Simple Docker Example using Debian Bullseye

The presentation shows the installation of Docker and minikube on Debian Bullseye. The presentation shows a simple iperf3 test between two Docker containers on the Debian host.

Preuss
9/28/2022


csis341-debian01 - VMware Workstation 16 Player (Non-commercial use only)
Player
Activities
Sep 28 10:15
The presentation logs in to Debian Image.
debian

Open docker-install.sh ~/scripts Save

```
1 # !/bin/bash
2
3 # This installs Docker on Debian Bullseye
4 # https://docs.docker.com/engine/install/debian/
5 # https://www.linuxtechi.com/install-docker-engine-on-debian/
6 # Preuss 9/28/2022
7
8
9 sudo apt-get remove docker docker-engine docker.io containerd runc
10 sudo apt update
11 sudo apt install apt-transport-https ca-certificates curl gnupg lsb-release -y
12 curl -fsSL https://download.docker.com/linux/debian/gpg | sudo gpg --dearmor -o /usr/share/keyrings/docker-archive-keyring.gpg
13 echo "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/keyrings/docker-archive-keyring.gpg] https://download.docker.com/linux/debian $(lsb_release -cs) stable" | sudo
   tee /etc/apt/sources.list.d/docker.list > /dev/null
14 sudo apt update
15 sudo apt -y install docker-ce docker-ce-cli containerd.io
16 sudo docker version
17 sudo systemctl start docker
18 sudo systemctl enable docker
19 sudo usermod -aG docker preuss
20
```

The presentation shows a bash script to install Docker. Yes, line 13 is very long.

The line numbers are added by the text editior. The line numbers are not needed by the script.

sh Tab Width: 8 Ln 20, Col 1 INS

csis341-debian01 - VMware Workstation 16 Player (Non-commercial use only)

Player

Activities Text Editor Sep 28 10:17

Open minikube-install.sh ~/scripts Save

docker-install.sh minikube-install.sh

```
1 #!/bin/bash
2
3 # This is minikube installation on Debian Bullseye
4 # https://minikube.sigs.k8s.io/docs/start/
5 # Preuss 9/28/2022
6
7 curl -LO https://storage.googleapis.com/minikube/releases/latest/minikube_latest_amd64.deb
8 sudo dpkg -i minikube_latest_amd64.deb
9 mimikube start
10 minikube kubectl -- get po -A
11 minikube dashboard
12
```

The presentation shows a bash script to install minikube on the Docker image.

The line numbers are added by the text editior. The line numbers are not needed by the script.

sh Tab Width: 8 Ln 12, Col 1 INS

debian

csis341-debian01 - VMware Workstation 16 Player (Non-commercial use only)

Player

Activities Text Editor Sep 28 10:17

Open macvlan-setup-iperf3-server.sh ~/scripts Save

docker-install.sh minikube-install.sh macvlan-setup-iperf3-server.sh

```
1 #!/bin/bash
2
3 # This is Docker macvlan creation and iperf3 server
4 # Note: vlan creation only needs to be done once on each Docker host
5 # Docker documentation and networkstatic/iperf3
6 # Preuss 9/28/2022
7
8 # This sets up the macvlan network on my host
9 docker network create -d macvlan  --subnet=192.168.10.0/24 --gateway=192.168.10.1 -o parent=ens33 internal01
10
11 # This starts the iperf3 server
12 docker run -it --rm --name=iperf3-server --net=internal01 --ip=192.168.10.15 -p 5201:5201 networkstatic/iperf3 -s
13
14 # ctrl-c will stop the server
```

The presentation creates a bash script to setup the macvlan on the host and start the iperf3 server.

The line numbers are added by the text editior. The line numbers are not needed by the script.

