Cryptography Lab

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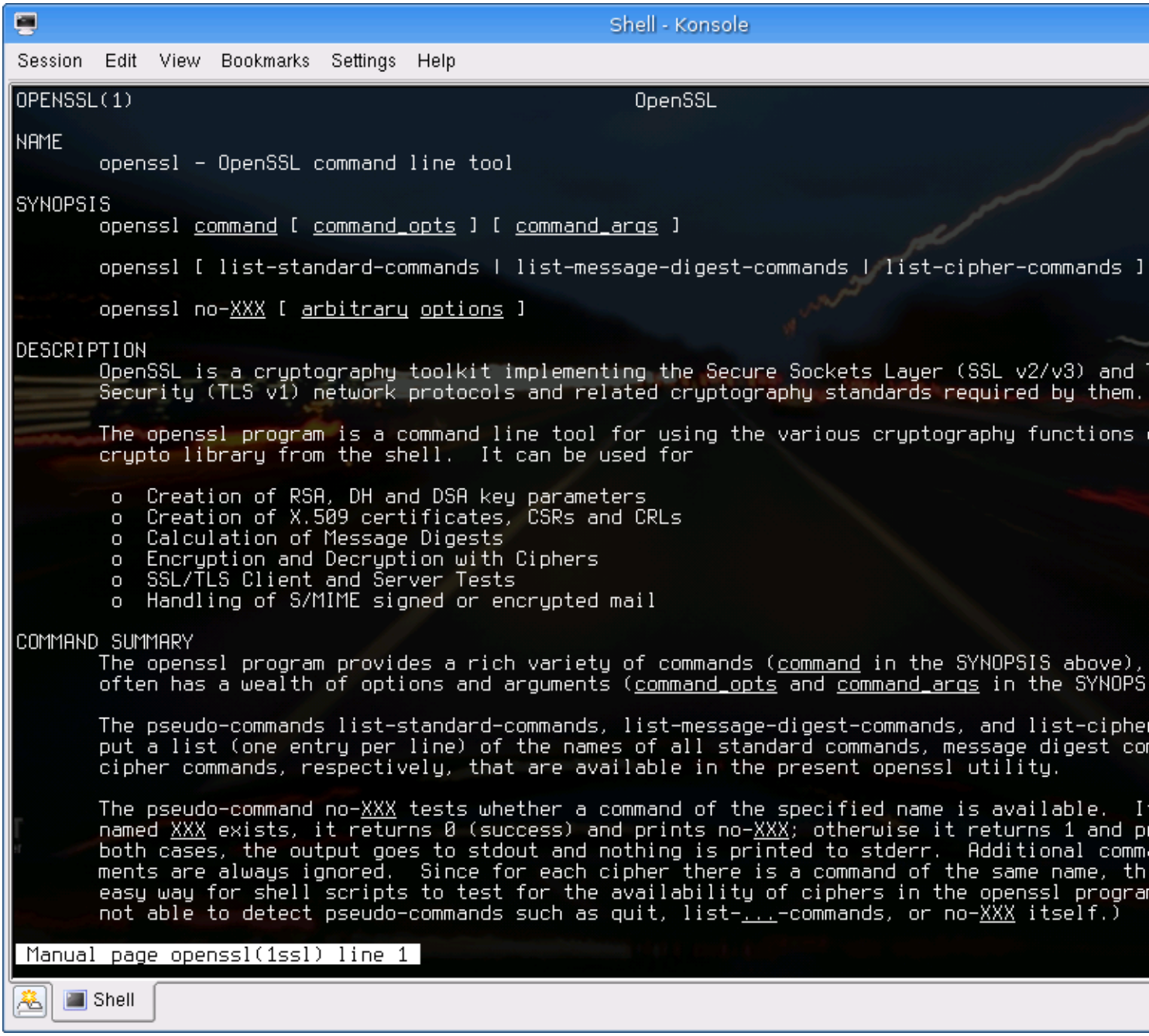
Objectives

- To do a hands on activity to encrypt our data
- Learn how to use symmetric cryptography to encrypt and decrypt a message
- Learn how to transfer files with a lab partner

