

```
# This script is created by NSG2 beta1
# <http://wushoupong.googlepages.com/nsg>
```

```
#=====
```

```
# Simulation parameters setup
```

```
#=====
```

```
set val(chan) Channel/WirelessChannel ;# channel type
set val(prop) Propagation/TwoRayGround ;# radio-propagation model
set val(netif) Phy/WirelessPhy ;# network interface type
set val(mac) Mac/802_11 ;# MAC type
set val(ifq) Queue/DropTail/PriQueue ;# interface queue type
set val(ll) LL ;# link layer type
set val(ant) Antenna/OmniAntenna ;# antenna model
set val(ifqlen) 50 ;# max packet in ifq
set val(nn) 25 ;# number of mobilenodes
set val(rp) AODV ;# routing protocol
set val(x) 1186 ;# X dimension of topography
set val(y) 584 ;# Y dimension of topography
set val(stop) 100.0 ;# time of simulation end
set val(t1) 0.0 ;
set val(t2) 0.0 ;
```

```
#=====
```

```
# Initialization
```

```
#=====
```

```
#Create a ns simulator
```

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

```
#Setup topography object
```

```
set topo [new Topography]
```

```
$topo load_flatgrid $val(x) $val(y)
```

```
create-god $val(nn)
```

```
#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
```

```
$ns namtrace-all-wireless $namfile $val(x) $val(y)
```

```
set chan [new $val(chan)];#Create wireless channel
```

```
#=====
#   Mobile node parameter setup
#=====
$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
```

```
#=====
#   Nodes Definition
#=====
#Create 25 nodes
set n0 [$ns node]
$n0 set X_ 663
$n0 set Y_ 484
$n0 set Z_ 0.0
$ns initial_node_pos $n0 20
set n1 [$ns node]
$n1 set X_ 466
$n1 set Y_ 407
$n1 set Z_ 0.0
$ns initial_node_pos $n1 20
set n2 [$ns node]
$n2 set X_ 871
$n2 set Y_ 426
$n2 set Z_ 0.0
$ns initial_node_pos $n2 20
set n3 [$ns node]
$n3 set X_ 668
$n3 set Y_ 393
$n3 set Z_ 0.0
$ns initial_node_pos $n3 20
set n4 [$ns node]
```

```
$n4 set X_ 558
$n4 set Y_ 320
$n4 set Z_ 0.0
$ns initial_node_pos $n4 20
set n5 [$ns node]
$n5 set X_ 781
$n5 set Y_ 317
$n5 set Z_ 0.0
$ns initial_node_pos $n5 20
set n6 [$ns node]
$n6 set X_ 523
$n6 set Y_ 222
$n6 set Z_ 0.0
$ns initial_node_pos $n6 20
set n7 [$ns node]
$n7 set X_ 671
$n7 set Y_ 194
$n7 set Z_ 0.0
$ns initial_node_pos $n7 20
set n8 [$ns node]
$n8 set X_ 891
$n8 set Y_ 224
$n8 set Z_ 0.0
$ns initial_node_pos $n8 20
set n9 [$ns node]
$n9 set X_ 476
$n9 set Y_ 117
$n9 set Z_ 0.0
$ns initial_node_pos $n9 20
set n10 [$ns node]
$n10 set X_ 674
$n10 set Y_ 112
$n10 set Z_ 0.0
$ns initial_node_pos $n10 20
set n11 [$ns node]
$n11 set X_ 895
$n11 set Y_ 130
$n11 set Z_ 0.0
$ns initial_node_pos $n11 20
set n12 [$ns node]
$n12 set X_ 500
$n12 set Y_ 300
$n12 set Z_ 0.0
```

```
$ns initial_node_pos $n12 20
set n13 [$ns node]
$n13 set X_ 687
$n13 set Y_ 36
$n13 set Z_ 0.0
$ns initial_node_pos $n13 20
set n14 [$ns node]
$n14 set X_ 877
$n14 set Y_ 39
$n14 set Z_ 0.0
$ns initial_node_pos $n14 20
set n15 [$ns node]
$n15 set X_ 373
$n15 set Y_ 271
$n15 set Z_ 0.0
$ns initial_node_pos $n15 20
set n16 [$ns node]
$n16 set X_ 990
$n16 set Y_ 306
$n16 set Z_ 0.0
$ns initial_node_pos $n16 20
set n17 [$ns node]
$n17 set X_ 989
$n17 set Y_ 407
$n17 set Z_ 0.0
$ns initial_node_pos $n17 20
set n18 [$ns node]
$n18 set X_ 1086
$n18 set Y_ 453
$n18 set Z_ 0.0
$ns initial_node_pos $n18 20
set n19 [$ns node]
$n19 set X_ 455
$n19 set Y_ 479
$n19 set Z_ 0.0
$ns initial_node_pos $n19 20
set n20 [$ns node]
$n20 set X_ 350
$n20 set Y_ 434
$n20 set Z_ 0.0
$ns initial_node_pos $n20 20
