MINIX

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FEATURES OF MINIX

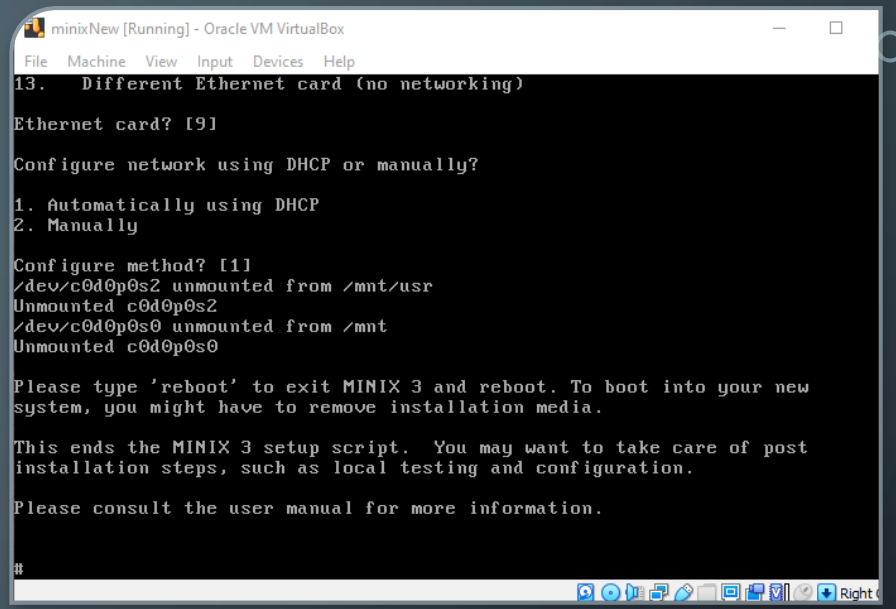
- Minix being a microkernel allows it to be small in size
- Minix uses a multi-level queuing system as the scheduler
- Minix does utilize virtual memory post 3.2 (Most current being 3.3)
- System calls are present as they are needed to handle message passing and memory grants to the hardware

