Computer Networks - Exp 7

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Aim

Creation of Duplex link in ns2 between two nodes.

Theory

Duplex is a bidirectional communication system that allows both end nodes to send and receive communication data or signals, simultaneously and one at a time. Both nodes have the ability to operate as sender and receiver at the same time, or take turns sending or receiving data.

NS2 stands for Network Simulator Version 2. It is an open-source event-driven simulator designed specifically for research in computer communication networks.

The duplex links between n0 and n2, and n1 and n2 have 2 Mbps of bandwidth and 10 ms of delay. The duplex link between n2 and n3 has 1.7 Mbps of bandwidth and 20 ms of delay. Each node uses a DropTail queue that has a maximum size of 10.

Commands

#==================================

Simulation parameters setup

#==================================

set val(stop) 10.0 ;# time of simulation end

#==================================

Initialization

#==================================

#Create a ns simulator set ns [new Simulator]

#Open the NS trace file

set tracefile [open out.tr w]

$ns trace-all $tracefile

#Open the NAM trace file set namfile [open out.nam w]

$ns namtrace-all $namfile

#==================================

Nodes Definition #==================================

#Create 2 nodes set n0 [$ns node] set n1 [$ns node]

#==================================

Links Definition #==================================

#Createlinks between nodes

$ns duplex-link $n0 $n1 100.0Mb 10ms DropTail

```
$ns queue-limit $n0 $n1 50

#Give node position (for NAM)

$ns duplex-link-op $n0 $n1 orient right

#=================================

# Agents Definition #=================================

#Setup a TCP connection set tcp0 [new Agent/TCP]

$ns attach-agent $n0 $tcp0

set sink1 [new Agent/TCPSink]

$ns attach-agent $n1 $sink1

$ns connect $tcp0 $sink1

$tcp0 set packetSize_ 1500

#=================================

# Applications Definition

#=================================

#Setup a FTP Application over TCP connection set ftp0 [new

Application/FTP]

$ftp0 attach-agent $tcp0

$ns at 1.0 "$ftp0 start"

$ns at 2.0 "$ftp0 stop"

#=================================

# Termination
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#=================================

#Define a 'finish' procedure proc finish {} {

global ns tracefile namfile

$ns flush-trace close $tracefile close $namfile

exec nam out.nam & exit 0

}

$ns at $val(stop) "$ns nam-end-wireless $val(stop)"

$ns at $val(stop) "finish"

$ns at $val(stop) "puts \"done\" ; $ns halt"

$ns run
```
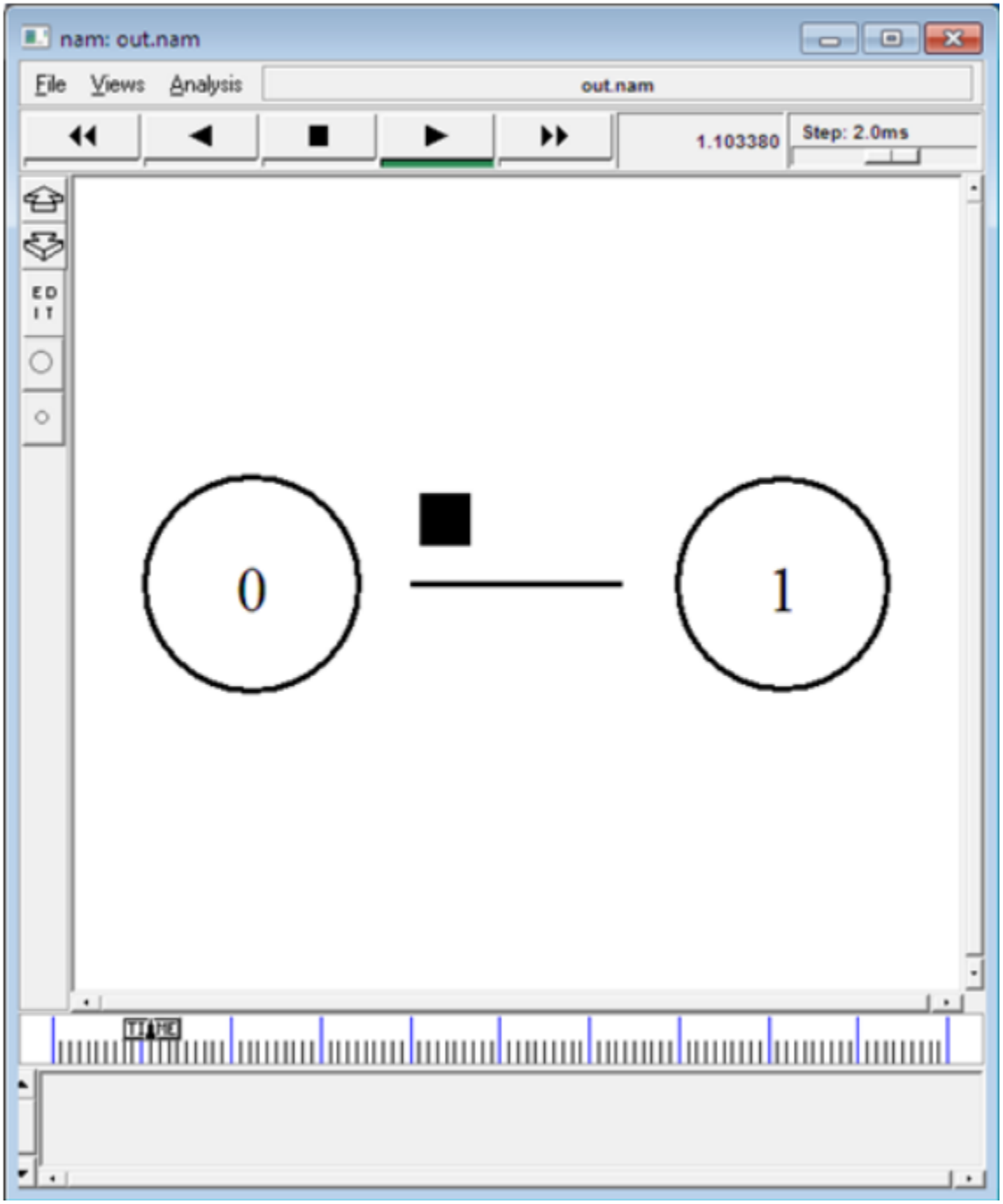

Output



Conclusion

Thus, we successfully created a duplex link in NS2.