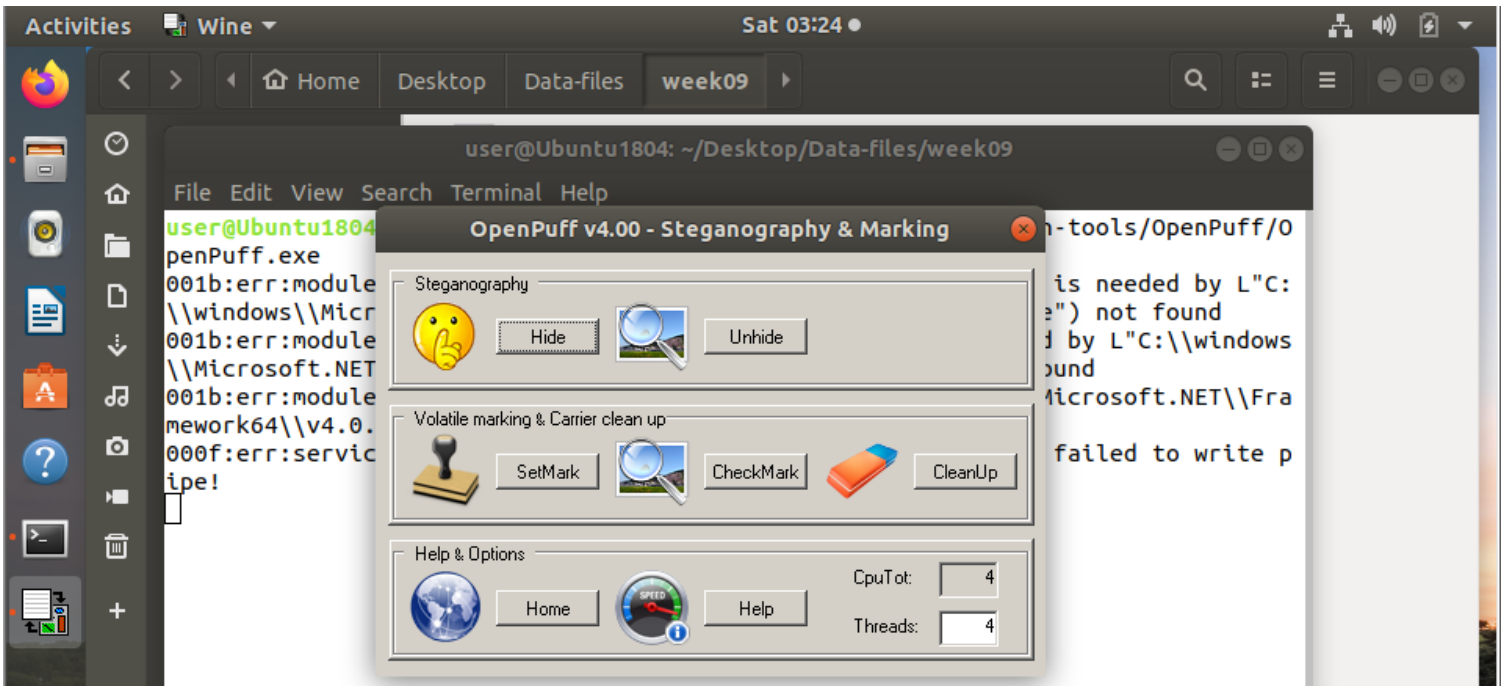
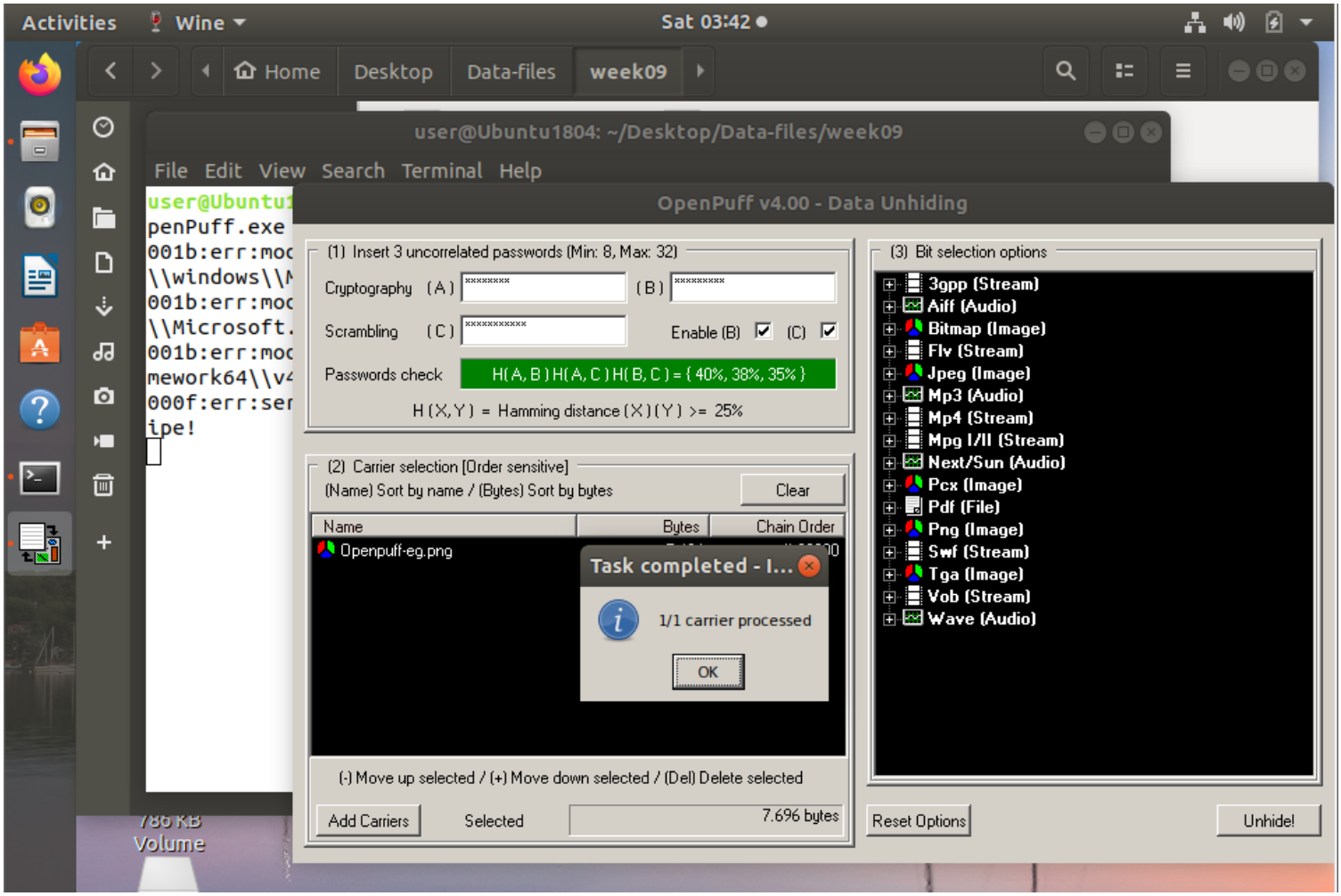
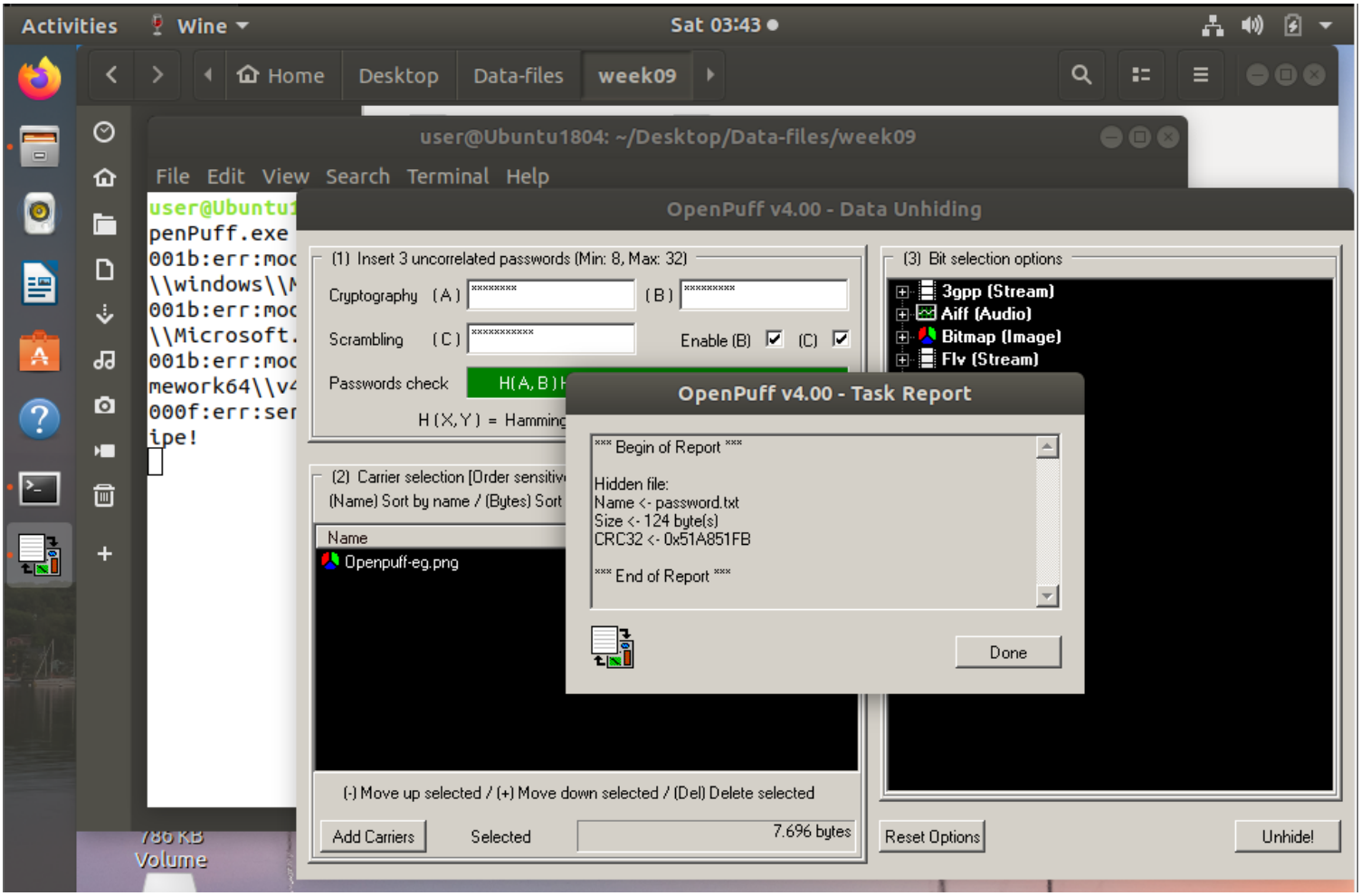
