

## EXPERIMENT NO : 11 | NET SIMULATOR 2

The screenshot displays the NAM (Network Animator) v1.15 interface. The main window shows a Tcl script being edited in the 'out.nam' file. The script defines a simulator, sets colors, opens trace files, and creates six nodes (n0 to n5). A 'Nam Console v1.15' window is open, displaying the NAM welcome message and copyright information. A 'TCPCongestion.tcl' window is also visible, showing a warning message. A network diagram is shown in the bottom right, illustrating a topology with six nodes (0-5) and their connections. Node 1 is highlighted in red.

```
1 set ns [new Simulator]
2
3 #Define different colors f
4 $ns color 1 Blue
5
6 #Open the Trace files
7 set file1 [open out.tr w]
8 $ns trace-all $file1
9
10 #Open the NAM trace file
11 set file2 [open out.nam w]
12 $ns namtrace-all $file2
13
14 #Define a 'finish' procedure
15 proc finish {} {
16     global ns file1 file2
17     $ns flush-trace
18     close $file1
19     close $file2
20     exec nam out.nam &
21     exit 0
22 }
23
24 #Create six nodes
25 set n0 [$ns node]
26 set n1 [$ns node]
27 set n2 [$ns node]
28 set n3 [$ns node]
29 set n4 [$ns node]
30 set n5 [$ns node]
```

NAM - The Network Animator v1.15

NAM - The Network Animator  
Welcome to Nam 1.15  
Developed by UCB and the VINT, SAMAN, and Conser projects at ISI.  
Nam contains source code with the following copyrights:  
Copyright (c) 1991-1994 Regents of the University of California.  
Copyright (c) 1997-1999 University of Southern California  
Copyright (c) 2000-2002 USC Information Sciences Institute

\_TCPCongestion.tcl  
variable LanRouter::debug\_  
ect.tcl in tclcl for info about this warning.

nam: out.nam

File Views Analysis out.nam

0.000000 Step: 2.0ms

Diagram showing a network topology with nodes 0 through 5. Node 1 is highlighted in red.

Tcl Tab Width: 8 Ln 1, Col 8 INS

```
set ns [new Simulator]
```

```
#Define different colors for data flows (for NAM)
```

```
$ns color 1 Blue
```

```
#Open the Trace files
```

```
set file1 [open out.tr w]
```

```
$ns trace-all $file1
```

```
#Open the NAM trace file
```

```
set file2 [open out.nam w]
```

```
$ns namtrace-all $file2
```

```
#Define a 'finish' procedure
```

```
proc finish {} {
```

```
    global ns file1 file2
```

```
    $ns flush-trace
```

```
    close $file1
```

```
    close $file2
```

```
    exec nam out.nam &
```

```
    exit 0
```

```
}
```

```
#Create six nodes
```

```
set n0 [$ns node]
```

```
set n1 [$ns node]
```

```
set n2 [$ns node]
```

```
set n3 [$ns node]
```

```
set n4 [$ns node]
```

```
set n5 [$ns node]
```

```
$n1 color red
```

```
$n1 shape box
```

```
#Create links between the nodes
```

```
$ns duplex-link $n0 $n2 2Mb 10ms DropTail
```

```
$ns duplex-link $n1 $n2 2Mb 10ms DropTail
```

```
$ns duplex-link $n2 $n3 2Mb 10ms DropTail
```

```
$ns duplex-link-op $n0 $n2 orient right-down
```

```
$ns duplex-link-op $n1 $n2 orient right-up
```

```
$ns duplex-link-op $n2 $n3 orient right
```

```
set lan [$ns newLan "$n3 $n4 $n5" 0.5Mb 40ms LL Queue/DropTail MAC/Csma/Cd Channel]
```

```
#Set Queue Size of link (n2-n3) to 10
```

```
$ns queue-limit $n2 $n3 10
```

```
#Setup a TCP connection
```

```
set tcp [new Agent/TCP]
```

```
$ns attach-agent $n0 $tcp
```

```
set sink [new Agent/TCPSink]
```

```
$ns attach-agent $n4 $sink
```

```
$ns connect $tcp $sink
```

```
$tcp set fid_ 1
```

```
$tcp set packetSize_ 552
```

```
#Setup a FTP over TCP connection
```

```
set ftp [new Application/FTP]
```

```
$ftp attach-agent $tcp
```

```
$ns at 0.1 "$ftp start"
```

```
$ns at 124.5 "$ftp stop"
```

```
proc plotting {tcpsource file3} {
```

```
    global ns
```

```
    set conges [$tcpsource set cwnd_]
```

```
    set now [$ns now]
```

```
    puts $file3 "$now $conges"
```

```
    $ns at [expr $now+0.1] "plotting $tcpsource $file3"
```

```
}
```

```
set print [open tcpconges.xg w]
```

```
$ns at 1.0 "plotting $tcp $print"
```

```
$ns at 125.0 "finish"
```

```
$ns run
```