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## Experiment No 4

**Title :**
Simulation of Wireless and Wired network using ns2

**Theory :**
The wireless simulation described supports multi-hop ad-hoc networks or wireless LANs. But we may need to simulate a topology of multiple LANs connected through wired nodes, or in other words we need to create a wired-cum-wireless topology.

In this section we are going to extend the simple wireless topology created in section IX to create a mixed scenario consisting of a wireless and a wired domain, where data is exchanged between the mobile and non-mobile nodes. We are going to make modifications to the tcl script called wireless1.tcl created and name the resulting wired-cum-wireless scenario file wireless2.tcl.

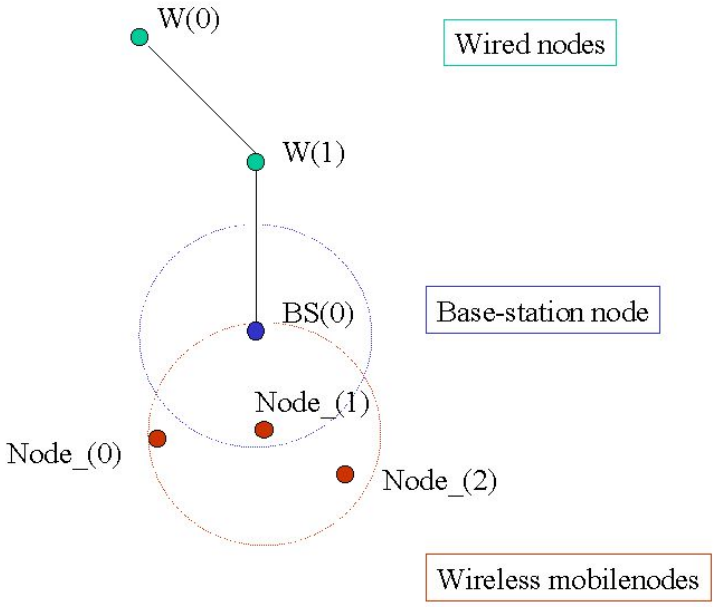


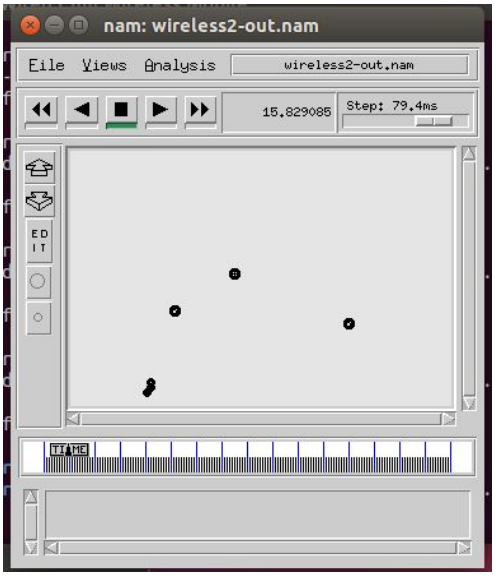

Fig1. Topology for wired-cum-wireless simulation example.

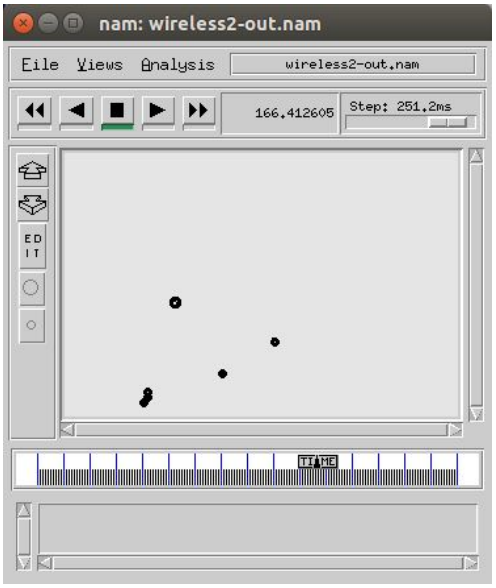
For the mixed scenario, we are going to have 2 wired nodes, W(0) and W(1), connected to our wireless domain consisting of 3 mobilenodes (nodes 0, 1 & 2) via a base-station node, BS. Base station nodes are like gateways between wireless and wired domains and allow packets to be exchanged between the two types of nodes. For details on base-station node please see section 2 (wired-cum-wireless networking) the topology for this example described above.