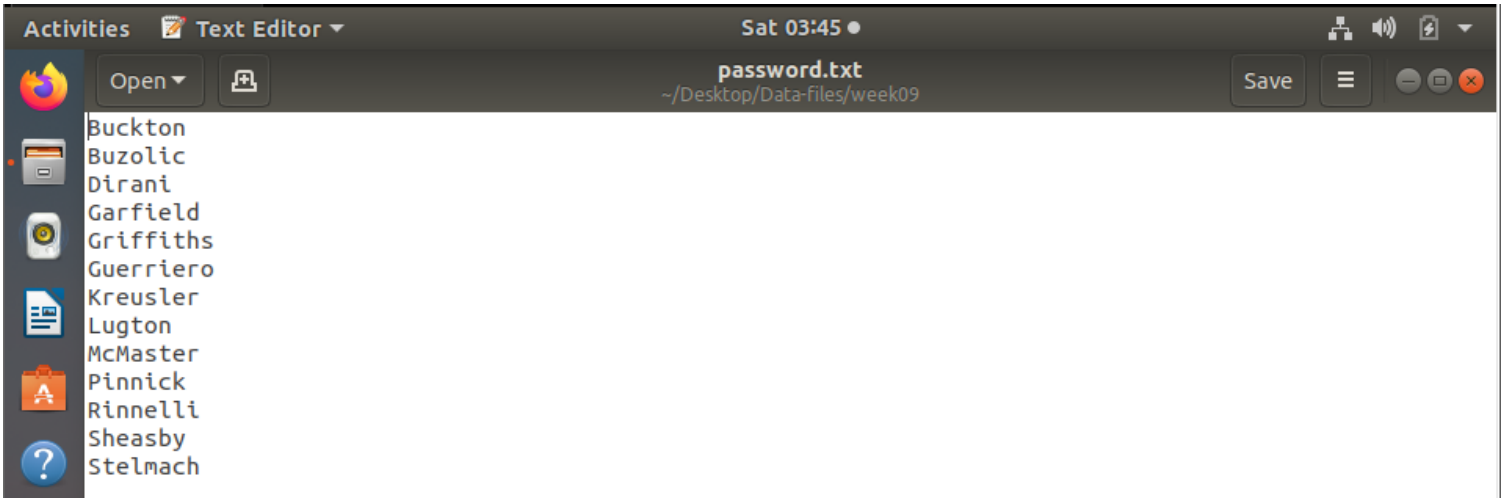
Multimedia Steganography by Using OpenPuff

