# Practical: - 3

## 3. TCP / UDP connectivity using Netcat

**What is Netcat?**

Netcat is a featured networking utility which reads and writes data across network connections, using the TCP/IP protocol. Designed to be a reliable "back-end" tool, Netcat can be used directly with other programs and scripts to send files from a client to a server and back. At the same time, it is a feature-rich network debugging and exploration tool that can specify the network patameters while also establishing a connection to a remote host via a tunnel.

## Syntax

nc [-options] hostname port[s] [ports]
nc -l -p port [-options] [hostname] [port]

## Basic Parameters

-l: Listen mode (default is client mode)

-L: Listen harder (supported only on Windows version of Netcat). This option makes Netcat a persistent listener which starts listening again after a client disconnects

-u: UDP mode (default is TCP)

-p: Local port (In listen mode, this is port listened on. In client mode, this is source port for all packets sent)

-e: Program to execute after connection occurs, connecting STDIN and STDOUT to the program

-n: Don’t perform DNS lookups on names of machines on the other side

-z: Zero-I/O mode (Don’t send any data, just emit a packet without payload)

-wN: Timeout for connects, waits for N seconds after closure of STDIN. A Netcat client or listener with this option will wait for N seconds to make a connection. If the connection doesn’t happen in that time, Netcat stops running.

-v: Be verbose, printing out messages on Standard Error, such as when a connection occurs

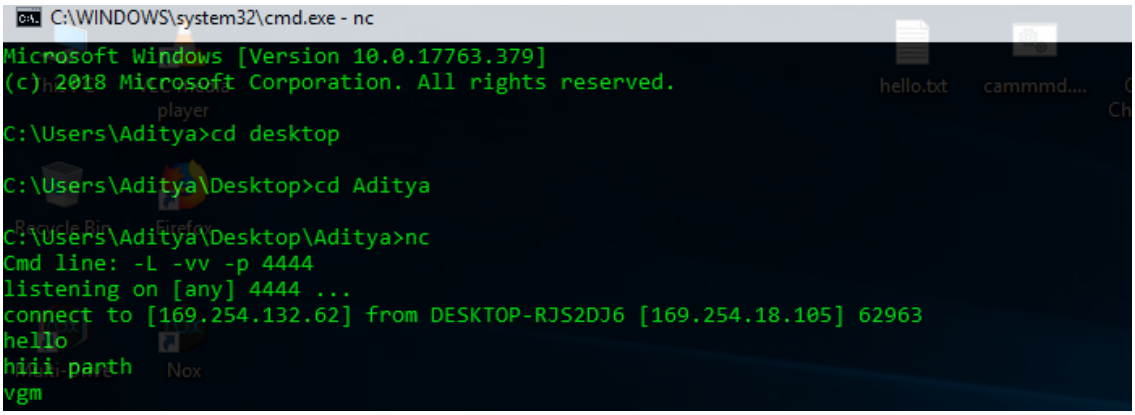
-vv: Be very verbose, printing even more details on Standard Error

## Test your Netcat understanding as a client-server

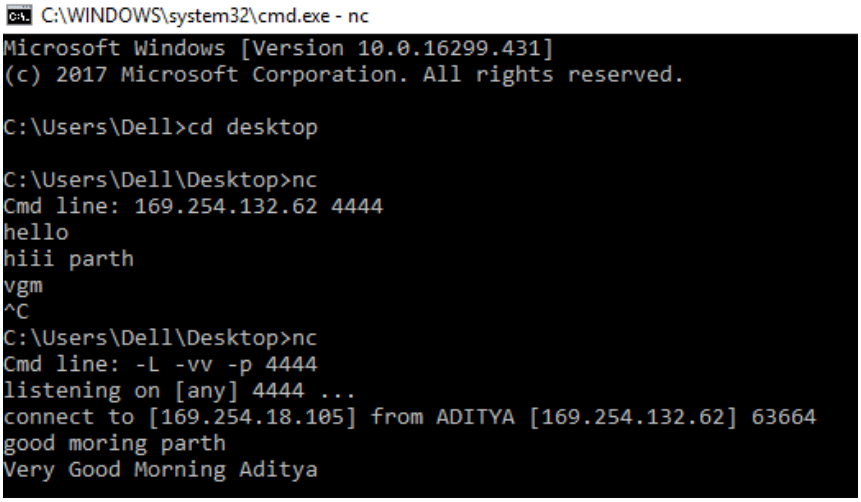
Open two computer terminals, the first will act as the server and the second will be the client.

