Subject: Security/Networking Lab   **Name of Instructor: Mr.Vishal Badgujar**

NETKIT Installation Instructions

INSTALLING NETKIT A complete Netkit distribution consists of three different packages: - the Netkit "core", which contains commands, documentation and other stuff which is necessary for Netkit to work; - the Netkit filesystem, which contains the filesystem for virtual machines; - the Netkit kernel, which contains the kernel used by virtual machines

STEP 1: DOWNLOAD AND UNPACK

Download all the files from https://www.netkit.org/ to a home directory. Then unpack them by using the following commands:
vishal@vishal-HP-Laptop-14s-dr4xxx:~$ tar -xjSf netkit-2.8.tar.bz2
vishal@vishal-HP-Laptop-14s-dr4xxx:~$ tar -xjSf netkit-filesystem-i386-F5.2.tar.bz2
vishal@vishal-HP-Laptop-14s-dr4xxx:~$ tar -xjSf netkit-kernel-i386-K2.8.tar.bz2

STEP 2: CONFIGURATION

vishal@vishal-HP-Laptop-14s-dr4xxx:~$ export NETKIT_HOME=/home/vishal/Downloads/netkit
vishal@vishal-HP-Laptop-14s-dr4xxx:~$ export MANPATH=:$NETKIT_HOME/man
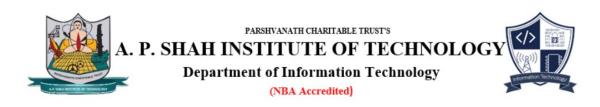vishal@vishal-HP-Laptop-14s-dr4xxx:~$ export PATH=$NETKIT_HOME/bin:$PATH

STEP 3: CHECK YOUR CONFIGURATION

vishal@vishal-HP-Laptop-14s-dr4xxx:~$ cd netkit
vishal@vishal-HP-Laptop-14s-dr4xxx:~/netkit$ export PATH=/home/vishal/Downloads/netkit/bin:$PATH
vishal@vishal-HP-Laptop-14s-dr4xxx:~/netkit$ ./check_configuration.sh
> Checking path correctness... passed.
> Checking environment... passed.
> Checking for availability of man pages... passed.
> Checking for proper directories in the PATH... passed.
> Checking for availability of auxiliary tools:
      awk   : ok
      basename   : ok
      date   : ok
      dirname   : ok
      find   : ok
      getopt   : ok
      grep   : ok

```
        head       : ok
        id        : ok
        kill      : ok
        ls        : ok
        lsof       : ok
        ps        : ok
        readlink    : ok
        wc         : ok
        port-helper  : ok
        tunctl     : ok
        uml_mconsole : ok
        uml_switch   : ok
passed.
> Checking for availability of terminal emulator applications:
        xterm        : not found
        konsole       : not found
        gnome-terminal : found
failed!
```

Warning: either xterm is not installed on your system or it is not
currently available in the PATH. Since xterm is the default terminal
emulator application used by Netkit virtual machines, this may prevent
them from starting up properly. Please refer to the Netkit
documentation for information about using terminal emulators that are
different from xterm.

```
> Checking filesystem type... passed.
> Checking whether 32-bit executables can run... failed!
```

*** Error: Your system appears not to be able to run 32 bit applications.
If you are running a 64-bit Linux distribution, this can be fixed by installing
the following packages: ia32-libs, libc6-i386. Otherwise, please check that
you have installed all the Netkit packages correctly and try again.

[ERROR] Your system is not configured properly. Please correct the
          above errors before starting to use Netkit.

STEP 4: Installation of packages for 32 bit applications.

vishal@vishal-HP-Laptop-14s-dr4xxx:~/netkit$ sudo apt-get install lib32z1
[sudo] password for vishal:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libc6 libc6-dbg libc6-i386
Suggested packages:
  glibc-doc
The following NEW packages will be installed:
  lib32z1 libc6-i386
The following packages will be upgraded:
  libc6 libc6-dbg
2 upgraded, 2 newly installed, 0 to remove and 359 not upgraded.
Need to get 2,787 kB/25.5 MB of archives.
After this operation, 31.5 MB disk space will be freed.
Do you want to continue? [Y/n] y
Get:1 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 libc6-i386 amd64 2.31-0ubuntu9.9 [2,730 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 lib32z1 amd64 1:1.2.11.dfsg-2ubuntu1.5 [57.1 kB]
Fetched 2,787 kB in 1min 45s (26.4 kB/s)
Preconfiguring packages ...
(Reading database ... 179864 files and directories currently installed.)
Preparing to unpack .../libc6-dbg_2.31-0ubuntu9.9_amd64.deb ...
Unpacking libc6-dbg:amd64 (2.31-0ubuntu9.9) over (2.31-0ubuntu9.2) ...
Preparing to unpack .../libc6_2.31-0ubuntu9.9_amd64.deb ...
Unpacking libc6:amd64 (2.31-0ubuntu9.9) over (2.31-0ubuntu9.2) ...
Setting up libc6:amd64 (2.31-0ubuntu9.9) ...
Selecting previously unselected package libc6-i386.
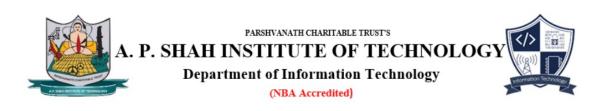(Reading database ... 180021 files and directories currently installed.)
Preparing to unpack .../libc6-i386_2.31-0ubuntu9.9_amd64.deb ...
Unpacking libc6-i386 (2.31-0ubuntu9.9) ...
Selecting previously unselected package lib32z1.
Preparing to unpack .../lib32z1_1%3a1.2.11.dfsg-2ubuntu1.5_amd64.deb ...
Unpacking lib32z1 (1:1.2.11.dfsg-2ubuntu1.5) ...