My first task was using the OpenPuff application. As it happens, OpenPuff is a smart utility that can conceal messages in audio, video, and image files! Our initial file was a picture, which appeared to be okay. But thanks to OpenPuff's advice, I was able to follow enigmatic clues and turn into a secret agent. After entering three distinct passwords, I was ecstatic to see the secret password list—a hidden message—appear before my eyes

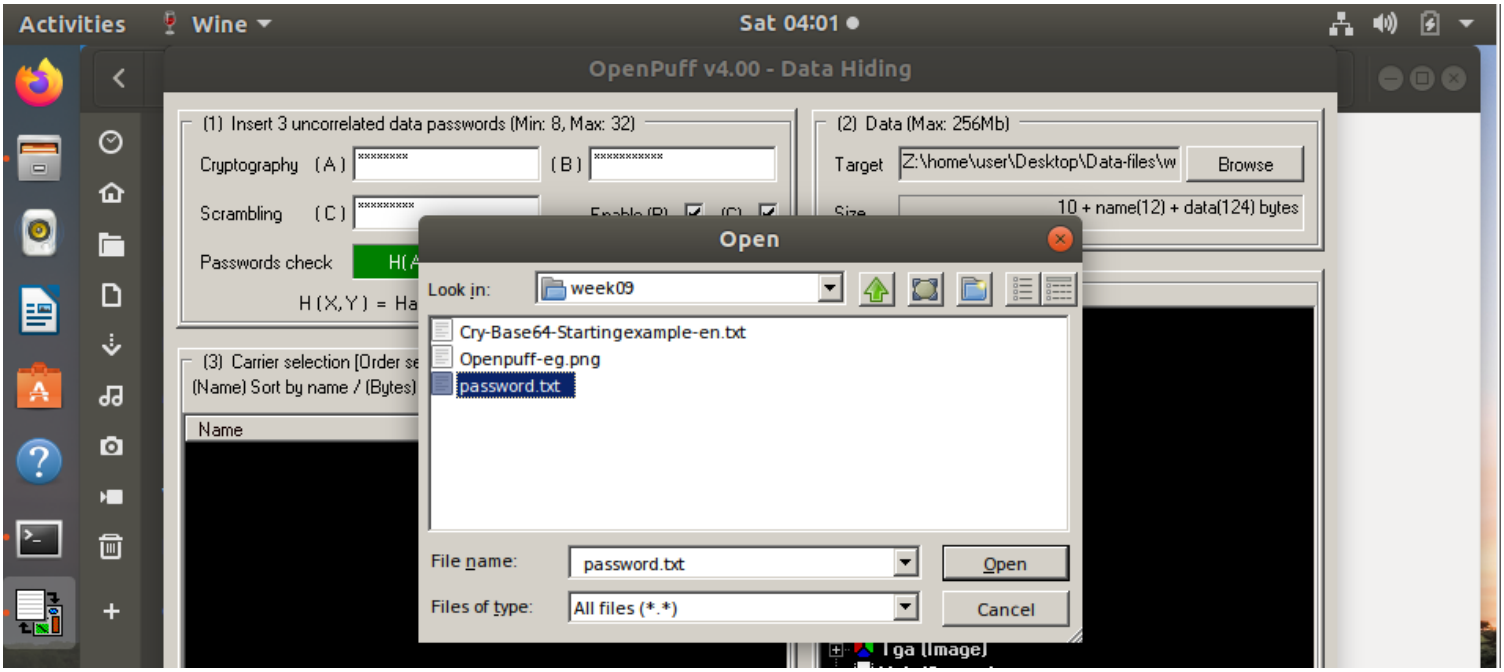


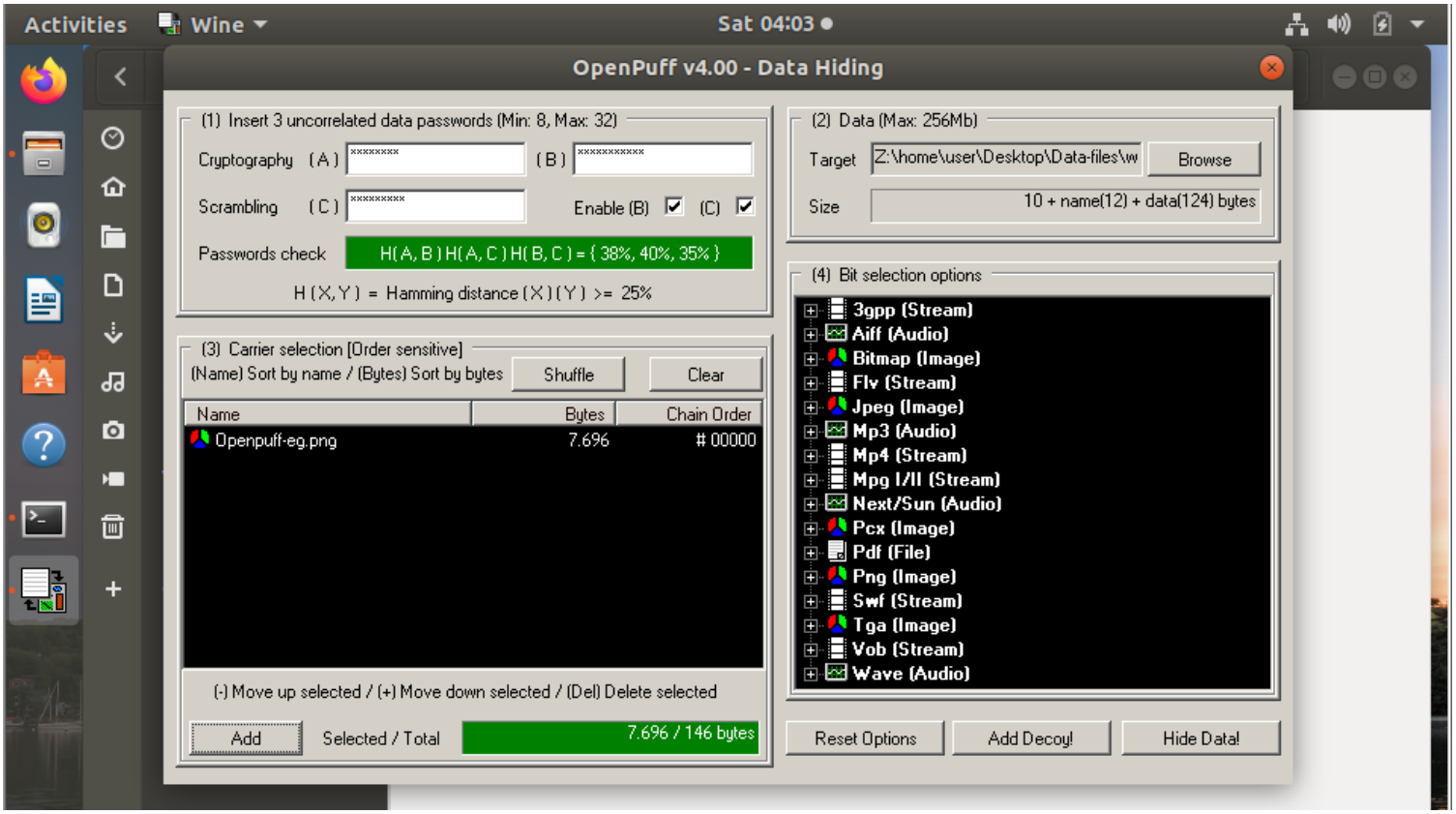



Activities
Wine
Sat 03:43
Home
Desktop
Data-files
week09
user@Ubuntu1804: ~/Desktop/Data-files/week09
File Edit View Search Terminal Help
OpenPuff v4.00 - Data Unhiding
(1) Insert 3 uncorrelated passwords (Min: 8, Max: 32)
Cryptography (A)
(B)
Scrambling (C)
Enable (B) (C)
Passwords check
H(X,Y) = Hamming
(2) Carrier selection [Order sensitive
(Name) Sort by name / (Bytes) Sort
Name
Openpuff-eg.png
(-) Move up selected / (+) Move down selected / (Del) Delete selected
Add Carriers
Selected
7.696 bytes
(3) Bit selection options
3gpp (Stream)
Aiff (Audio)
Bitmap (Image)
Flv (Stream)
Reset Options
Unhide!
OpenPuff v4.00 - Task Report
*** Begin of Report ***
Hidden file:
Name <- password.txt
Size <- 124 byte(s)
CRC32 <- 0x51A851FB
*** End of Report ***
Done
Volume