## TCP client

With **Netcat** your PC can be converted in a server, you want to begin as a server that listens at port **4444**:




## In addition, we can use the server to connect to the port (4444) recently opened, from the client side:

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# File Transfer Using Netcat

## Push a file from client to listener:

$ nc –l –p [LocalPort] > [outfile]

Listen on [LocalPort],Store results in [outfile]

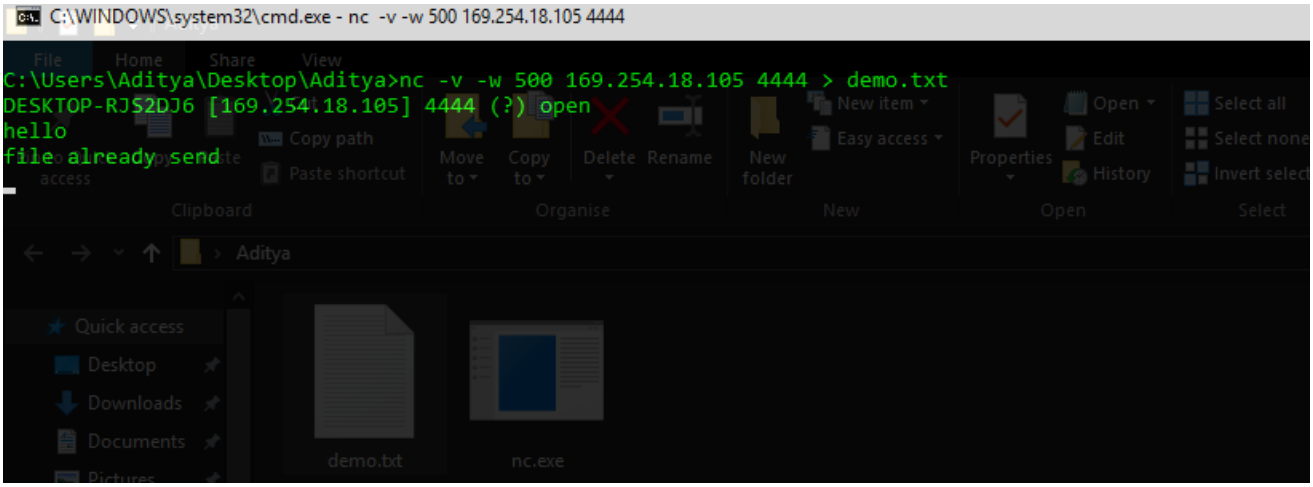
$ nc –w2 [TargetIpAddr]  [port] < [infile]

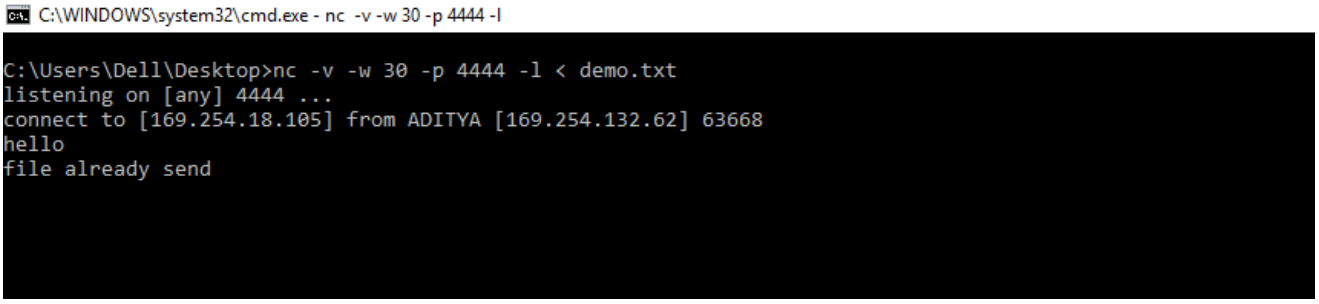
Push [infile] to [TargeIPAddr] on [port]

## Pull file form listener back to client

$ nc –w3 [TargetIPaddr] [port] > [outfile]

Connect to [TargetIPaddr] on [port] and retrieve [outfile]

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