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Setting up libc6-dbg:amd64 (2.31-0ubuntu9.9) ...
Setting up libc6-i386 (2.31-0ubuntu9.9) ...
Setting up lib32z1 (1:1.2.11.dfsg-2ubuntu1.5) ...
Processing triggers for libc-bin (2.31-0ubuntu9.2) ...

vishal@vishal-HP-Laptop-14s-dr4xxx:~/netkit$ ./check_configuration.sh
> Checking path correctness... passed.
> Checking environment... passed.
> Checking for availability of man pages... passed.
> Checking for proper directories in the PATH... passed.
> Checking for availability of auxiliary tools:
        awk   : ok
        basename   : ok
        date   : ok
        dirname   : ok
        find   : ok
        getopt   : ok
        grep   : ok
        head   : ok
        id   : ok
        kill   : ok
        ls   : ok
        lsof   : ok
        ps   : ok
        readlink   : ok
        wc   : ok
        port-helper : ok
        tunctl   : ok
        uml_mconsole : ok
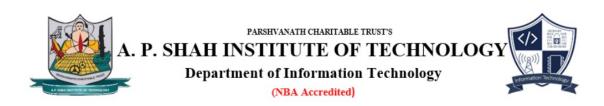   uml_switch   : ok
passed.
> Checking for availability of terminal emulator applications:
        xterm   : not found
        konsole   : not found
        gnome-terminal : found
failed!

Warning: either xterm is not installed on your system or it is not
currently available in the PATH. Since xterm is the default terminal

emulator application used by Netkit virtual machines, this may prevent
them from starting up properly. Please refer to the Netkit
documentation for information about using terminal emulators that are
different from xterm.

> Checking filesystem type... passed.
> Checking whether 32-bit executables can run... passed.

[WARNING] Some configuration settings should be changed.
        You may also ignore this message, but doing so may result in Netkit
        not working properly on your system.

STEP-5 xterm installation

vishal@vishal-HP-Laptop-14s-dr4xxx:~/netkit$ sudo apt -y install xterm
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libutempter0
Suggested packages:
  xfonts-cyrillic
The following NEW packages will be installed:
  libutempter0 xterm
0 upgraded, 2 newly installed, 0 to remove and 359 not upgraded.
Need to get 773 kB of archives.
After this operation, 2,380 kB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu focal/main amd64 libutempter0 amd64 1.1.6-4 [8,256 B]
Get:2 http://in.archive.ubuntu.com/ubuntu focal-updates/universe amd64 xterm amd64 353-
1ubuntu1.20.04.2 [765 kB]
Fetched 773 kB in 2s (334 kB/s)
Selecting previously unselected package libutempter0:amd64.
(Reading database ... 180330 files and directories currently installed.)
Preparing to unpack .../libutempter0_1.1.6-4_amd64.deb ...
Unpacking libutempter0:amd64 (1.1.6-4) ...
Selecting previously unselected package xterm.
Preparing to unpack .../xterm_353-1ubuntu1.20.04.2_amd64.deb ...
Unpacking xterm (353-1ubuntu1.20.04.2) ...
Setting up libutempter0:amd64 (1.1.6-4) ...

Setting up xterm (353-1ubuntu1.20.04.2) ...
Processing triggers for mime-support (3.64ubuntu1) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Processing triggers for gnome-menus (3.36.0-1ubuntu1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.2) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for desktop-file-utils (0.24-1ubuntu3) ...

STEP -6 TESTING YOUR INSTALLATION-

In order to test whether Netkit is working properly, you can start a simple virtual machine by issuing the command:

vishal@vishal-HP-Laptop-14s-dr4xxx:~/netkit$ vstart pc1

============= Starting virtual machine "pc1" =============
   Kernel: /home/vishal/netkit/kernel/netkit-kernel
   Modules: /home/vishal/netkit/kernel/modules
   Memory: 32 MB
   Model fs: /home/vishal/netkit/fs/netkit-fs
   Filesystem: /home/vishal/netkit/pc1.disk (new)
   Hostfs at: /home/vishal

Running ==> xterm -e /home/vishal/netkit/kernel/netkit-kernel
modules=/home/vishal/netkit/kernel/modules name=pc1 title=pc1 umid=pc1 mem=36M
ubd0=/home/vishal/netkit/pc1.disk,/home/vishal/netkit/fs/netkit-fs root=98:1
uml_dir=/home/vishal/.netkit/mconsole hosthome=/home/vishal quiet con0=fd:0,fd:1 con1=null
SELINUX_INIT=0