Activities
Text Editor
Sat 03:45
Open
password.txt
~/Desktop/Data-files/week09
Save
Buckton
Buzolic
Dirani
Garfield
Griffiths
Guerriero
Kreusler
Lugton
McMaster
Pinnick
Rinnelli
Sheasby
Stelmach

Then as an extra knowledge, I tried to hide the data into the image file

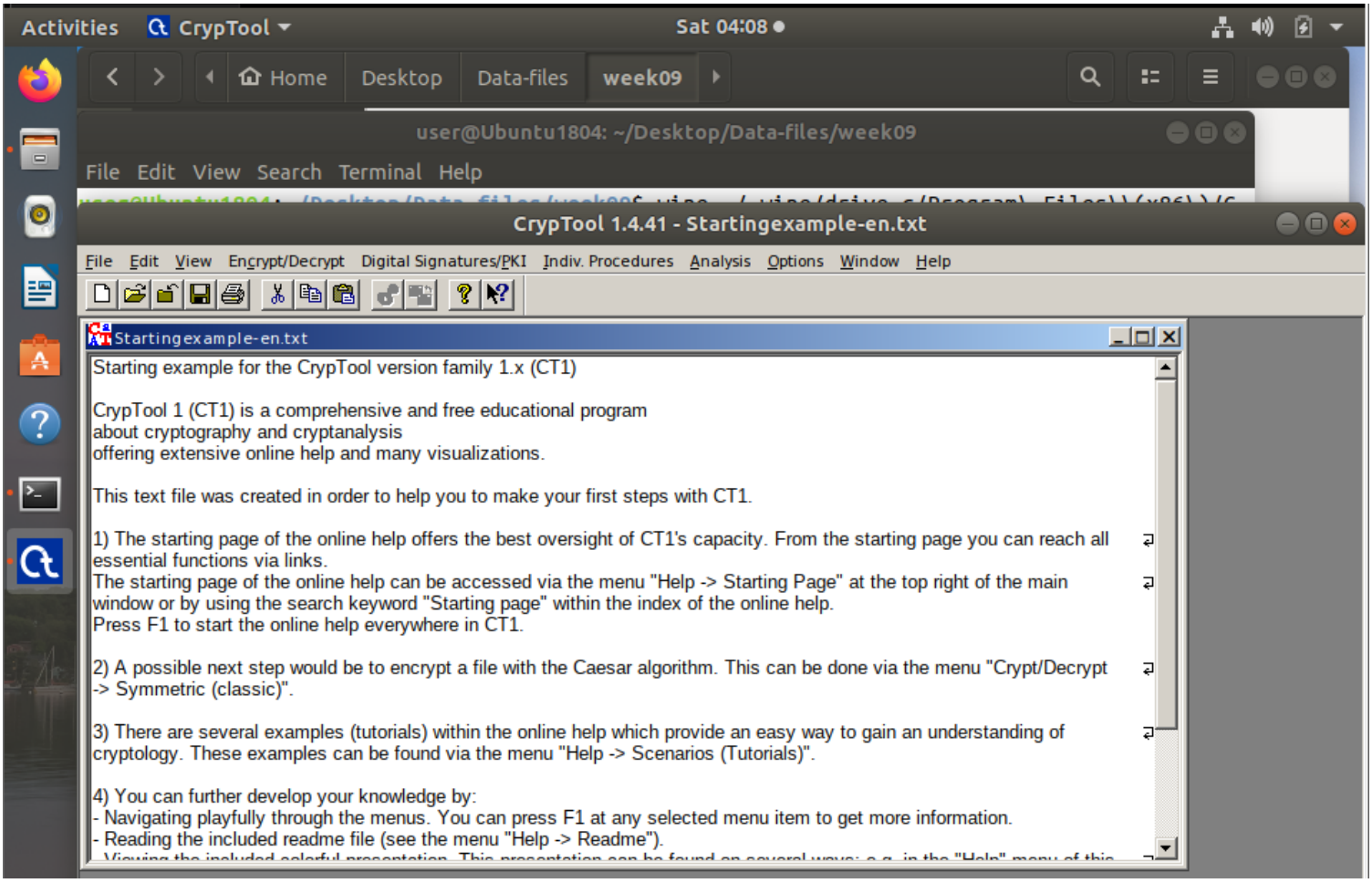


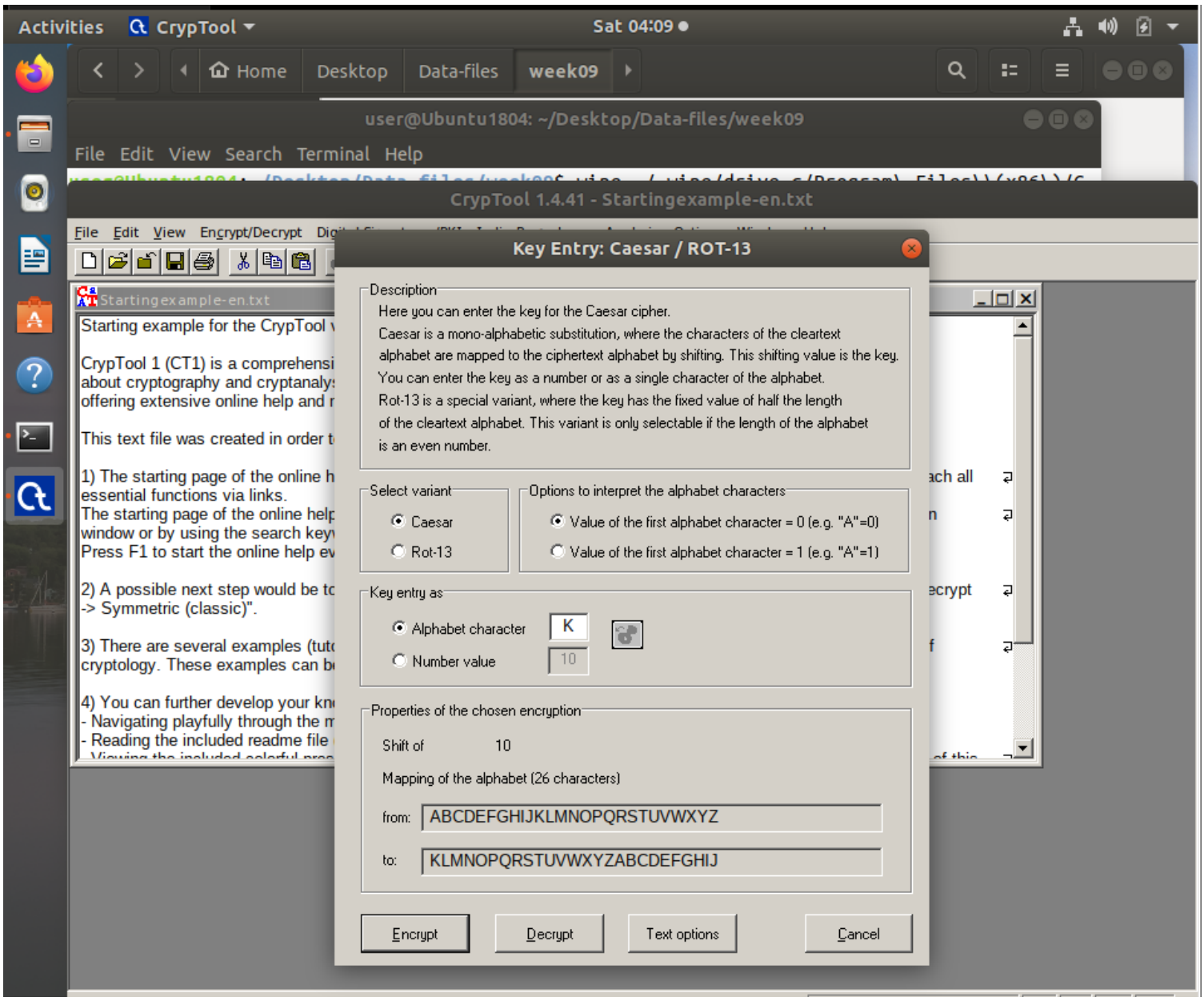


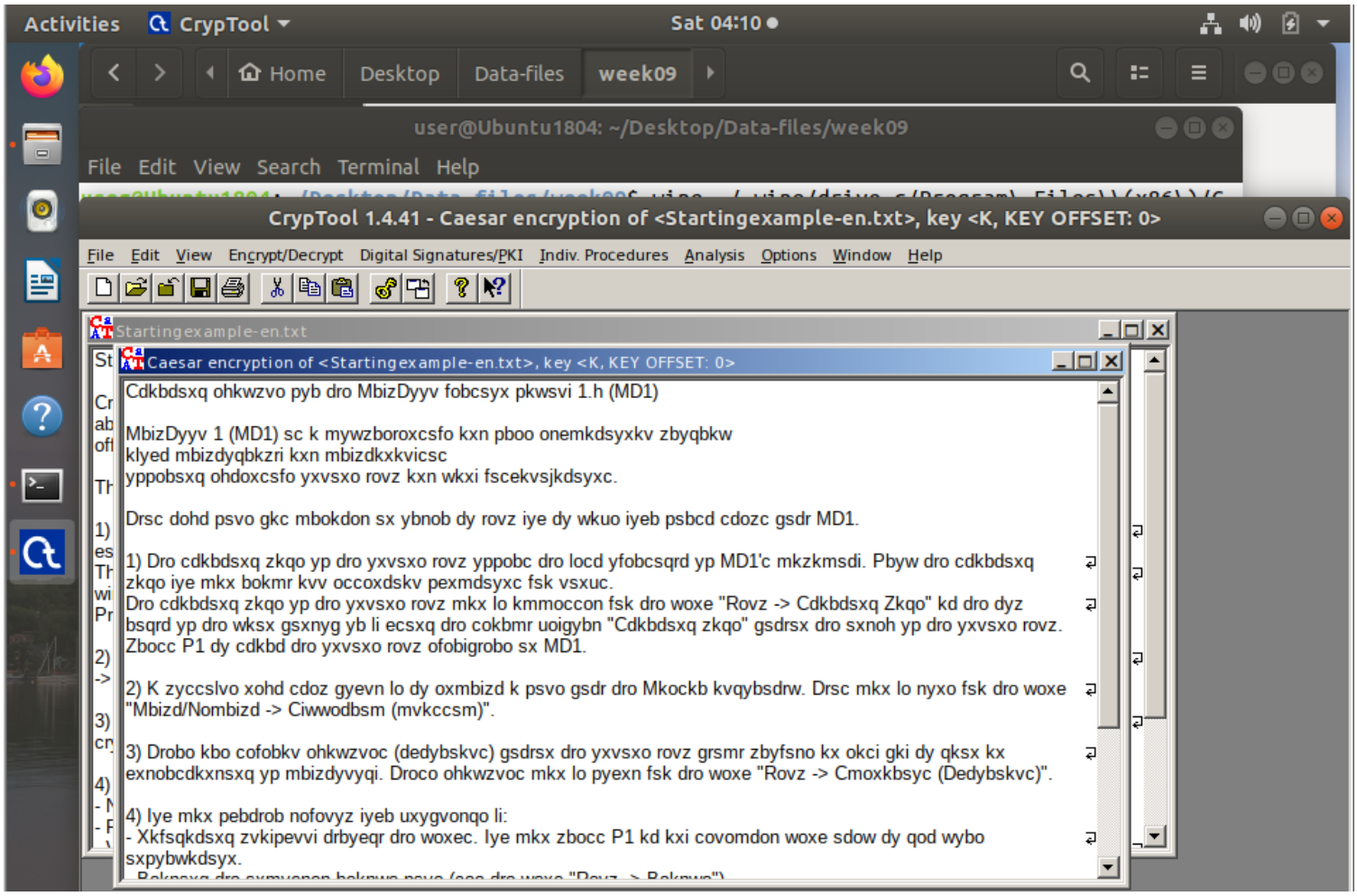
Introducing CrypTool

I then used a tool called CrypTool to explore the world of codes and ciphers. I had the impression that I had entered a hacker's toolbox, full of instruments for stumbling and decoding messages. I began with a straightforward technique known as the Caesar cipher. I felt like a master codebreaker when I could encrypt a message by shifting letters by a specific number and then decrypt it using the same shift. It was like possessing a secret decoder ring.