sh Tab Width: 8 Ln 14, Col 30 INS

debian

Open | iperf3-client-local-macvlan.sh ~/scripts | Save

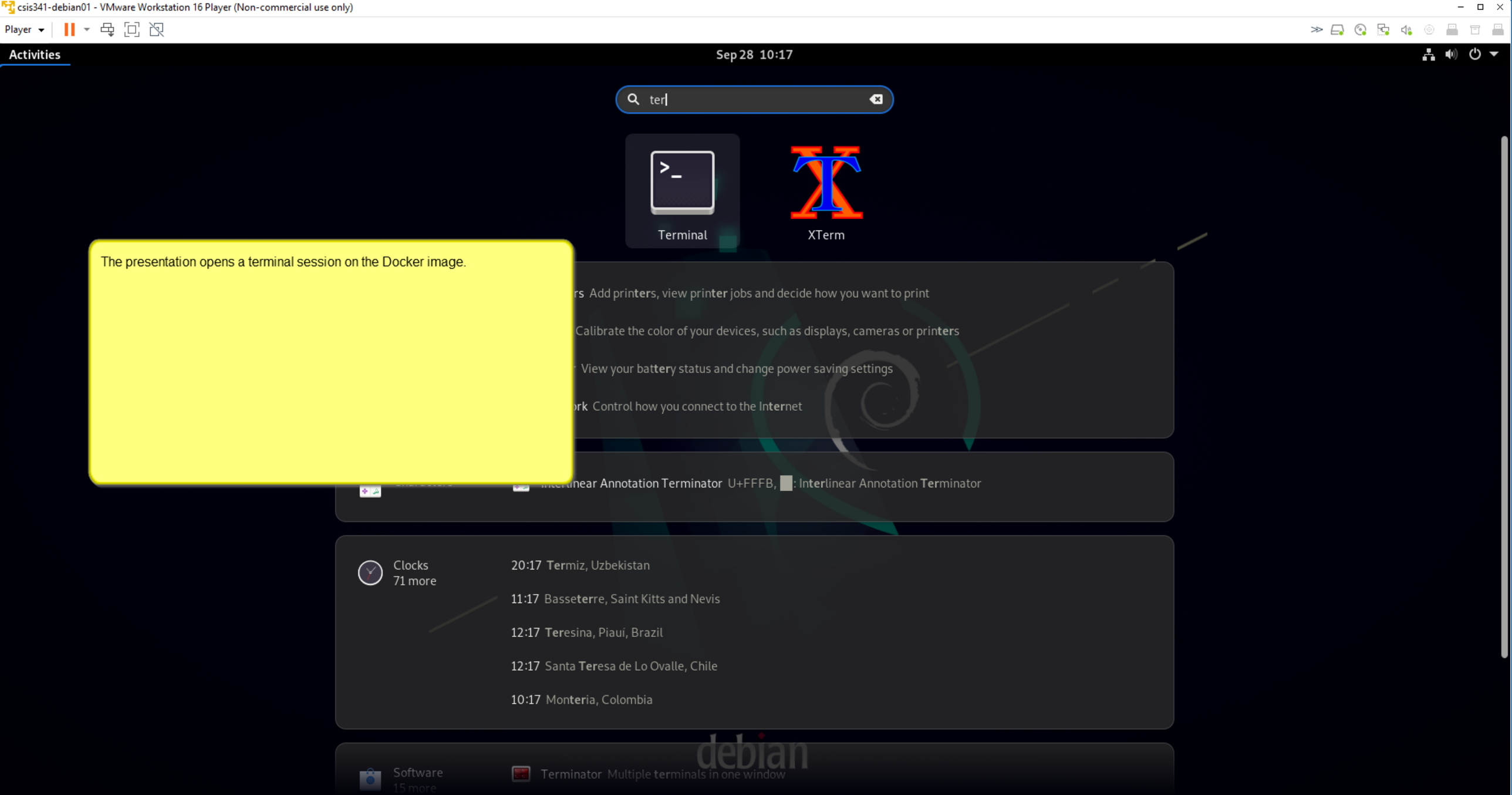
docker-install.sh | minikube-install.sh | macvlan-setup-iperf3-server.sh | iperf3-client-local-macvlan.sh

