National University of Computer and Emerging Sciences

Assignment # 2

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Section:

Internet of Things (BCS-8A)

Instructor:

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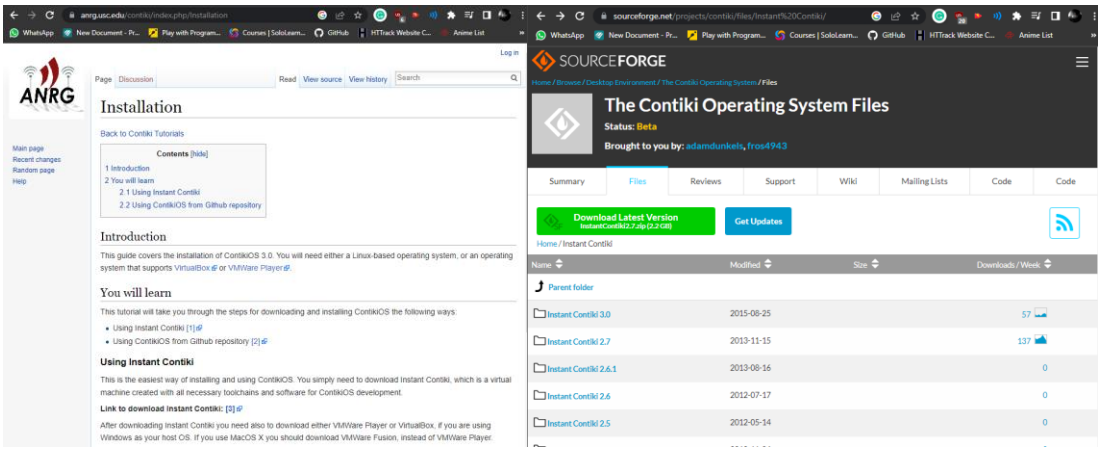
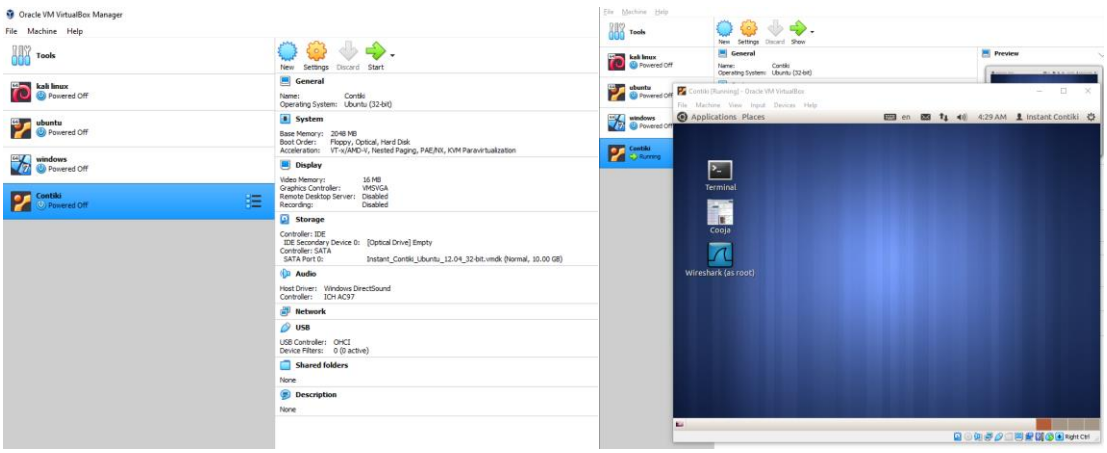
Report

Installation:

Step#1: Go to https://anrg.usc.edu/contiki/index.php/Installation and download the Contiki OS files

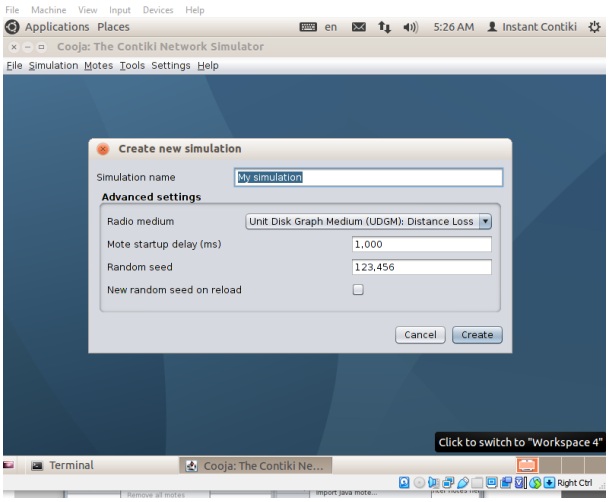


Step#2: Download Virtual Box and make a virtual machine using the previously downloaded Contiki files.