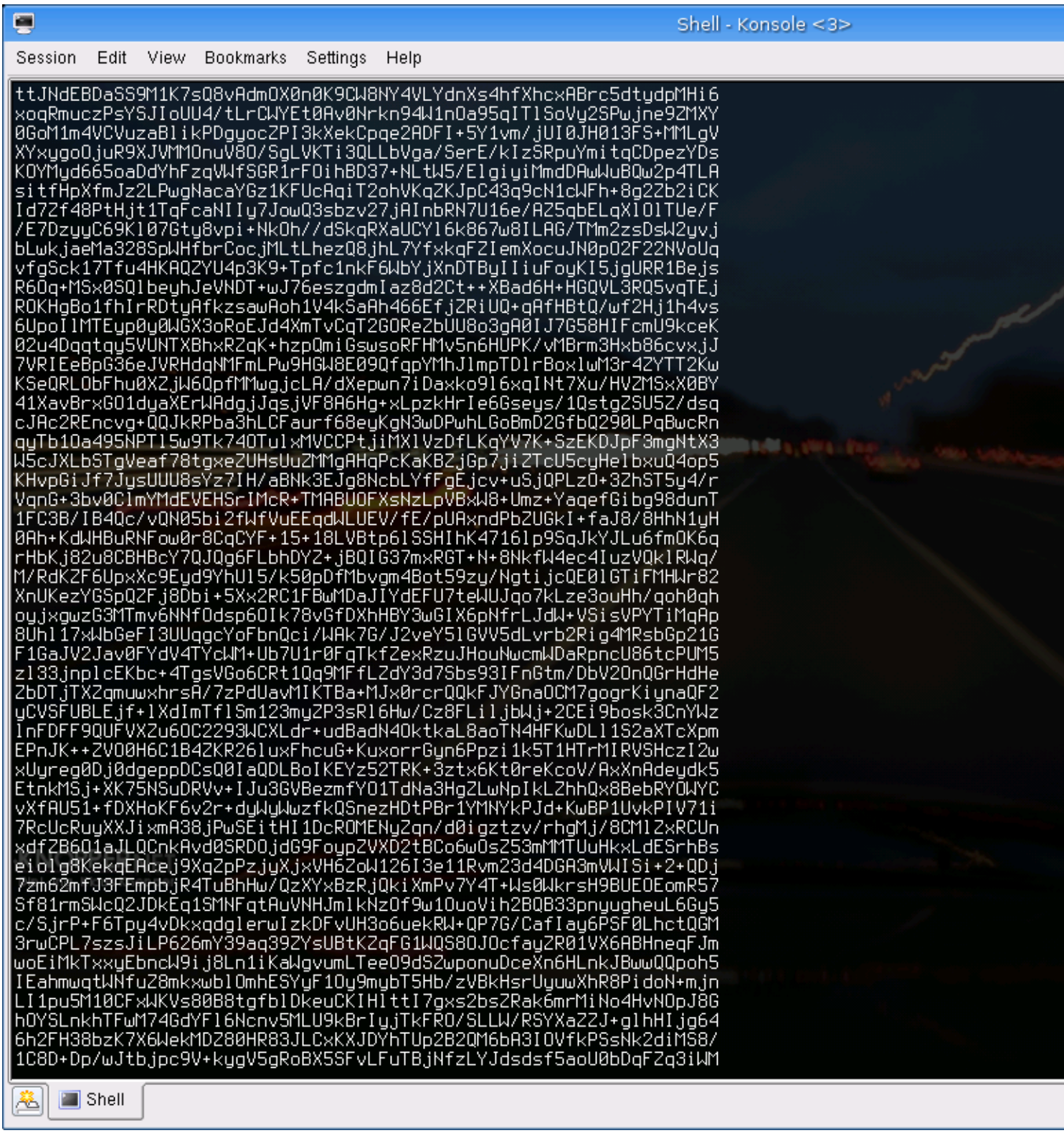
Executive Summary

This lab focused on symmetric cryptography. We first created a key with a 56 bit encryption. Then we encrypted a file with that key, and transferred the file and the key with our lab partner. Our lab partner then downloaded the encrypted file, and with the key that we created. Then we decrypted the partners file with the respective key.



This is the OpenSSL website

This is what our file looked like once it was encrypted.