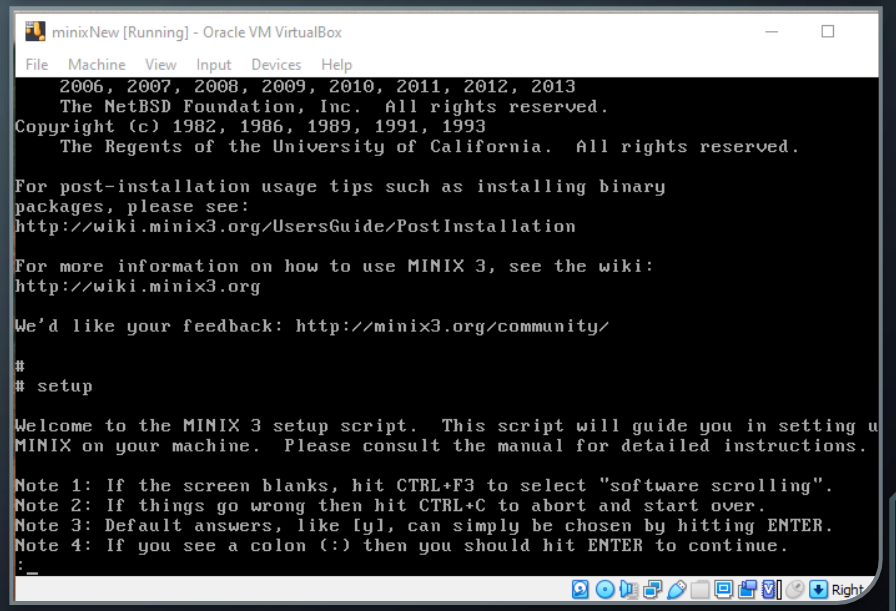
FEATURES OF MINIX

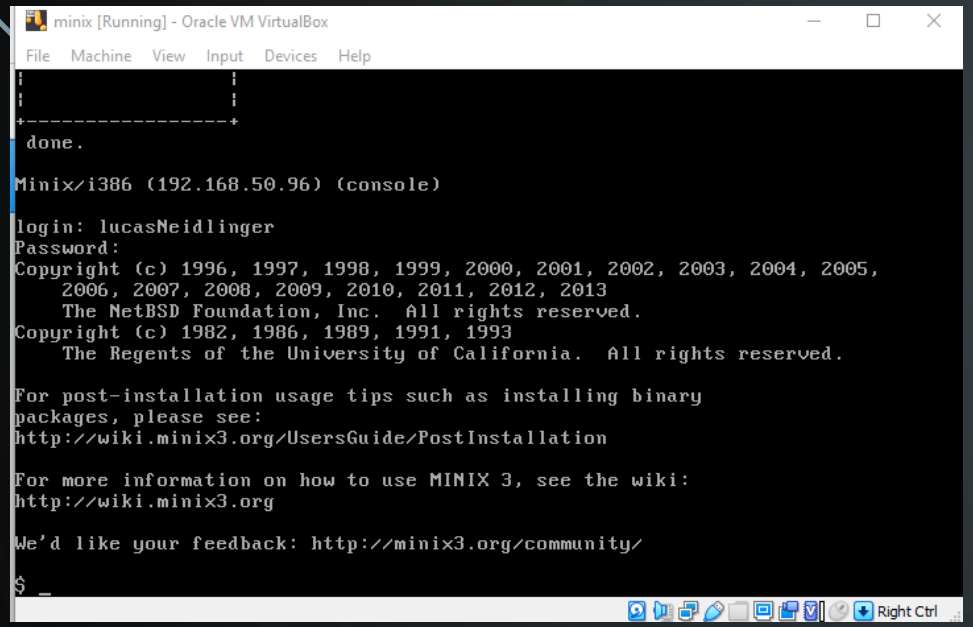
- Minix does not support kernel threads but does implement its own threading library to handle request from different sources
- Minix is 32-bit only

COMPILING AND BOOTING KERNEL

- On initial boot there is a startup script that takes care of the initial compiling of the kernel. After running the script, you just need to reboot without the .iso.
- Subsequent compiles of the kernel can be accomplished by running “make build” in the /usr/src/ folder using the included make file.






