set ns [new Simulator]

set nf [open out.nam w]

$ns namtrace-all $nf

proc finish {} {

global ns nf

$ns flush-trace

close $nf

exec nam out.nam &

exit 0

}

set n0 [$ns node]

set n1 [$ns node]

$ns at 0.0 "$n0 label Sender"

$ns at 0.0 "$n1 label Receiver"

$ns duplex-link $n0 $n1 1Mb 10ms DropTail

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

$ns queue-limit $n0 $n1 50

set tcp [new Agent/TCP]

$tcp set window\_ 1

$tcp set maxcwnd\_ 1

$ns attach-agent $n0 $tcp

set sink [new Agent/TCPSink]

$ns attach-agent $n1 $sink

$ns connect $tcp $sink

set ftp [new Application/FTP]

$ftp attach-agent $tcp

$ns add-agent-trace $tcp tcp

$ns monitor-agent-trace $tcp

$tcp tracevar cwnd\_

$ns at 0.1 "$ftp start"

$ns at 3.0 "$ns detach-agent $n0 $tcp ; $ns detach-agent $n1 $sink"

$ns at 3.5 "finish"

$ns at 0.0 "$ns trace-annotate \"Stop and Wait with normal operation\""

$ns at 0.05 "$ns trace-annotate \"FTP starts at 0.1\""

$ns at 0.11 "$ns trace-annotate \"Send Packet\_0\""

$ns at 0.35 "$ns trace-annotate \"Receive Ack\_0\""

$ns at 0.56 "$ns trace-annotate \"Send Packet\_1\""

$ns at 0.79 "$ns trace-annotate \"Receive Ack\_1\""

$ns at 0.99 "$ns trace-annotate \"Send Packet\_2\""

$ns at 1.23 "$ns trace-annotate \"Receive Ack\_2 \""

$ns at 1.43 "$ns trace-annotate \"Send Packet\_3\""

$ns at 1.67 "$ns trace-annotate \"Receive Ack\_3\""

$ns at 1.88 "$ns trace-annotate \"Send Packet\_4\""

$ns at 2.11 "$ns trace-annotate \"Receive Ack\_4\""

$ns at 2.32 "$ns trace-annotate \"Send Packet\_5\""

$ns at 2.55 "$ns trace-annotate \"Receive Ack\_5 \""

$ns at 2.75 "$ns trace-annotate \"Send Packet\_6\""

$ns at 2.99 "$ns trace-annotate \"Receive Ack\_6\""

$ns at 3.1 "$ns trace-annotate \"FTP stops\""

$ns run