**Procedure/ Algorithm :**
cris@cris-VirtualBox:~/ns2$ cd Exp\ 4\ \ Wired\ Cum\ Wireless\ Mobile/
cris@cris-VirtualBox:~/ns2/Exp 4 Wired Cum Wireless Mobile$ ls
wireless2-out.nam wireless2.tcl wireless3-out.tr
wireless2-out.tr wireless3-out.nam wireless3.tcl

**Results :**
cris@cris-VirtualBox:~/ns2/Exp 4 Wired Cum Wireless Mobile$ ns wireless2.tcl
num_nodes is set 4

warning: Please use -channel as shown in tcl/ex/wireless-mitf.tcl
INITIALIZE THE LIST xListHead
*** NOTE: no connection pattern specified.
Loading scenario file...
Load complete...
Starting Simulation...
channel.cc:sendUp - Calc highestAntennaZ_ and distCST_
highestAntennaZ_ = 1.5, distCST_ = 550.0
SORTING LISTS ...DONE!
NS EXITING...
cris@cris-VirtualBox:~/ns2/Exp 4 Wired Cum Wireless Mobile$ nam wireless2-out.nam
Cannot connect to existing nam instance. Starting a new one…




cris@cris-VirtualBox:~/ns2/Exp 4 Wired Cum Wireless Mobile$ ns wireless3.tcl
num_nodes is set 3
warning: Please use -channel as shown in tcl/ex/wireless-mitf.tcl
INITIALIZE THE LIST xListHead
*** NOTE: no connection pattern specified.
*** NOTE: no scenario file specified.
Starting Simulation...
channel.cc:sendUp - Calc highestAntennaZ_ and distCST_
highestAntennaZ_ = 1.5, distCST_ = 550.0
SORTING LISTS ...DONE!
warning: Route to base_stn not known: dropping pkt
warning: Route to base_stn not known: dropping pkt
warning: Route to base_stn not known: dropping pkt
warning: Route to base_stn not known: dropping pkt
warning: Route to base_stn not known: dropping pkt
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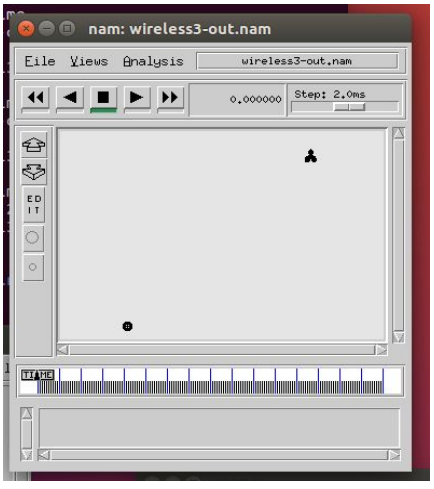
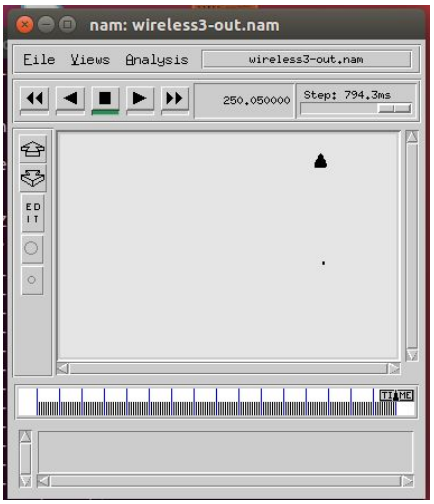
warning: Route to base_stn not known: dropping pkt
warning: Route to base_stn not known: dropping pkt



warning: Route to base_stn not known: dropping pkt
warning: Route to base_stn not known: dropping pkt
warning: Route to base_stn not known: dropping pkt
warning: Route to base_stn not known: dropping pkt
warning: Route to base_stn not known: dropping pkt
warning: Route to base_stn not known: dropping pkt
warning: Route to base_stn not known: dropping pkt
NS EXITING...
cris@cris-VirtualBox:~/ns2/Exp 4  Wired Cum Wireless Mobile$ nam wireless3-out.nam




**References :**

1. Tutorial for ns2
https://www.isi.edu/nsnam/ns/tutorial/ns.html