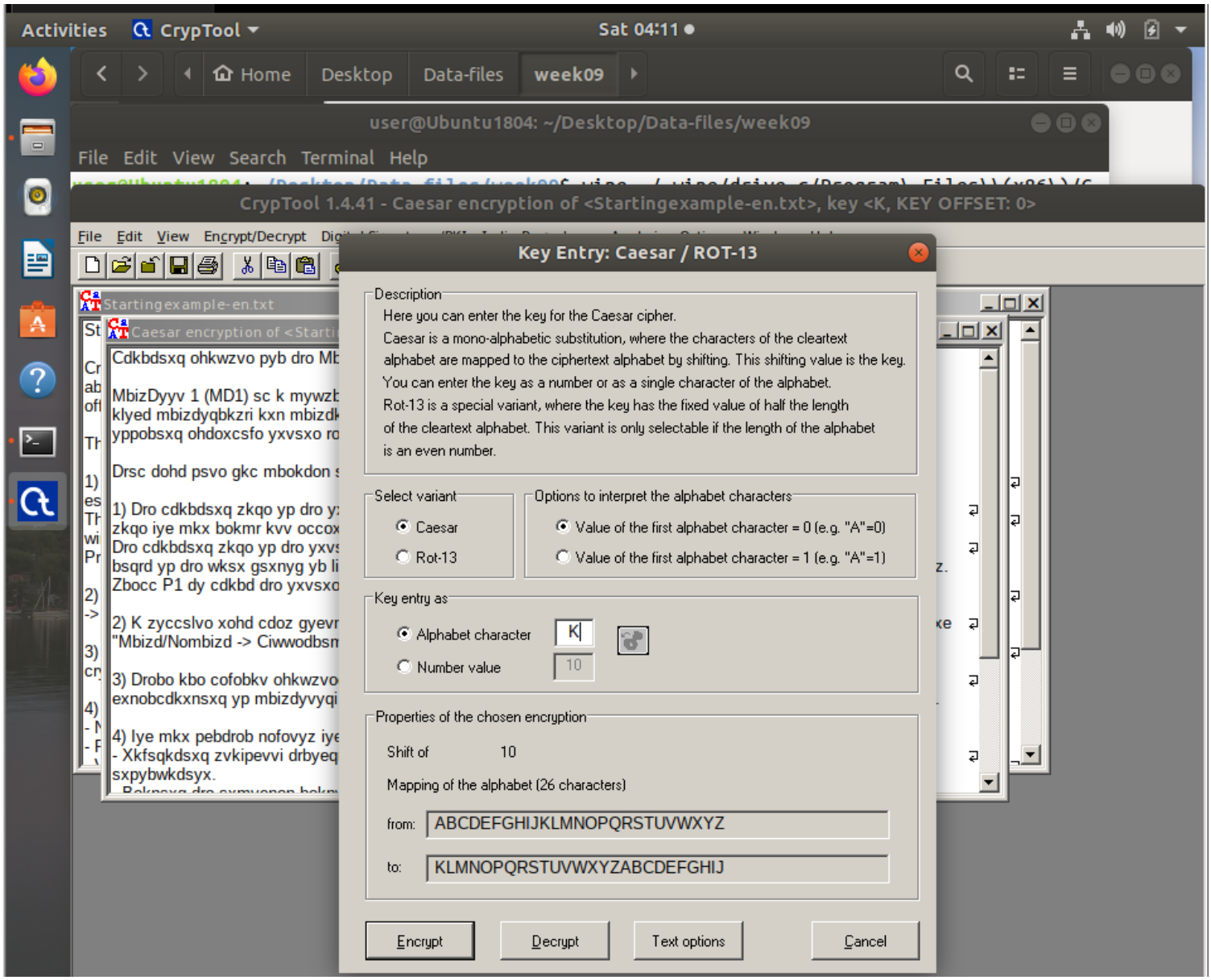
Encryption

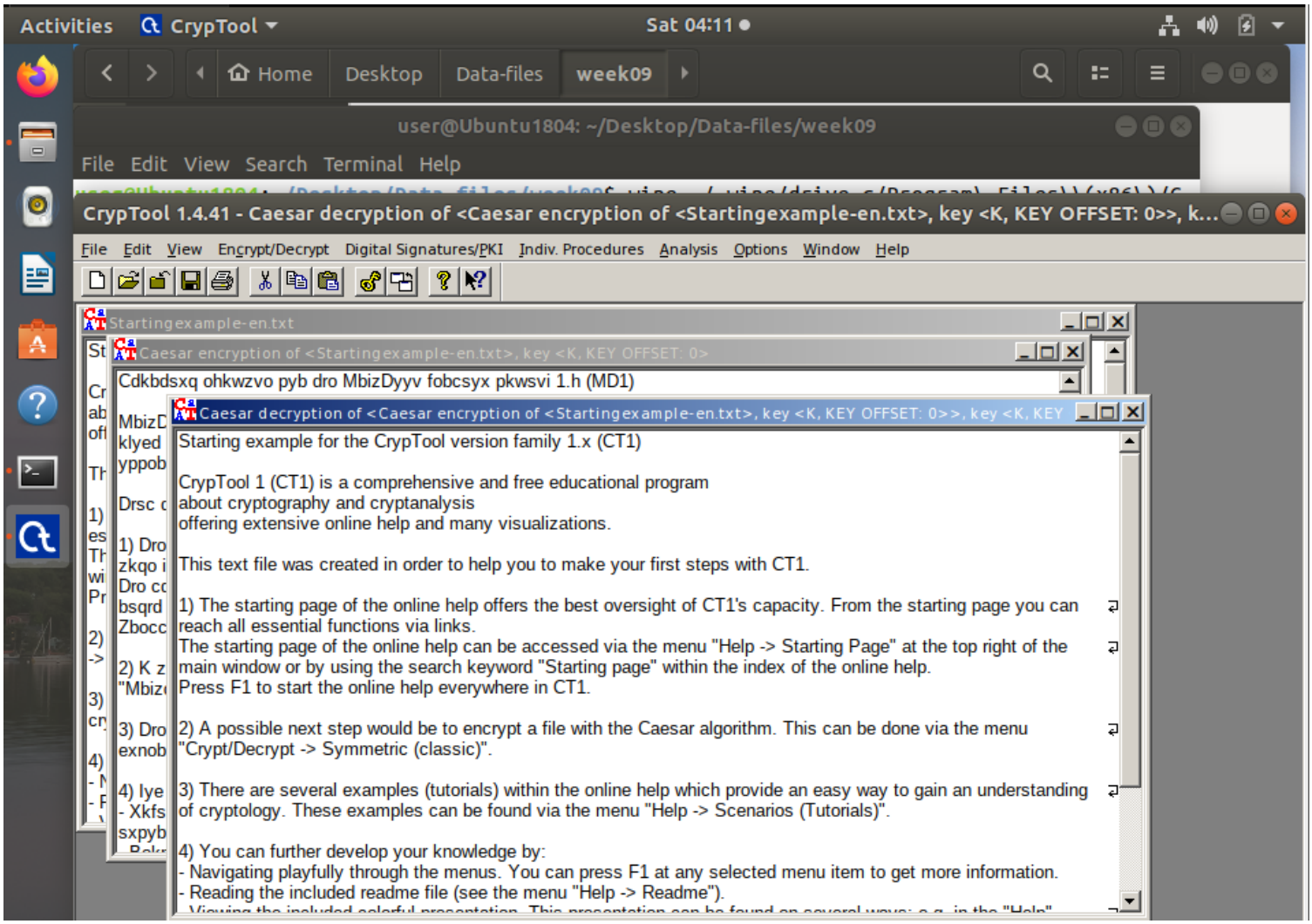



Activities
CrypTool
Sat 04:09
Home
Desktop
Data-files
week09
user@Ubuntu1804: ~/Desktop/Data-files/week09
File Edit View Search Terminal Help
CrypTool 1.4.41 - Startingexample-en.txt
File Edit View Encrypt/Decrypt
Startingexample-en.txt
Starting example for the CrypTool
CrypTool 1 (CT1) is a comprehensi
about cryptography and cryptanaly
offering extensive online help and
This text file was created in order
1) The starting page of the online h
essential functions via links.
The starting page of the online help
window or by using the search key
Press F1 to start the online help ev
2) A possible next step would be to
-> Symmetric (classic)".
3) There are several examples (tut
cryptology. These examples can b
4) You can further develop your kn
- Navigating playfully through the m
- Reading the included readme file
Key Entry: Caesar / ROT-13
Description
Here you can enter the key for the Caesar cipher.
Caesar is a mono-alphabetic substitution, where the characters of the cleartext
alphabet are mapped to the ciphertext alphabet by shifting. This shifting value is the key.
You can enter the key as a number or as a single character of the alphabet.
Rot-13 is a special variant, where the key has the fixed value of half the length
of the cleartext alphabet. This variant is only selectable if the length of the alphabet
is an even number.
Select variant
Caesar
Rot-13
Options to interpret the alphabet characters
Value of the first alphabet character = 0 (e.g. "A"=0)
Value of the first alphabet character = 1 (e.g. "A"=1)
Key entry as
Alphabet character
K
Number value
10
Properties of the chosen encryption
Shift of 10
Mapping of the alphabet (26 characters)
from: ABCDEFGHIJKLMNOPQRSTUVWXYZ
to: KLMNOPQRSTUVWXYZABCDEFGHIJ
Encrypt
Decrypt
Text options
Cancel