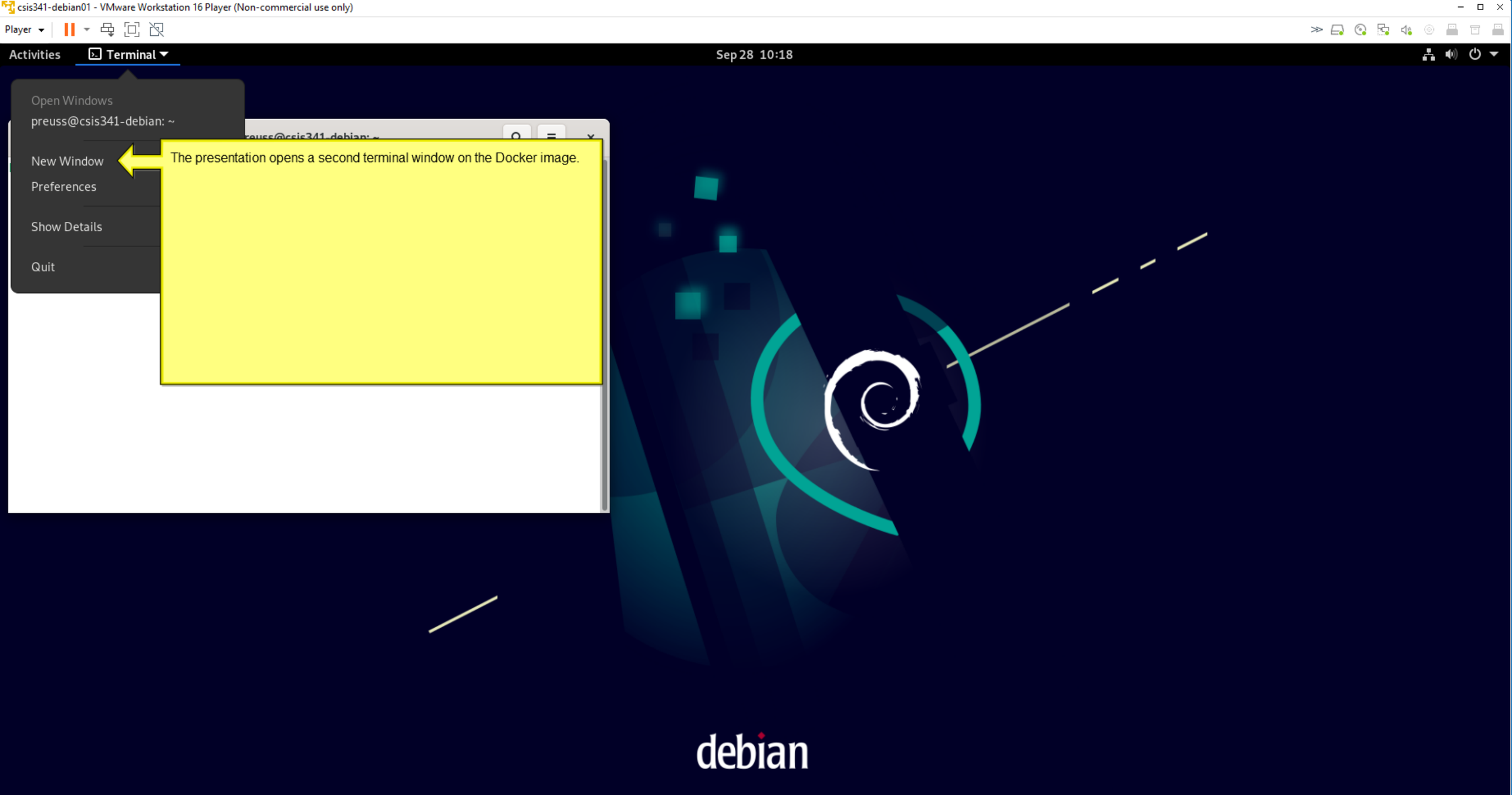
```
1 #!/bin/bash
2
3 # This starts the iperf3 client on the local macvlan network
4 # networkstatic/iperf3 documentation
5 # Preuss 9/28/2022
6
7
8 docker run -it --rm --name=test01 --net=internal01  networkstatic/iperf3 -c 192.168.10.15
9
```

