```
set val(chan)   Channel/WirelessChannel    ;
set val(type)    GSM
set val(prop)   Propagation/TwoRayGround   ;
set val(netif)  Phy/WirelessPhy            ;
set val(mac)    Mac/802_11                 ;
set val(ifq)    Queue/DropTail/PriQueue    ;
set val(ll)     LL                         ;
set val(ant)    Antenna/OmniAntenna        ;
set val(ifqlen) 50                          ;
set val(nn)     10                         ;
set val(rp)     DSDV                        ;
set val(x)      1524                       ;
set val(y)      1579                       ;
set val(stop)   50.0                        ;
set f0 [open throughput.tr w]
set f1 [open lost.tr w]
set f2 [open delay.tr w]
set ns [new Simulator]
set topo       [new Topography]
$topo load_flatgrid $val(x) $val(y)
create-god $val(nn)
set tracefile [open 5.tr w]
$ns trace-all $tracefile
set namfile [open 5.nam w]
$ns namtrace-all $namfile
$ns namtrace-all-wireless $namfile $val(x) $val(y)
set chan [new $val(chan)];#Create wireless channel
$ns node-config -adhocRouting  $val(rp) \
-llType        $val(ll) \
-macType       $val(mac) \
-ifqType       $val(ifq) \
-ifqLen        $val(ifqlen) \
-antType       $val(ant) \
-propType      $val(prop) \
-phyType       $val(netif) \
-channel       $chan \
-topoInstance  $topo \
-agentTrace    ON \
-routerTrace   ON \
-macTrace      ON \
-movementTrace ON
set n0 [$ns node]
$n0 set X_ 250
$n0 set Y_ 400
$n0 set Z_ 0.0
set x1(0) 224
set y1(0) 479
$ns initial_node_pos $n0 20
set n1 [$ns node]
$n1 set X_ 434
$n1 set Y_ 399
$n1 set Z_ 0.0
set x1(1) 424
set y1(1) 479
$ns initial_node_pos $n1 20
setn2 [$ns node]
$n2 set X_ 577
$n2 set Y_ 399
$n2 set Z_ 0.0
set x1(2) 624
set y1(2) 479
$ns initial_node_pos $n2 20
set n3 [$ns node]
$n3 set X_ 742
$n3 set Y_ 399
$n3 set Z_ 0.0
set x1(3) 824
set y1(3) 479
$ns initial_node_pos $n3 20
set n4 [$ns node]
$n4 set X_ 939
$n4 set Y_ 397
$n4 set Z_ 0.0
set x1(4) 1024
set y1(4) 479
$ns initial_node_pos $n4 20
set n5 [$ns node]
$n5 set X_ 249
$n5 set Y_ 200
$n5 set Z_ 0.0
set x1(5) 224
set y1(5) 279
$ns initial_node_pos $n5 20
set n6 [$ns node]
$n6 set X_ 431
$n6 set Y_ 200
$n6 set Z_ 0.0
set x1(6) 424
set y1(6) 279
$ns initial_node_pos $n6 20
set n7 [$ns node]
$n7 set X_ 581
$n7 set Y_ 200
$n7 set Z_ 0.0
set x1(7) 624
set y1(7) 279
$ns initial_node_pos $n7 20
set n8 [$ns node]
$n8 set X_ 764
$n8 set Y_ 196
$n8 set Z_ 0.0
set x1(8) 824
set y1(8) 279
$ns initial_node_pos $n8 20
set n9 [$ns node]
$n9 set X_ 956
$n9 set Y_ 200
$n9 set Z_ 0.0
set x1(9) 1024
set y1(9) 279
$ns initial_node_pos $n9 20
```

```
puts
"_____
_____"
set m 0
puts
"_____
_____"
puts "|node| one hop neighbour|"
puts
"_____
_____"
for { set i 0} {$i<$val(nn)} {incr i} {
set k 0
for {set j 0} {$j <  $val(nn)} {incr j} {
set a [expr $x1($j)-$x1($i)]
set b [expr $a*$a]
set c [expr $y1($j)-$y1($i)]
set d [expr $c*$c]
set e [expr $b+$d]
set f 0.5
set g [expr pow($e,$f)]
if { $g <=200 && $i !=$j} {
puts "| node($i) | node($j) |"
set nei($m) $j
set k [expr $k+1]
set m [expr $m+1]
}
}
}
puts "Loading connection pattern..."
puts "loading scenario file"
set udp0 [new Agent/UDP]
$ns attach-agent $n0 $udp0
set sink [new Agent/LossMonitor]
$ns attach-agent $n7 $sink
$ns connect $udp0 $sink
$udp0 set packetSize_ 512
set cbr0 [new Application/Traffic/CBR]
$cbr0 attach-agent $udp0
$cbr0 set packetSize_ 1000
$cbr0 set rate_ 1.0Mb
$cbr0 set random_ null
set holdtime 0
set holdseq 0
set holdrate1 0
proc record {} {
global sink f0 f1 f2 holdtime holdseq holdrate1
set nsi [Simulator instance]
set time  0.9 ;#Set sampling time to 0.9 sec
set bw0 [$sink set bytes_]
puts "$bw0"
set bw1 [$sink set nlost_]
set bw2 [$sink set lastPktTime_]
set bw3 [$sink set npkts_]
set now [$nsi now]
puts $f0 "$now [expr (($bw0+
$holdrate1)*8)/(2*$time*1000000)]"
puts $f1 "$now [expr $bw1/$time]"
if { $bw3 > $holdseq } {
puts $f2 "$now [expr ($bw2 -$holdtime)/($bw3-
$holdseq)]"
} else {
puts $f2 "$now [expr ($bw3-$holdseq)]"
}
$sink set bytes_ 0
$sink set nlost_ 0
set holdtime $bw2
set holdseq $bw3
set holdrate1 $bw0
$nsi at [expr $now+$time] "record" ;#schedule
record after $time interval sec
}
$ns at 0.0 "record"
$ns at 1.0 "$cbr0 start"
$ns at 50.0 "$cbr0 stop"
$ns at 2.0 "$n0 setdest 800 800 20"
$ns at 2.0 "$n1 setdest 500 650 20"
$ns at 2.0 "$n2 setdest 600 700 20"
$ns at 2.0 "$n3 setdest 700 750 20"
$ns at 2.0 "$n4 setdest 800 800 20"
$ns at 2.0 "$n5 setdest 900 950 20"
$ns at 2.0 "$n6 setdest 1000 1000 20"
$ns at 2.0 "$n7 setdest 1200 1000 20"
$ns at 2.0 "$n8 setdest 1150 1100 20"
$ns at 2.0 "$n9 setdest 1200 1150 20"
$ns at 0.5 "$n0 add-mark m blue square"
$ns at 0.5 "$n7 add-mark m red square"
$ns at 0.5 "$n0 label source"
$ns at 0.5 "$n7label Destination"
proc finish {} {
global ns tracefile namfile f0 f1 f2
$ns flush-trace
close $tracefile
close $namfile
close $f0
close $f1
close $f2
exec nam 5.nam &
exec xgraph throughput.tr &
exec xgraph lost.tr &
exec xgraph delay.tr &
exit 0
}
for {set i 0} {$i < $val(nn) } { incr i } {
$ns at $val(stop) "\$n$i reset"
}
$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
```