

We have installed the OpenBSD OS on our Virtual-box along with the Ports. Also we have successfully did SSH to our OpenBSD from our desktop. The output is given below

SSH into OPEN BSD

```
[Group6@group6d ~]$ ssh -x root@192.168.116.101
root@192.168.116.101's password:
Last login: Sun Apr 27 16:41:40 2014 from 192.168.116.1
OpenBSD 5.4 (GENERIC) #37: Tue Jul 30 12:05:01 MDT 2013
```

Welcome to OpenBSD: The proactively secure Unix-like operating system.

Please use the sendbug(1) utility to report bugs in the system.
Before reporting a bug, please try to reproduce it with the latest version of the code. With bug reports, please try to ensure that enough information to reproduce the problem is enclosed, and if a known fix for it exists, include that as well.

IfConfig Command

```
# ifconfig
lo0: flags=8049<UP,LOOPBACK,RUNNING,MULTICAST> mtu 33192
    priority: 0
    groups: lo
    inet6 ::1 prefixlen 128
    inet6 fe80::1%lo0 prefixlen 64 scopeid 0x4
    inet 127.0.0.1 netmask 0xff000000
em0: flags=8843<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> mtu 1500
    lladdr 08:00:27:0d:49:c5
    priority: 0
    groups: egress
    media: Ethernet autoselect (1000baseT full-duplex)
    status: active
    inet6 fe80::a00:27ff:fe0d:49c5%em0 prefixlen 64 scopeid 0x1
    inet 10.0.2.15 netmask 0xfffff00 broadcast 10.0.2.255
em1: flags=8843<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> mtu 1500
    lladdr 08:00:27:04:9c:50
    priority: 0
    media: Ethernet autoselect (1000baseT full-duplex)
    status: active
    inet6 fe80::a00:27ff:fe04:9c50%em1 prefixlen 64 scopeid 0x2
    inet 192.168.116.101 netmask 0xfffff00 broadcast 192.168.116.255
enc0: flags=0<>
    priority: 0
    groups: enc
```

```
status: active
pflog0: flags=141<UP,RUNNING,PROMISC> mtu 33192
priority: 0
groups: pflog
```

PING

```
# ping -c 6 google.com
PING google.com (74.125.227.166): 56 data bytes
64 bytes from 74.125.227.166: icmp_seq=0 ttl=254 time=46.489 ms
64 bytes from 74.125.227.166: icmp_seq=1 ttl=254 time=45.424 ms
64 bytes from 74.125.227.166: icmp_seq=2 ttl=254 time=46.045 ms
64 bytes from 74.125.227.166: icmp_seq=3 ttl=254 time=46.054 ms
64 bytes from 74.125.227.166: icmp_seq=4 ttl=254 time=45.597 ms
64 bytes from 74.125.227.166: icmp_seq=5 ttl=254 time=46.209 ms
--- google.com ping statistics ---
6 packets transmitted, 6 packets received, 0.0% packet loss
round-trip min/avg/max/std-dev = 45.424/45.969/46.489/0.436 ms
```

Error Detection and Design

You are to implement a wireless network. What error detection scheme would you choose and why would you choose this approach?

We would implement Cyclic Redundancy Check error detecting codes because they are simple to implement in binary hardware and particularly good at detecting errors caused by noise in transmission channels.

You are to implement a fiber-based network. What error detection scheme would you choose and why would you choose this approach?

We would choose parity as this is used for error detection in SONET.

Reliable Transmission

You are to implement a wireless network. What reliable transmission scheme would you choose and why would you choose this approach?

We would choose Selective Repeat ARQ transmission scheme because it ensures reliable transmission over noisy media and is widely used in power lines, telephone lines and co-axial cables.

You are to implement a fiber-based network. What reliable transmission scheme would you choose and why would you choose this approach?

We would again go with the ARQ for the above mentioned reasons.



The image shows a terminal window titled "Terminal" with a black header bar. The header bar contains the text "Activities" on the left, "Tue 07:14" in the center, and "Group6" on the right with a close button. The terminal content shows a user running an SSH command to connect to a root user on the IP address 192.168.116.101. The terminal output includes the password prompt, the last login time, the OpenBSD version, and a welcome message. The prompt is currently at the root shell.

```
File Edit View Search Terminal Help
[Group6@group6d ~]$ ssh -x root@192.168.116.101
root@192.168.116.101's password:
Last login: Sun Apr 27 23:29:48 2014 from 192.168.116.1
OpenBSD 5.4 (GENERIC) #37: Tue Jul 30 12:05:01 MDT 2013

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known fix for it exists, include that as well.

#
```

```
Activities Terminal Tue 07:14 Group6
Group6@group6d:~
File Edit View Search Terminal Help
[Group6@group6d ~]$ ssh -x root@192.168.116.101
root@192.168.116.101's password:
Last login: Sun Apr 27 23:29:48 2014 from 192.168.116.1
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known fix for it exists, include that as well.

# ifconfig
lo0: flags=0049<UP,LOOPBACK,RUNNING,MULTICAST> mtu 33192
    priority: 0
    groups: lo
    inet6 ::1 prefixlen 128
    inet6 fe80::1%lo0 prefixlen 64 scopeid 0x4
    inet 127.0.0.1 netmask 0xff000000
em0: flags=8843<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> mtu 1500
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    priority: 0
    groups: egress
    media: Ethernet autoselect (1000baseT full-duplex)
    status: active
    inet6 fe80::a00:27ff:fe0d:49c5%em0 prefixlen 64 scopeid 0x1
    inet 10.0.2.15 netmask 0xfffff000 broadcast 10.0.2.255
em1: flags=8843<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> mtu 1500
    lladdr 08:00:27:04:9c:50
    priority: 0
    media: Ethernet autoselect (1000baseT full-duplex)
    status: active
    inet6 fe80::a00:27ff:fe04:9c50%em1 prefixlen 64 scopeid 0x2
    inet 192.168.116.101 netmask 0xfffff000 broadcast 192.168.116.255
enc0: flags=0<>
    priority: 0
    groups: enc
    status: active
pflog0: flags=141<UP,RUNNING,PROMISC> mtu 33192
    priority: 0
    groups: pflog
#
```

```
Activities Terminal Tue 07:15 Group6
Group6@group6d:~
File Edit View Search Terminal Help
Last login: Sun Apr 27 23:29:48 2014 from 192.168.116.1
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    priority: 0
    groups: enc
    status: active
pflog0: flags=141<UP,RUNNING,PROMISC> mtu 33192
    priority: 0
    groups: pflog
# ping -c 6 google.com
PING google.com (74.125.227.166): 56 data bytes
64 bytes from 74.125.227.166: icmp_seq=0 ttl=254 time=46.143 ms
64 bytes from 74.125.227.166: icmp_seq=1 ttl=254 time=45.670 ms
64 bytes from 74.125.227.166: icmp_seq=2 ttl=254 time=45.189 ms
64 bytes from 74.125.227.166: icmp_seq=3 ttl=254 time=46.464 ms
64 bytes from 74.125.227.166: icmp_seq=4 ttl=254 time=45.403 ms
64 bytes from 74.125.227.166: icmp_seq=5 ttl=254 time=45.540 ms
--- google.com ping statistics ---
6 packets transmitted, 6 packets received, 0.0% packet loss
round-trip min/avg/max/std-dev = 45.189/45.734/46.464/0.517 ms
#
```