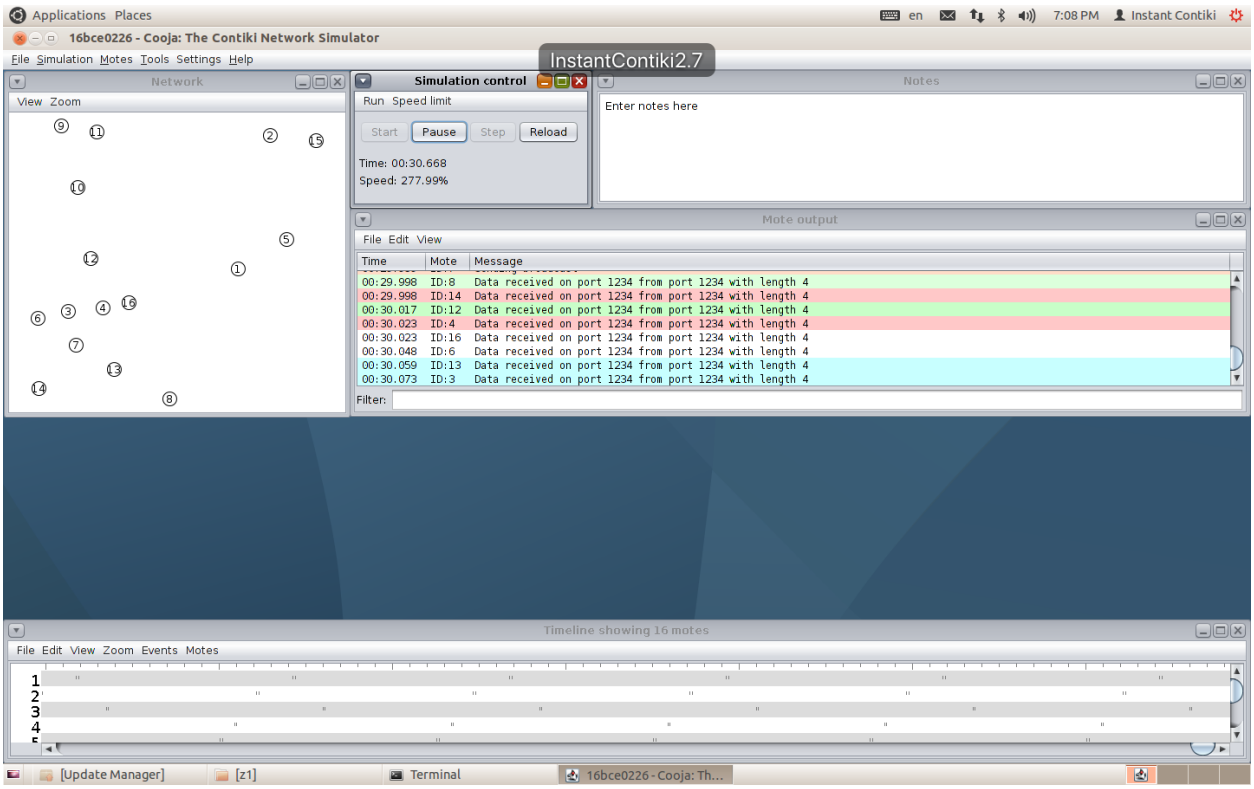
Simulation Window

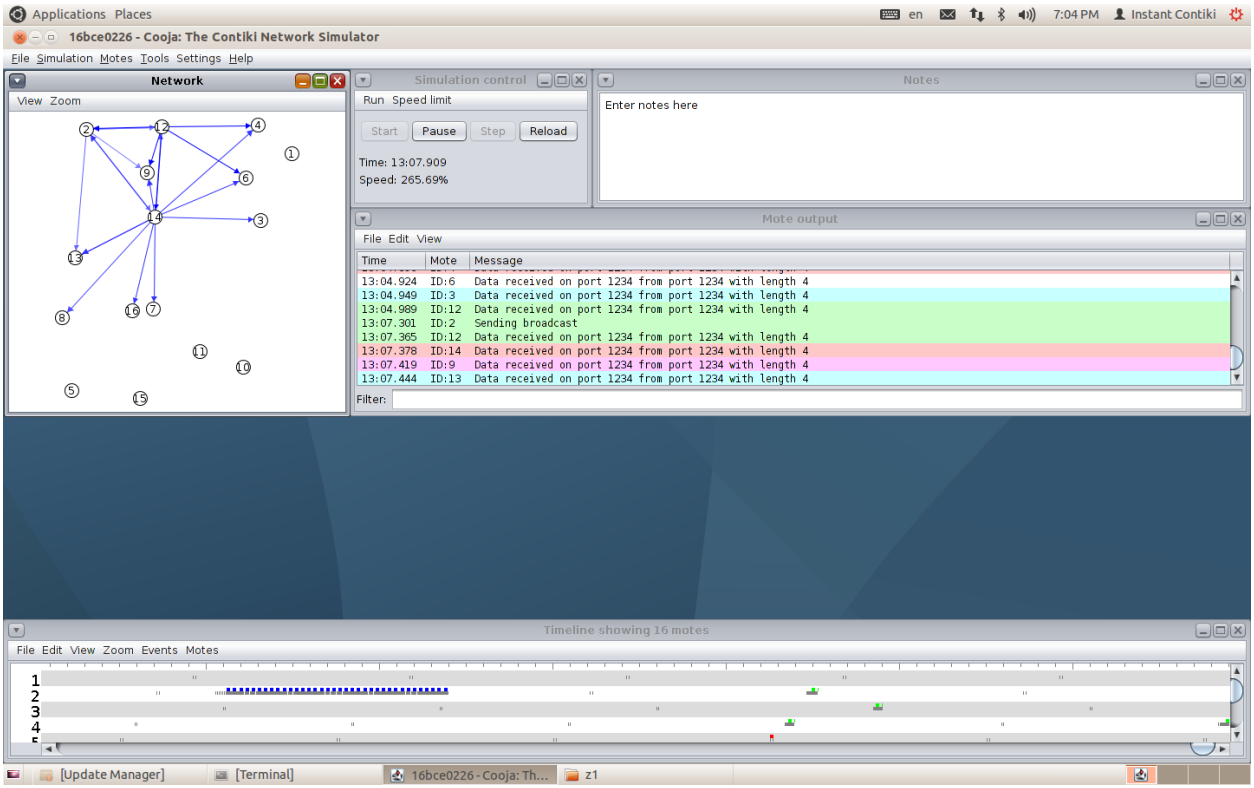





Applications Places
en
7:07 PM
Instant Contiki
16bce0226 - Cooja: The Contiki Network Simulator
File Simulation Motes Tools Settings Help
Network
View Zoom
Simulation control
Run Speed limit
Start Pause Step Reload
Time: 00:00.000
Speed: ---
Notes
Enter notes here
Mote output
Create Mote Type: Compile Contiki for sky
Description:
Sky Mote Type #sky1
Contiki process / Firmware:
/home/user/contiki/examples/ipv6/simple-udp-rpl/broadcast-example.c
Browse
Clean
Compile
Create
Compile commands
Mote interfaces
Tips
Compilation output
> make broadcast-example.sky TARGET=sky
CC broadcast-example.c
CC ../../../platform/sky/./contiki-sky-main.c
LD broadcast-example.sky
rm obj_sky/contiki-sky-main.o broadcast-example.co
Timeline
File Edit View Zoom Events Motes
[Update Manager]
[z1]
Terminal
16bce0226 - Cooja: Th...


Applications Places
en
7:07 PM
Instant Contiki
16bce0226 - Cooja: The Contiki Network Simulator
File Simulation Motes Tools Settings Help
Network
View Zoom
Simulation control
Run Speed limit
Start Pause Step Reload
Time: 00:00.000
Speed: ---
Notes
Enter notes here
Mote output
File Edit View
Time Mote Message
Add motes (Sky Mote Type #sky1)
Number of new motes
16
Positioning
Random positioning
Position interval
X 0 <-> 100
Y 0 <-> 100
Z 0 <-> 0
Do not add motes
Add motes
Filter:
Timeline
File Edit View Zoom Events Motes
[Update Manager]
[z1]
Terminal
16bce0226 - Cooja: Th...


Applications Places
en
7:08 PM
Instant Contiki
16bce0226 - Cooja: The Contiki Network Simulator
File Simulation Motes Tools Settings Help
InstantContiki2.7
Network
View Zoom
Simulation control
Run Speed limit
Start Pause Step Reload
Time: 00:30.668