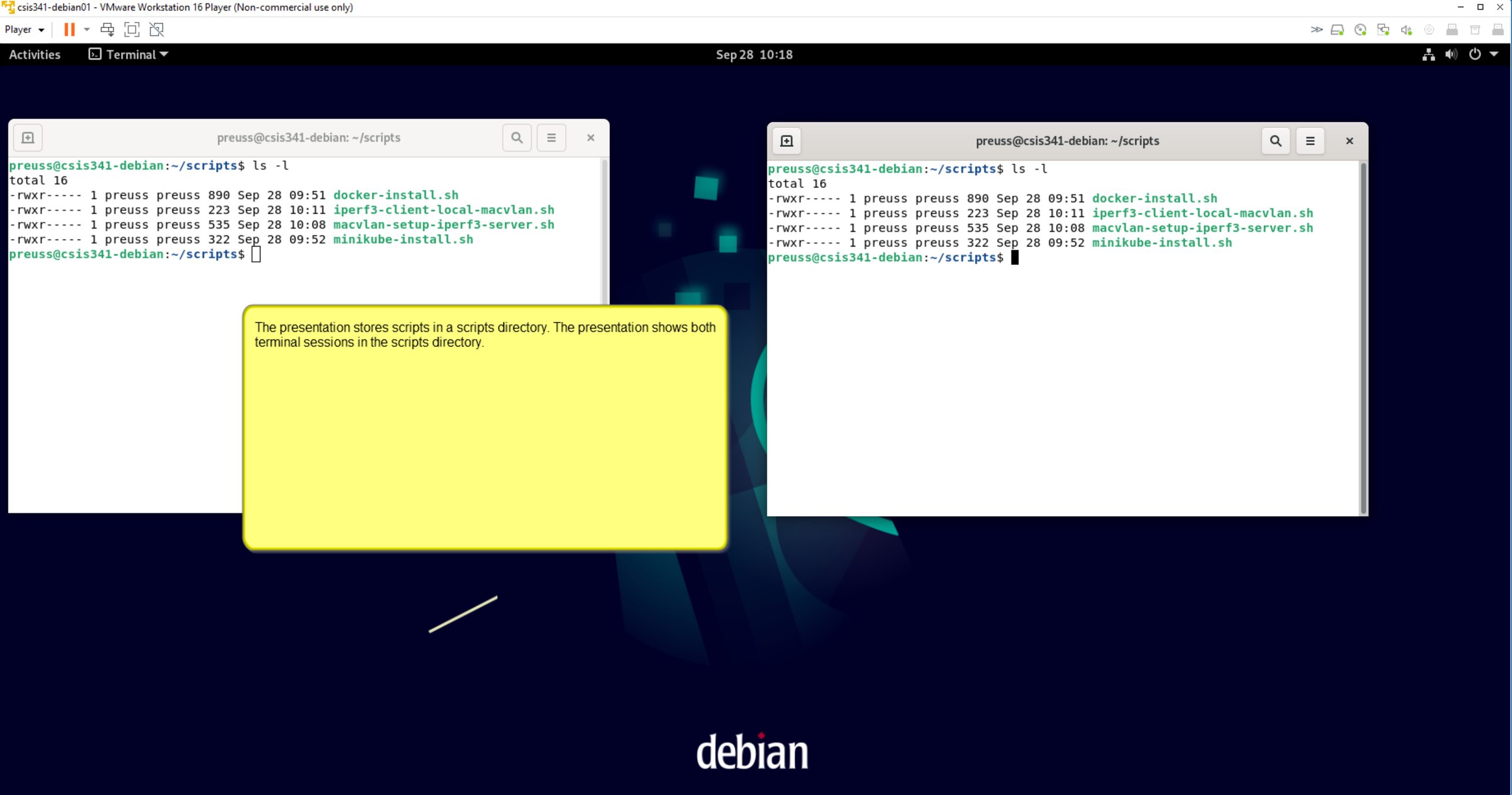
The presentation creates a bash script to run an iperf3 client on the Docker image.