Activities
CrypTool
Sat 04:10
Home
Desktop
Data-files
week09
user@Ubuntu1804: ~/Desktop/Data-files/week09
File Edit View Search Terminal Help
CrypTool 1.4.41 - Caesar encryption of <Startingexample-en.txt>, key <K, KEY OFFSET: 0>
File Edit View Encrypt/Decrypt Digital Signatures/PKI Indiv. Procedures Analysis Options Window Help
Startingexample-en.txt
Caesar encryption of <Startingexample-en.txt>, key <K, KEY OFFSET: 0>
Cdkbdsxq ohkwzvo pyb dro MbizDyyv fobcsyx pkwsvi 1.h (MD1)
MbizDyyv 1 (MD1) sc k mywzboroxcsfo kxn pboo onemkdsyxkv zbyqbkw
klyed mbizdyqbkzri kxn mbizdkxkvicsc
yppobsxq ohdoxcsfo yxvsxo rovz kxn wkxi fscekvsjkdsyxc.
Drsc dohd psvo gkc mbokdon sx ybnob dy rovz iye dy wkuo iyeb psbcd cdozc gsdr MD1.
1) Dro cdkbdsxq zkqo yp dro yxvsxo rovz yppobc dro locd yfobcsqrd yp MD1'c mkzkmsdi. Pbyw dro cdkbdsxq zkqo iye mkx bokmr kvv occoxdskv pexmdsyxc fsk vsxuc.
Dro cdkbdsxq zkqo yp dro yxvsxo rovz mkx lo kmmoccon fsk dro woxe "Rovz -> Cdkbdsxq Zkqo" kd dro dyz bsqrd yp dro wksx gsxnyg yb li ecsxq dro cokbmr uoigybn "Cdkbdsxq zkqo" gsdrsx dro sxnoh yp dro yxvsxo rovz. Zbocc P1 dy cdkbd dro yxvsxo rovz ofobigrobo sx MD1.
2) K zyccslvo xohd cdoz gyevn lo dy oxmbizd k psvo gsdr dro Mkockb kvqybsdrw. Drsc mkx lo nyxo fsk dro woxe "Mbizd/Nombizd -> Ciwwodbsm (mvkccsm)".
3) Drobo kbo cofobkv ohkwzvoc (dedybskvc) gsdrsx dro yxvsxo rovz grsmr zbyfsno kx okci gki dy qksx kx exnobcdkxnsxq yp mbizdyvyqi. Droco ohkwzvoc mkx lo pyexn fsk dro woxe "Rovz -> Cmoxkbsyc (Dedybskvc)".
4) Iye mkx pebdrob nofovyz iyeb uxygvonqo li:
- Xkfsqkdsxq zvkipevvi drbyeqr dro woxec. Iye mkx zbocc P1 kd kxi covomdon woxe sdow dy qod wybo sxpybwkdsyx.