minix [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
done.
Minix/i386 (192.168.50.96) (console)
login: lucasNeidlinger
Password:
Copyright (c) 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,
2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013
The NetBSD Foundation, Inc. All rights reserved.
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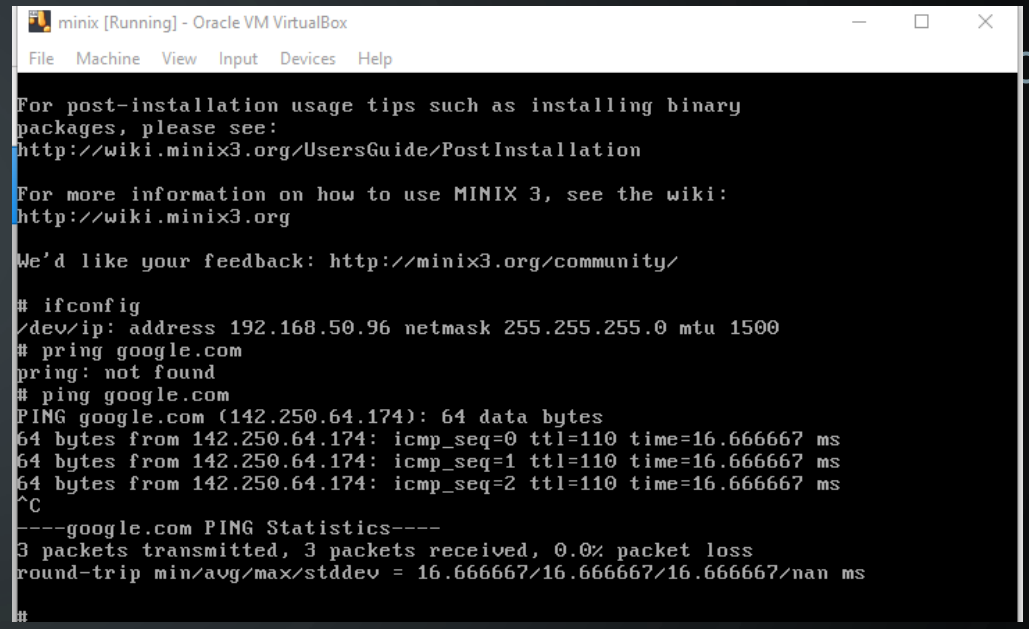
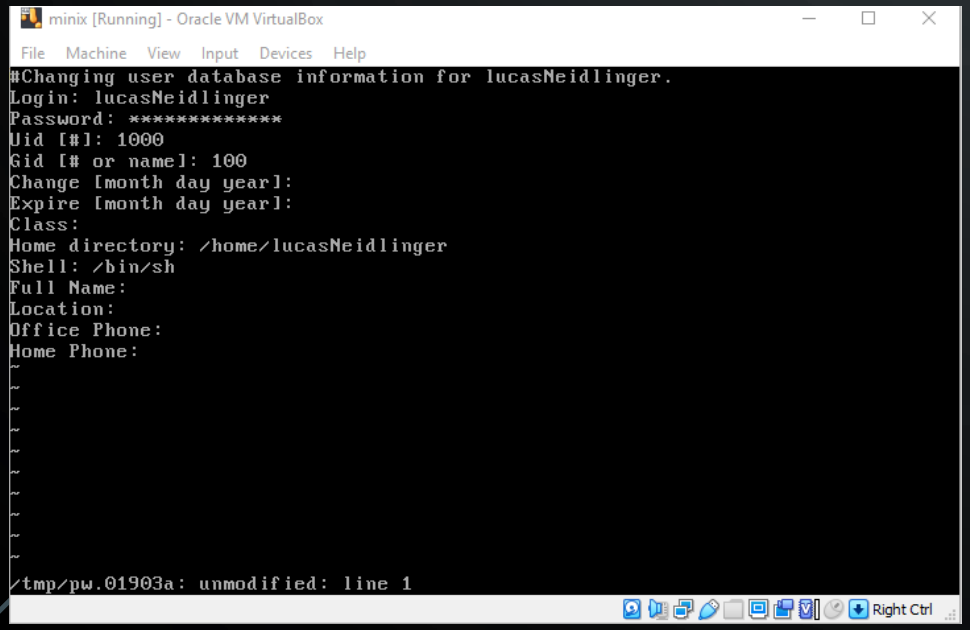