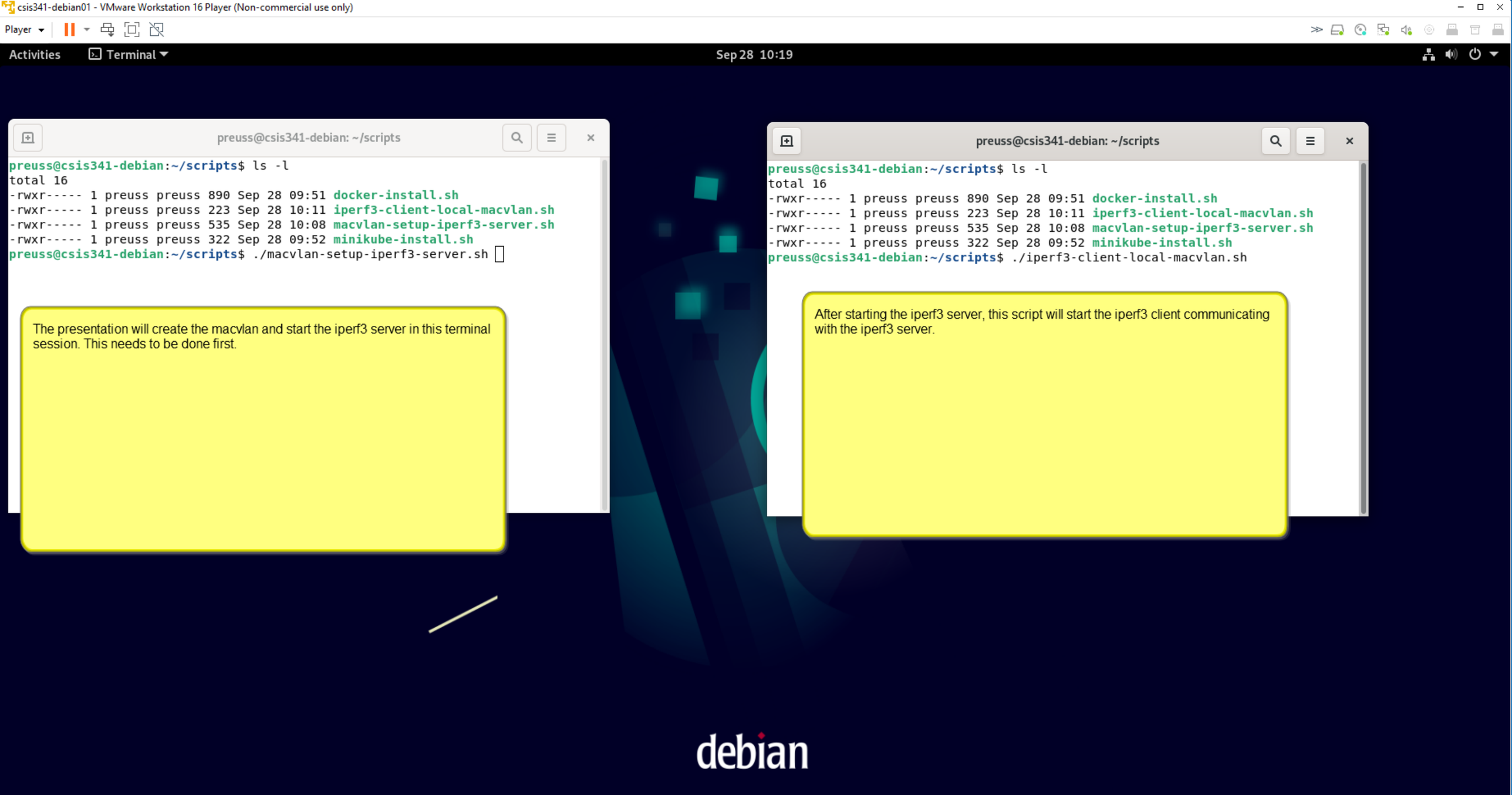
The line numbers are added by the text editior. The line numbers are not needed by the script.

sh | Tab Width: 8 | Ln 9, Col 1 | INS


csis341-debian01 - VMware Workstation 16 Player (Non-commercial use only)
Player
Activities
Sep 28 10:17
ter
Terminal
XTerm
The presentation opens a terminal session on the Docker image.
rs Add printers, view printer jobs and decide how you want to print
Calibrate the color of your devices, such as displays, cameras or printers
View your battery status and change power saving settings
rk Control how you connect to the Internet
linear Annotation Terminator U+FFFB, : Interlinear Annotation Terminator
Clocks
71 more
20:17 Termiz, Uzbekistan
11:17 Basseterre, Saint Kitts and Nevis
12:17 Teresina, Piauí, Brazil
12:17 Santa Teresa de Lo Ovalle, Chile
10:17 Monteria, Colombia
Software
15 more
Terminator Multiple terminals in one window
debian


csis341-debian01 - VMware Workstation 16 Player (Non-commercial use only)
Player
Activities
Terminal
Sep 28 10:18
Open Windows
preuss@csis341-debian: ~
New Window
Preferences
Show Details
Quit
The presentation opens a second terminal window on the Docker image.
debian


csis341-debian01 - VMware Workstation 16 Player (Non-commercial use only)
Player
Activities
Terminal
Sep 28 10:18
preuss@csis341-debian: ~/scripts
preuss@csis341-debian:~/scripts$ ls -l
total 16
-rwxr----- 1 preuss preuss 890 Sep 28 09:51 docker-install.sh
-rwxr----- 1 preuss preuss 223 Sep 28 10:11 iperf3-client-local-macvlan.sh
-rwxr----- 1 preuss preuss 535 Sep 28 10:08 macvlan-setup-iperf3-server.sh
-rwxr----- 1 preuss preuss 322 Sep 28 09:52 minikube-install.sh
preuss@csis341-debian:~/scripts$
The presentation stores scripts in a scripts directory. The presentation shows both terminal sessions in the scripts directory.
preuss@csis341-debian: ~/scripts
preuss@csis341-debian:~/scripts$ ls -l
total 16
-rwxr----- 1 preuss preuss 890 Sep 28 09:51 docker-install.sh
-rwxr----- 1 preuss preuss 223 Sep 28 10:11 iperf3-client-local-macvlan.sh
-rwxr----- 1 preuss preuss 535 Sep 28 10:08 macvlan-setup-iperf3-server.sh
-rwxr----- 1 preuss preuss 322 Sep 28 09:52 minikube-install.sh
preuss@csis341-debian:~/scripts$
debian