set n21 [$ns node]
$n21 set X_ 263
```

```
$n21 set Y_ 306
$n21 set Z_ 0.0
$ns initial_node_pos $n21 20
set n22 [$ns node]
$n22 set X_ 261
$n22 set Y_ 209
$n22 set Z_ 0.0
$ns initial_node_pos $n22 20
set n23 [$ns node]
$n23 set X_ 240
$n23 set Y_ 115
$n23 set Z_ 0.0
$ns initial_node_pos $n23 20
set n24 [$ns node]
$n24 set X_ 313
$n24 set Y_ 29
$n24 set Z_ 0.0
$ns initial_node_pos $n24 20
```

```
#=====
#      Generate movement
#=====
$ns at 0 " $n6 setdest 1086 453 40 "
$ns at 10 " $n18 setdest 877 39 40 "
$ns at 20 " $n18 setdest 500 117 40 "
$ns at 60 " $n18 setdest 400 100 40 "
#$ns at 60 " $n18 setdest 340 430 40 "
$ns at 40 " $n6 setdest 400 500 40 "
$ns at 10 " $n15 setdest 650 470 40 "
$ns at 10 " $n5 setdest 550 220 40 "
#$ns at 40 " $n0 t1 "
```

```
#Rushing attackers
$ns at 0.0 "[$n7 set ragent_] rushingattack1"
$ns at 0.0 "[$n8 set ragent_] rushingattack2"
$ns at 0.0 "[$n10 set ragent_] rushingattack3"
```

```
#=====
#      Agents Definition
#=====
#Setup a UDP connection
set udp0 [new Agent/UDP]
```

```
$ns attach-agent $n21 $udp0
set null1 [new Agent/Null]
$ns attach-agent $n18 $null1
$ns connect $udp0 $null1
$udp0 set packetSize_ 1500
```

```
#Setup a CBR Application over UDP connection
set cbr0 [new Application/Traffic/CBR]
$cbr0 attach-agent $udp0
$cbr0 set packetSize_ 1000
$cbr0 set rate_ 0.1Mb
$cbr0 set random_ null
$ns at 1.0 "$cbr0 start"
$ns at 20.0 "$cbr0 stop"
#Setup a UDP connection
set udp1 [new Agent/UDP]
$ns attach-agent $n20 $udp1
set null2 [new Agent/Null]
$ns attach-agent $n18 $null2
$ns connect $udp1 $null1
$udp1 set packetSize_ 1500
```

```
#Setup a CBR Application over UDP connection
set cbr1 [new Application/Traffic/CBR]
$cbr1 attach-agent $udp1
$cbr1 set packetSize_ 1000
$cbr1 set rate_ 0.1Mb
$cbr1 set random_ null
$ns at 20.0 "$cbr1 start"
$ns at 40.0 "$cbr1 stop"
#Setup a UDP connection
set udp3 [new Agent/UDP]
$ns attach-agent $n22 $udp3
set null3 [new Agent/Null]
$ns attach-agent $n18 $null3
$ns connect $udp3 $null1
$udp3 set packetSize_ 1500
```

```
#Setup a CBR Application over UDP connection
set cbr2 [new Application/Traffic/CBR]
$cbr2 attach-agent $udp3
$cbr2 set packetSize_ 1000
$cbr2 set rate_ 0.1Mb
```

```
$cbr2 set random_ null
$ns at 40.0 "$cbr2 start"
$ns at 60.0 "$cbr2 stop"
set udp4 [new Agent/UDP]
$ns attach-agent $n8 $udp4
set null4 [new Agent/Null]
$ns attach-agent $n18 $null4
$ns connect $udp4 $null4
$udp4 set packetSize_ 1500
```

```
#Setup a CBR Application over UDP connection
set cbr4 [new Application/Traffic/CBR]
$cbr4 attach-agent $udp4
$cbr4 set packetSize_ 1000
$cbr4 set rate_ 0.1Mb
$cbr4 set random_ null
$ns at 60.0 "$cbr4 start"
$ns at 80.0 "$cbr4 stop"
set udp5 [new Agent/UDP]
$ns attach-agent $n16 $udp5
set null5 [new Agent/Null]
$ns attach-agent $n18 $null5
$ns connect $udp5 $null5
$udp5 set packetSize_ 1500
```

```
#Setup a CBR Application over UDP connection
set cbr5 [new Application/Traffic/CBR]
$cbr5 attach-agent $udp5
$cbr5 set packetSize_ 1000
$cbr5 set rate_ 0.1Mb
$cbr5 set random_ null
$ns at 80.0 "$cbr5 start"
$ns at 100.0 "$cbr5 stop"
```

```
#=====
#    Applications Definition
#=====
```

```
#=====
#    Termination
#=====
```

```
#Define a 'finish' procedure
proc finish {} {
    global ns tracefile namfile
```

```
$ns flush-trace
close $tracefile
close $namfile
exec nam out.nam &
exit 0
}
for {set i 0} {$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
```