Shell - Konsole <3>
Session Edit View Bookmarks Settings Help
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6h2FH38bzK7X6WekMDZ80HR83JLCxKXJDYhTUp2B2QM6bA3IOVfkPSsNk2diMS8/
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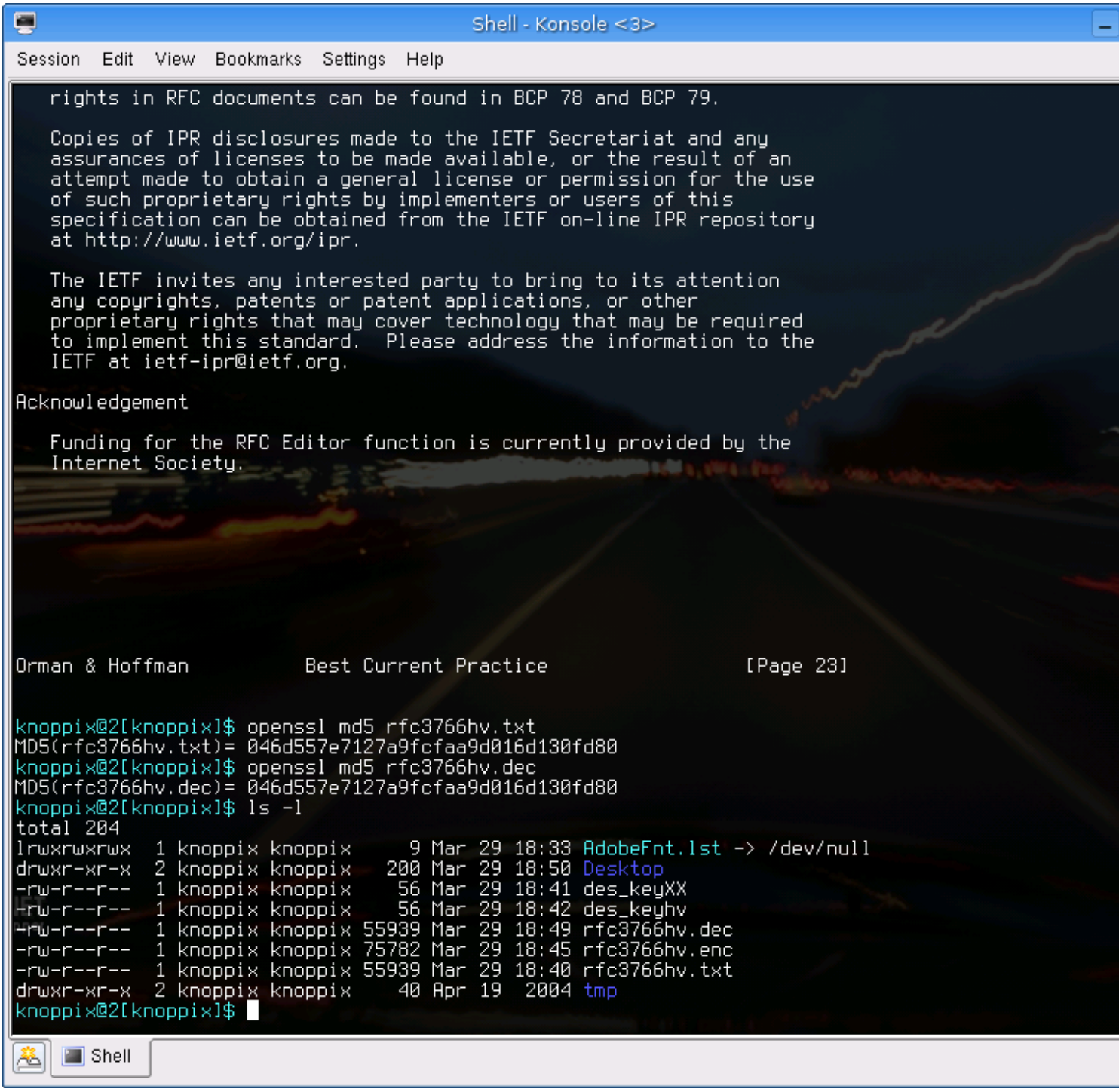
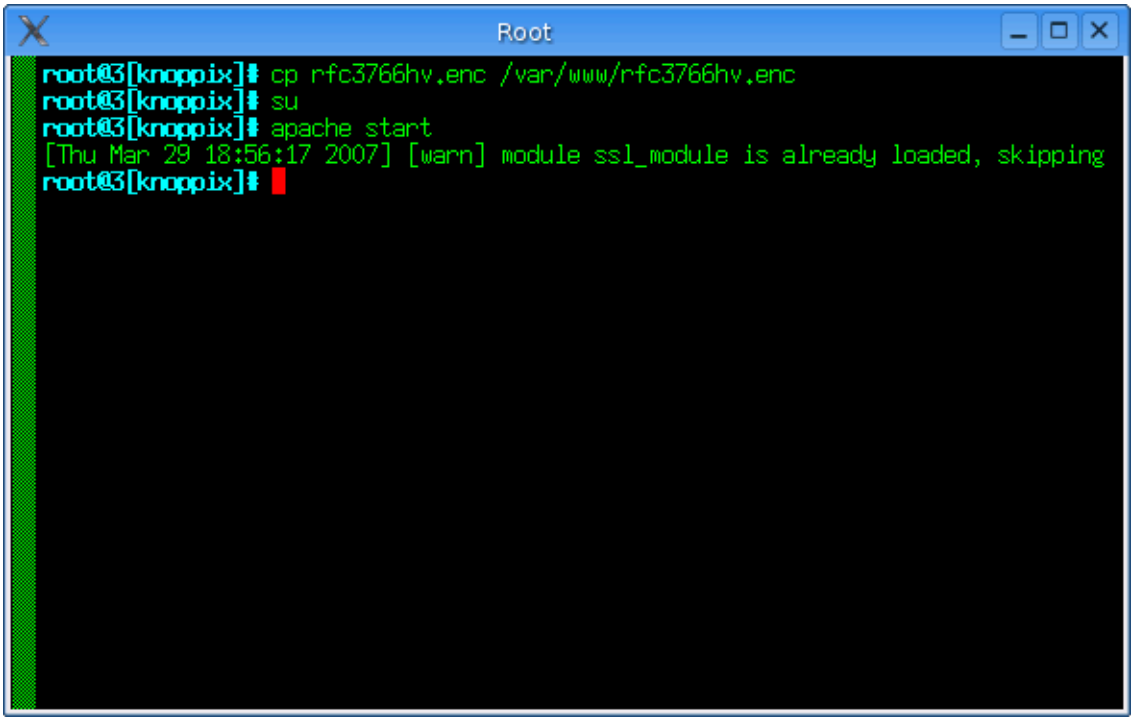
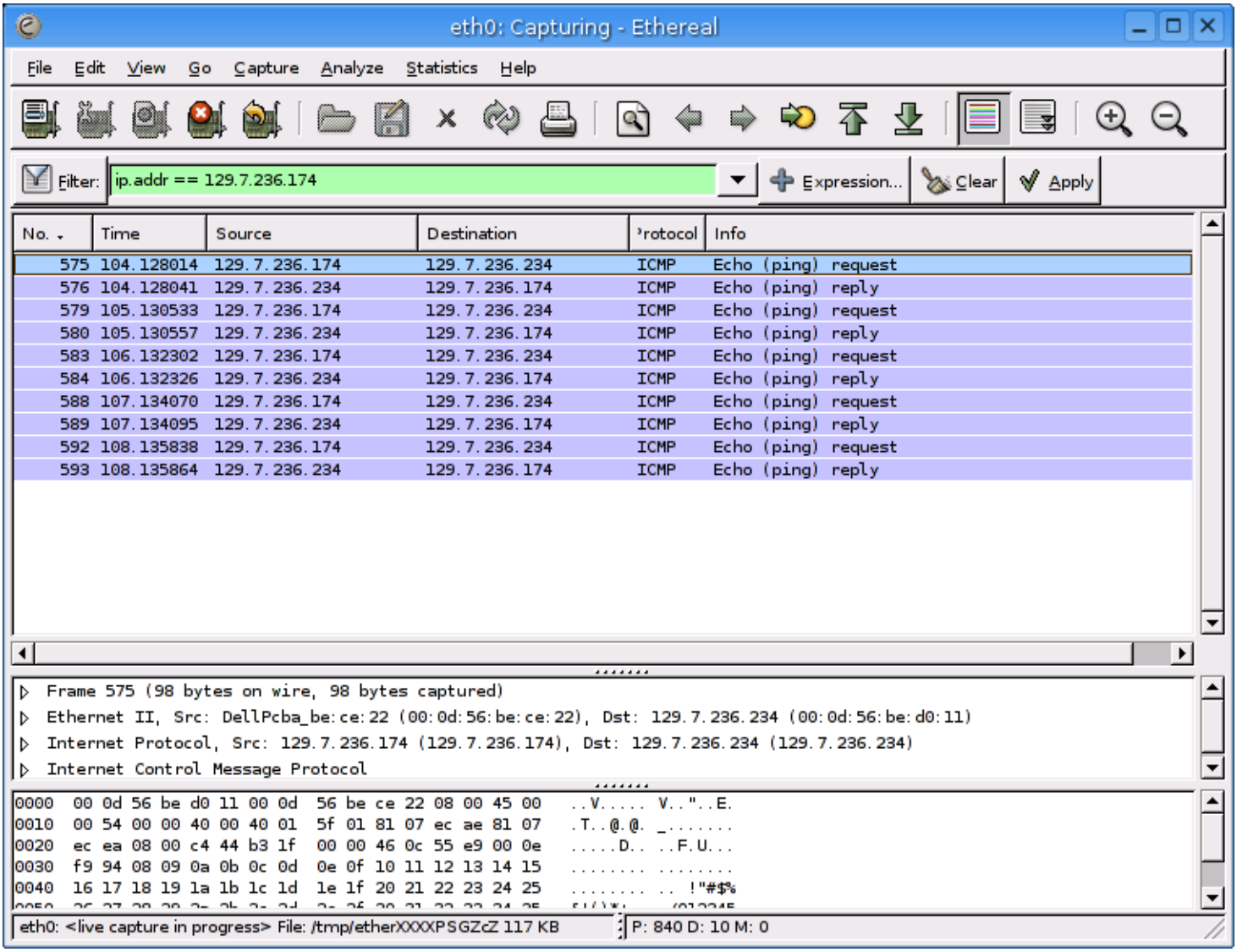
Shell