Speed: 277.99%
Notes
Enter notes here
Mote output
File Edit View
Time Mote Message
00:29.998 ID:8 Data received on port 1234 from port 1234 with length 4
00:29.998 ID:14 Data received on port 1234 from port 1234 with length 4
00:30.017 ID:12 Data received on port 1234 from port 1234 with length 4
00:30.023 ID:4 Data received on port 1234 from port 1234 with length 4
00:30.023 ID:16 Data received on port 1234 from port 1234 with length 4
00:30.048 ID:6 Data received on port 1234 from port 1234 with length 4
00:30.059 ID:13 Data received on port 1234 from port 1234 with length 4
00:30.073 ID:3 Data received on port 1234 from port 1234 with length 4
Filter:
Timeline showing 16 motes
File Edit View Zoom Events Motes
[Update Manager]
[z1]
Terminal
16bce0226 - Cooja: Th...


Applications Places
en
7:04 PM
Instant Contiki
16bce0226 - Cooja: The Contiki Network Simulator
File Simulation Motes Tools Settings Help
Network
View Zoom
Simulation control
Run Speed limit
Start Pause Step Reload
Time: 13:07.909
Speed: 265.69%
Notes
Enter notes here
Mote output
File Edit View
Time Mote Message
13:04.924 ID:6 Data received on port 1234 from port 1234 with length 4
13:04.949 ID:3 Data received on port 1234 from port 1234 with length 4
13:04.989 ID:12 Data received on port 1234 from port 1234 with length 4
13:07.301 ID:2 Sending broadcast
13:07.365 ID:12 Data received on port 1234 from port 1234 with length 4
13:07.378 ID:14 Data received on port 1234 from port 1234 with length 4
13:07.419 ID:9 Data received on port 1234 from port 1234 with length 4
13:07.444 ID:13 Data received on port 1234 from port 1234 with length 4
Filter:
Timeline showing 16 motes
File Edit View Zoom Events Motes
[Update Manager]
[Terminal]
16bce0226 - Cooja: Th...
z1