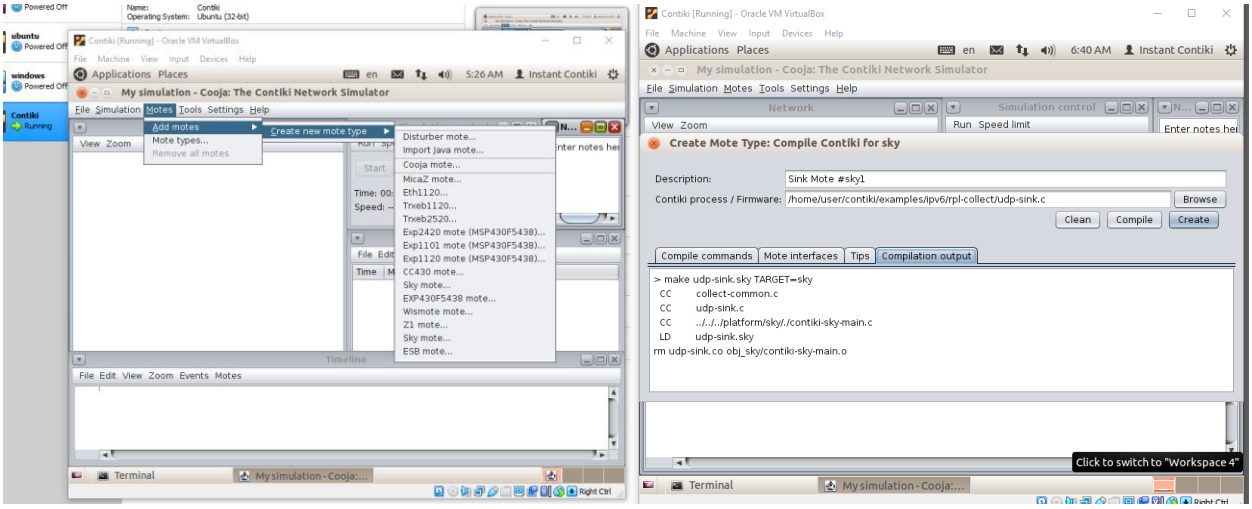


Demonstration:

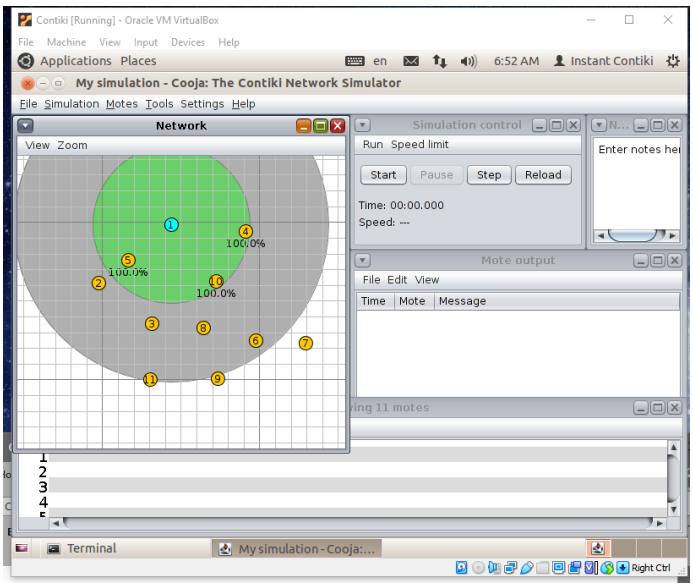
Step#1: Open "Cooja" application and create a new simulation "My simulation" with the standard settings.



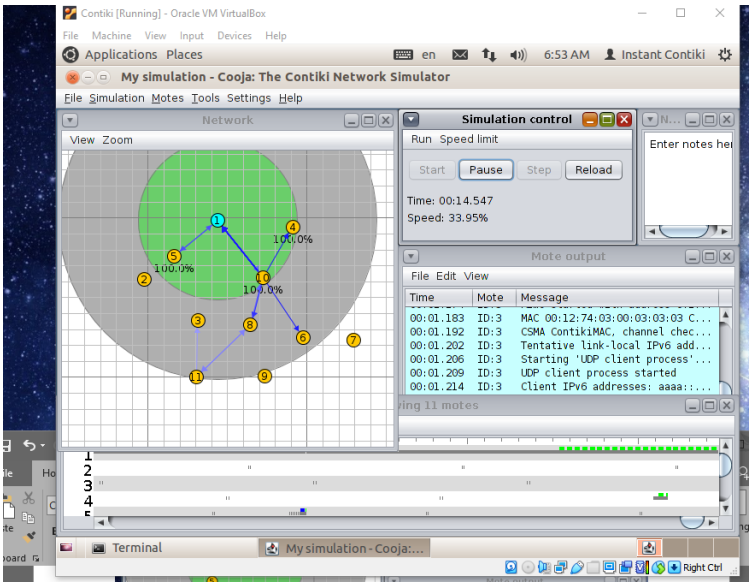
Step#2: Add a new mote named "Sink Mote #sky1" with the settings given in attachment, connect the given firmware as shown in attachment and compile the code and click on create, to create a sink mote.



Step#3: Similarly, add 10 new motes named "Sent Motes #sky2" with only changed settings being the connect firmware as "udp-sender.c" and compile the code and click on create, to create 10 sent motes.



Step#4: Click on the Start button to run the simulation and note how the traffic is being passed among the motes.



Description:

There are several motes in Cooja but the Sky mote is simple and widely used for IoT and provides initial configurations for IoT nodes, including sink and sensor/sender nodes within a Cooja simulation, so we used Sky mote. The scheme observed is the Multi-Hop scheme for data transmission but to some extent, for the sink mote to collect data, we see Hierarchical Architecture when mote 10 & mote 5 act as cluster heads and cluster members are mote 8,6,4 & mote 2,3.

This activity has further enhanced our understanding of wireless networks through practical implementation.