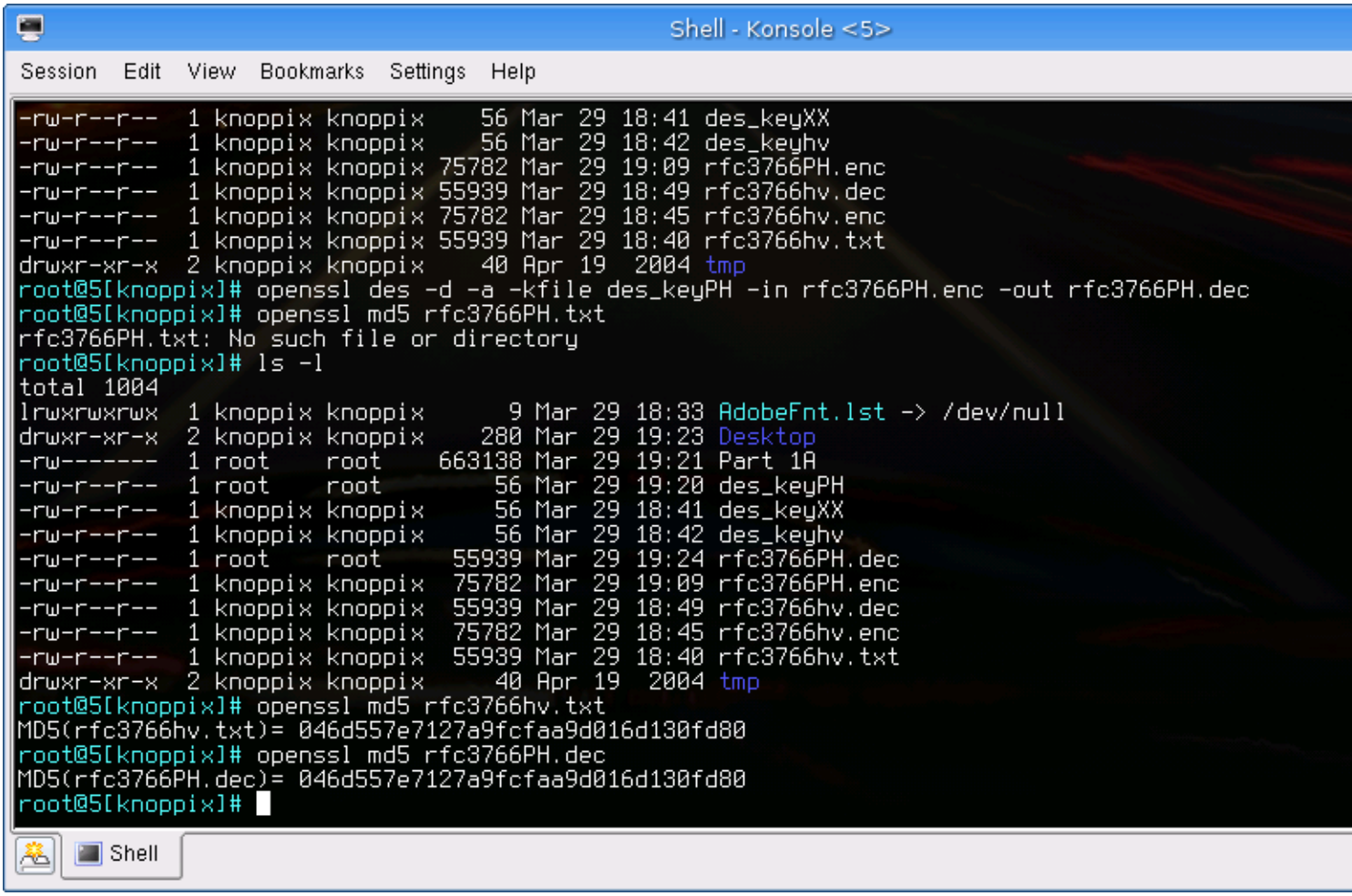
We used the root user to start the Apache service