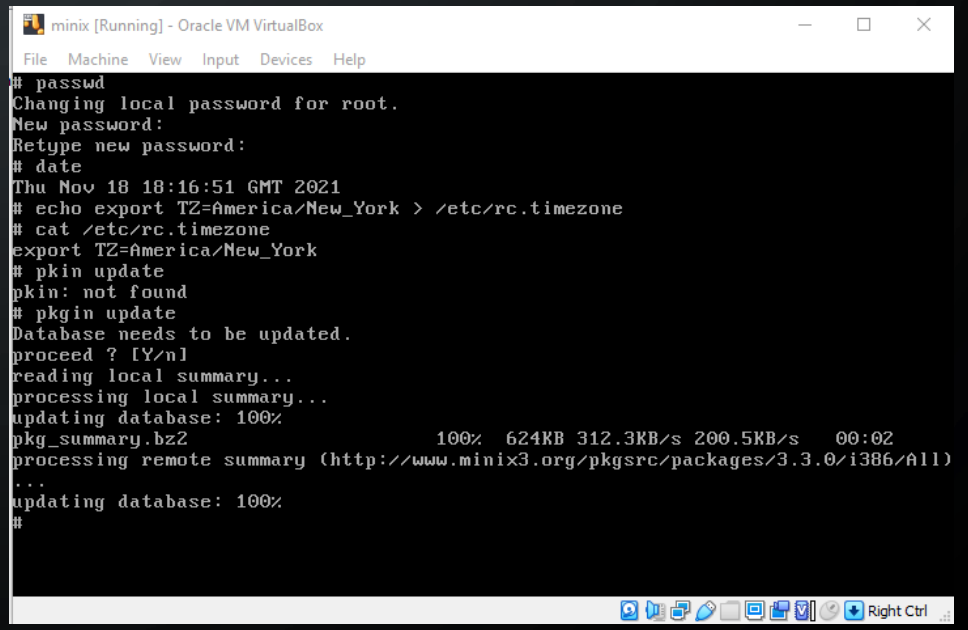
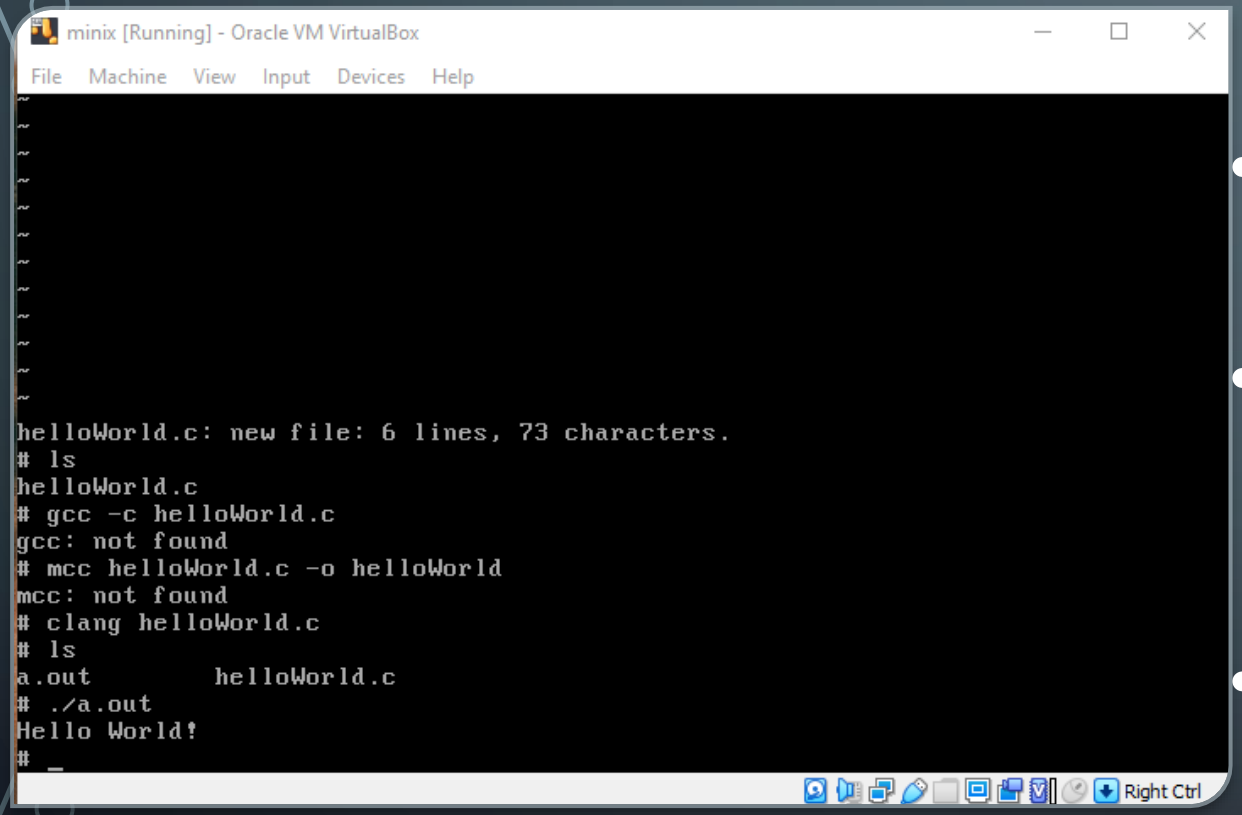
The Regents of the University of California. All rights reserved.
For post-installation usage tips such as installing binary
packages, please see:
http://wiki.minix3.org/UsersGuide/PostInstallation
For more information on how to use MINIX 3, see the wiki:
http://wiki.minix3.org
We'd like your feedback: http://minix3.org/community/
$ _
Right Ctrl