csis341-debian01 - VMware Workstation 16 Player (Non-commercial use only)
Player
Activities
Terminal
Sep 28 10:19
preuss@csis341-debian: ~/scripts
preuss@csis341-debian:~/scripts$ ls -l
total 16
-rwxr----- 1 preuss preuss 890 Sep 28 09:51 docker-install.sh
-rwxr----- 1 preuss preuss 223 Sep 28 10:11 iperf3-client-local-macvlan.sh
-rwxr----- 1 preuss preuss 535 Sep 28 10:08 macvlan-setup-iperf3-server.sh
-rwxr----- 1 preuss preuss 322 Sep 28 09:52 minikube-install.sh
preuss@csis341-debian:~/scripts$ ./macvlan-setup-iperf3-server.sh
The presentation will create the macvlan and start the iperf3 server in this terminal session. This needs to be done first.
preuss@csis341-debian: ~/scripts
preuss@csis341-debian:~/scripts$ ls -l
total 16
-rwxr----- 1 preuss preuss 890 Sep 28 09:51 docker-install.sh
-rwxr----- 1 preuss preuss 223 Sep 28 10:11 iperf3-client-local-macvlan.sh
-rwxr----- 1 preuss preuss 535 Sep 28 10:08 macvlan-setup-iperf3-server.sh
-rwxr----- 1 preuss preuss 322 Sep 28 09:52 minikube-install.sh
preuss@csis341-debian:~/scripts$ ./iperf3-client-local-macvlan.sh
After starting the iperf3 server, this script will start the iperf3 client communicating with the iperf3 server.
debian


csis341-debian01 - VMware Workstation 16 Player (Non-commercial use only)
Player
Activities
Terminal
Sep 28 10:19
preuss@csis341-debian: ~/scripts
preuss@csis341-debian:~/scripts$ ls -l
total 16
-rwxr----- 1 preuss preuss 890 Sep 28 09:51 docker-install.sh
-rwxr----- 1 preuss preuss 223 Sep 28 10:11 iperf3-client-local-macvlan.sh
-rwxr----- 1 preuss preuss 535 Sep 28 10:08 macvlan-setup-iperf3-server.sh
-rwxr----- 1 preuss preuss 322 Sep 28 09:52 minikube-install.sh
preuss@csis341-debian:~/scripts$ ./macvlan-setup-iperf3-server.sh
04c8b7505e425cff376916add6cab1ff4ef063fd8594a5db7e637e5c96849000

Server listening on 5201

Accepted connection from 192.168.10.2, port 33394
[5] local 192.168.10.15 port 5201 connected to 192.168.10.2 port 33396
[ID] Interval Transfer Bitrate
[5] 0.00-1.00 sec 4.89 GBytes 42.0 Gbits/sec
[5] 1.00-2.00 sec 5.20 GBytes 44.7 Gbits/sec
preuss@csis341-debian: ~/scripts
preuss@csis341-debian:~/scripts$ ls -l
total 16
-rwxr----- 1 preuss preuss 890 Sep 28 09:51 docker-install.sh
-rwxr----- 1 preuss preuss 223 Sep 28 10:11 iperf3-client-local-macvlan.sh
-rwxr----- 1 preuss preuss 535 Sep 28 10:08 macvlan-setup-iperf3-server.sh
-rwxr----- 1 preuss preuss 322 Sep 28 09:52 minikube-install.sh
preuss@csis341-debian:~/scripts$ ./iperf3-client-local-macvlan.sh
Connecting to host 192.168.10.15, port 5201
[5] local 192.168.10.2 port 33396 connected to 192.168.10.15 port 5201
[ID] Interval Transfer Bitrate Retr Cwnd
[5] 0.00-1.00 sec 5.12 GBytes 44.0 Gbits/sec 52 1.79 MBytes
[5] 1.00-2.00 sec 5.20 GBytes 44.7 Gbits/sec 0 1.79 MBytes
The presentation briefly shows some output. The full report is longer.
In terms of reporting to D2L, you could add redirection (>>) to the command or add the iperf3 option to report to a file.
debian