We had also used Ethereal to capture the packets as we were transferring the files between the partners.



Here you can see where one of our partners after they exchanged the des_key, and verfied the hash.


Shell - Konsole <5>
Session Edit View Bookmarks Settings Help
-rw-r--r-- 1 knoppix knoppix 56 Mar 29 18:41 des_keyXX
-rw-r--r-- 1 knoppix knoppix 56 Mar 29 18:42 des_keyhv
-rw-r--r-- 1 knoppix knoppix 75782 Mar 29 19:09 rfc3766PH.enc
-rw-r--r-- 1 knoppix knoppix 55939 Mar 29 18:49 rfc3766hv.dec
-rw-r--r-- 1 knoppix knoppix 75782 Mar 29 18:45 rfc3766hv.enc
-rw-r--r-- 1 knoppix knoppix 55939 Mar 29 18:40 rfc3766hv.txt
drwxr-xr-x 2 knoppix knoppix 40 Apr 19 2004 tmp
root@5[knoppix]# openssl des -d -a -kfile des_keyPH -in rfc3766PH.enc -out rfc3766PH.dec
root@5[knoppix]# openssl md5 rfc3766PH.txt
rfc3766PH.txt: No such file or directory
root@5[knoppix]# ls -l
total 1004
lrwxrwxrwx 1 knoppix knoppix 9 Mar 29 18:33 AdobeFnt.lst -> /dev/null
drwxr-xr-x 2 knoppix knoppix 280 Mar 29 19:23 Desktop
-rw------- 1 root root 663138 Mar 29 19:21 Part 1A
-rw-r--r-- 1 root root 56 Mar 29 19:20 des_keyPH
-rw-r--r-- 1 knoppix knoppix 56 Mar 29 18:41 des_keyXX
-rw-r--r-- 1 knoppix knoppix 56 Mar 29 18:42 des_keyhv
-rw-r--r-- 1 root root 55939 Mar 29 19:24 rfc3766PH.dec
-rw-r--r-- 1 knoppix knoppix 75782 Mar 29 19:09 rfc3766PH.enc
-rw-r--r-- 1 knoppix knoppix 55939 Mar 29 18:49 rfc3766hv.dec
-rw-r--r-- 1 knoppix knoppix 75782 Mar 29 18:45 rfc3766hv.enc
-rw-r--r-- 1 knoppix knoppix 55939 Mar 29 18:40 rfc3766hv.txt
drwxr-xr-x 2 knoppix knoppix 40 Apr 19 2004 tmp
root@5[knoppix]# openssl md5 rfc3766hv.txt
MD5(rfc3766hv.txt)= 046d557e7127a9fcfaa9d016d130fd80
root@5[knoppix]# openssl md5 rfc3766PH.dec
MD5(rfc3766PH.dec)= 046d557e7127a9fcfaa9d016d130fd80
root@5[knoppix]#
Shell