minix [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
For post-installation usage tips such as installing binary
packages, please see:
http://wiki.minix3.org/UsersGuide/PostInstallation
For more information on how to use MINIX 3, see the wiki:
http://wiki.minix3.org
We'd like your feedback: http://minix3.org/community/
ifconfig
/dev/ip: address 192.168.50.96 netmask 255.255.255.0 mtu 1500
pring google.com
pring: not found
ping google.com
PING google.com (142.250.64.174): 64 data bytes
64 bytes from 142.250.64.174: icmp_seq=0 ttl=110 time=16.666667 ms
64 bytes from 142.250.64.174: icmp_seq=1 ttl=110 time=16.666667 ms
64 bytes from 142.250.64.174: icmp_seq=2 ttl=110 time=16.666667 ms
^C
----google.com PING Statistics----
3 packets transmitted, 3 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 16.666667/16.666667/16.666667/nan ms
#


minix [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
#Changing user database information for lucasNeidlinger.
Login: lucasNeidlinger
Password: **********
Uid [#]: 1000
Gid [# or name]: 100
Change [month day year]:
Expire [month day year]:
Class:
Home directory: /home/lucasNeidlinger
Shell: /bin/sh
Full Name:
Location:
Office Phone:
Home Phone:
/tmp/pw.01903a: unmodified: line 1
Right Ctrl


minix [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
passwd
Changing local password for root.
New password:
Retype new password:
date
Thu Nov 18 18:16:51 GMT 2021
echo export TZ=America/New_York > /etc/rc.timezone
cat /etc/rc.timezone
export TZ=America/New_York
pkin update
pkin: not found
pkgin update
Database needs to be updated.
proceed ? [Y/n]
reading local summary...
processing local summary...
updating database: 100%
pkg_summary.bz2 100% 624KB 312.3KB/s 200.5KB/s 00:02
processing remote summary (http://www.minix3.org/pkgsrc/packages/3.3.0/i386/All)
...
updating database: 100%
#
Right Ctrl

COMPILING AND RUNNING PROGRAMS



- Out of the box Minix comes with vi installed to edit programs with
- To compile C code gcc does not work with Minix, instead the C compiler clang comes standard.
- Then normal ./ runs the compiled program.

CHANGE TO THE KERNEL

- To create a change to the scheduler or creating a system call is quite simple as you just need to go to the respective file and make you desired change.
- Then to recompile the kernel simply run “make build” in the /usr/src/ directory
- Then reboot and you change will be present.

ANY QUESTIONS?

WORKS CITED

- Shenoy, Prashant. “Lecture 11 - University of Massachusetts Amherst.” *Lecture 11: Minix Memory Management*, 2020, lass.cs.umass.edu/~shenoy/courses/spring20/lectures/lecture11-scribe.pdf.
- Shenoy, Prashant. *Minix File System*. 2020, lass.cs.umass.edu/~shenoy/courses/spring20/lectures/Lec18.pdf.