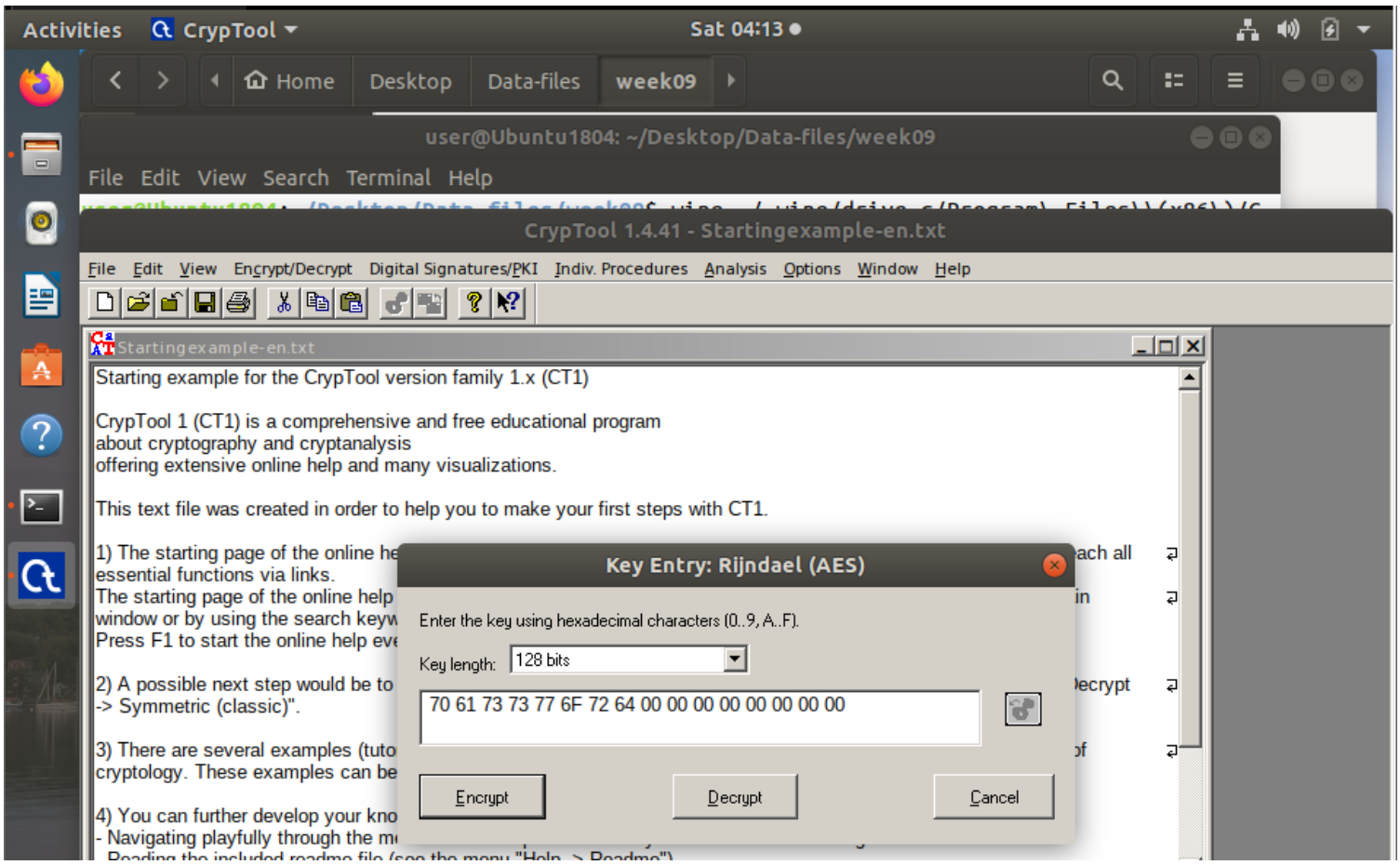
Decryption

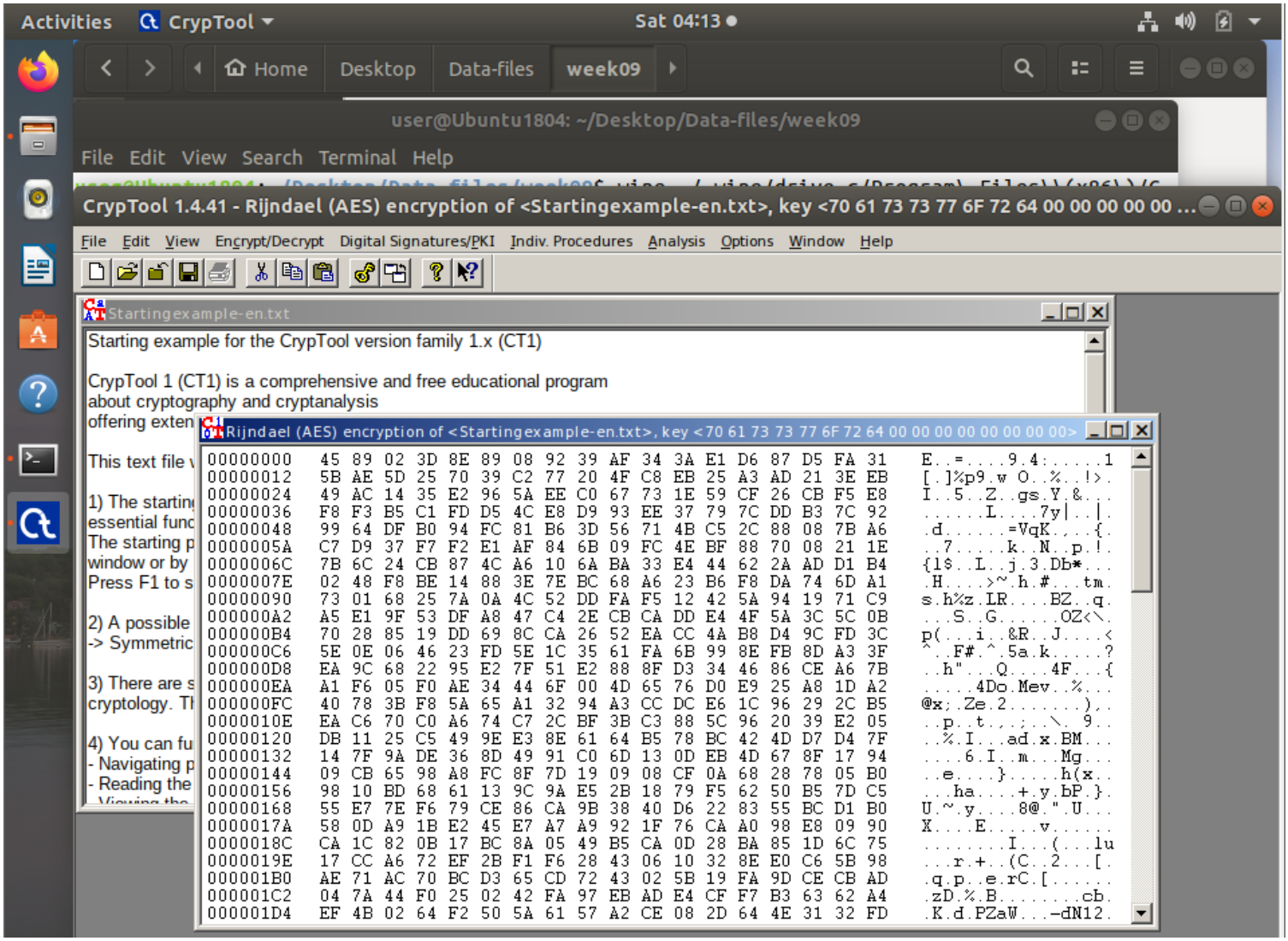

Activities
CrypTool
Sat 04:11
Home
Desktop
Data-files
week09
user@Ubuntu1804: ~/Desktop/Data-files/week09
File Edit View Search Terminal Help
CrypTool 1.4.41 - Caesar encryption of <Startingexample-en.txt>, key <K, KEY OFFSET: 0>
File Edit View Encrypt/Decrypt
Startingexample-en.txt
Caesar encryption of <Starti
Cdkbdsxq ohkwzvo pyb dro Mb
MbizDyyv 1 (MD1) sc k mywzb
klyed mbizdyqbkzri kxn mbizdk
yppobsxq ohdoxcsfo yxvsxo ro
Drsc dohd psvo gkc mbokdon s
1) Dro cdkbdsxq zkqo yp dro y
zkqo iye mkx bokmr kvv occox
Dro cdkbdsxq zkqo yp dro yxvs
bsqrd yp dro wksx gsxnyg yb li
Zbocc P1 dy cdkbd dro yxvsxo
2) K zyccslvo xohd cdoz gyevr
"Mbizd/Nombizd -> Ciwwodbsm
3) Drobo kbo cofobkv ohkwzvo
exnobcdkxnsxq yp mbizdyvyqi
4) Iye mkx pebdrob nofovyz iye
- Xkfsqkdsxq zvkipevvi drbyeq
sxpybwkdsyx.
Key Entry: Caesar / ROT-13
Description
Here you can enter the key for the Caesar cipher.
Caesar is a mono-alphabetic substitution, where the characters of the cleartext
alphabet are mapped to the ciphertext alphabet by shifting. This shifting value is the key.
You can enter the key as a number or as a single character of the alphabet.
Rot-13 is a special variant, where the key has the fixed value of half the length
of the cleartext alphabet. This variant is only selectable if the length of the alphabet
is an even number.
Select variant
Caesar
Rot-13
Options to interpret the alphabet characters
Value of the first alphabet character = 0 (e.g. "A"=0)
Value of the first alphabet character = 1 (e.g. "A"=1)
Key entry as
Alphabet character
K
Number value
10
Properties of the chosen encryption
Shift of 10
Mapping of the alphabet (26 characters)
from: ABCDEFGHIJKLMNOPQRSTUVWXYZ
to: KLMNOPQRSTUVWXYZABCDEFGHIJ
Encrypt
Decrypt
Text options
Cancel


Activities
CrypTool
Sat 04:11
Home
Desktop
Data-files
week09
user@Ubuntu1804: ~/Desktop/Data-files/week09
File Edit View Search Terminal Help
CrypTool 1.4.41 - Caesar decryption of <Caesar encryption of <Startingexample-en.txt>, key <K, KEY OFFSET: 0>>, k...
File Edit View Encrypt/Decrypt Digital Signatures/PKI Indiv. Procedures Analysis Options Window Help
Startingexample-en.txt
Caesar encryption of <Startingexample-en.txt>, key <K, KEY OFFSET: 0>
Cdkbdsxq ohkwzvo pyb dro MbizDyyv fobcsyx pkwsvi 1.h (MD1)
Caesar decryption of <Caesar encryption of <Startingexample-en.txt>, key <K, KEY OFFSET: 0>>, key <K, KEY
Starting example for the CrypTool version family 1.x (CT1)
CrypTool 1 (CT1) is a comprehensive and free educational program
about cryptography and cryptanalysis
offering extensive online help and many visualizations.
This text file was created in order to help you to make your first steps with CT1.
1) The starting page of the online help offers the best oversight of CT1's capacity. From the starting page you can reach all essential functions via links.
The starting page of the online help can be accessed via the menu "Help -> Starting Page" at the top right of the main window or by using the search keyword "Starting page" within the index of the online help.
Press F1 to start the online help everywhere in CT1.
2) A possible next step would be to encrypt a file with the Caesar algorithm. This can be done via the menu "Crypt/Decrypt -> Symmetric (classic)".
3) There are several examples (tutorials) within the online help which provide an easy way to gain an understanding of cryptology. These examples can be found via the menu "Help -> Scenarios (Tutorials)".
4) You can further develop your knowledge by:
- Navigating playfully through the menus. You can press F1 at any selected menu item to get more information.
- Reading the included readme file (see the menu "Help -> Readme").

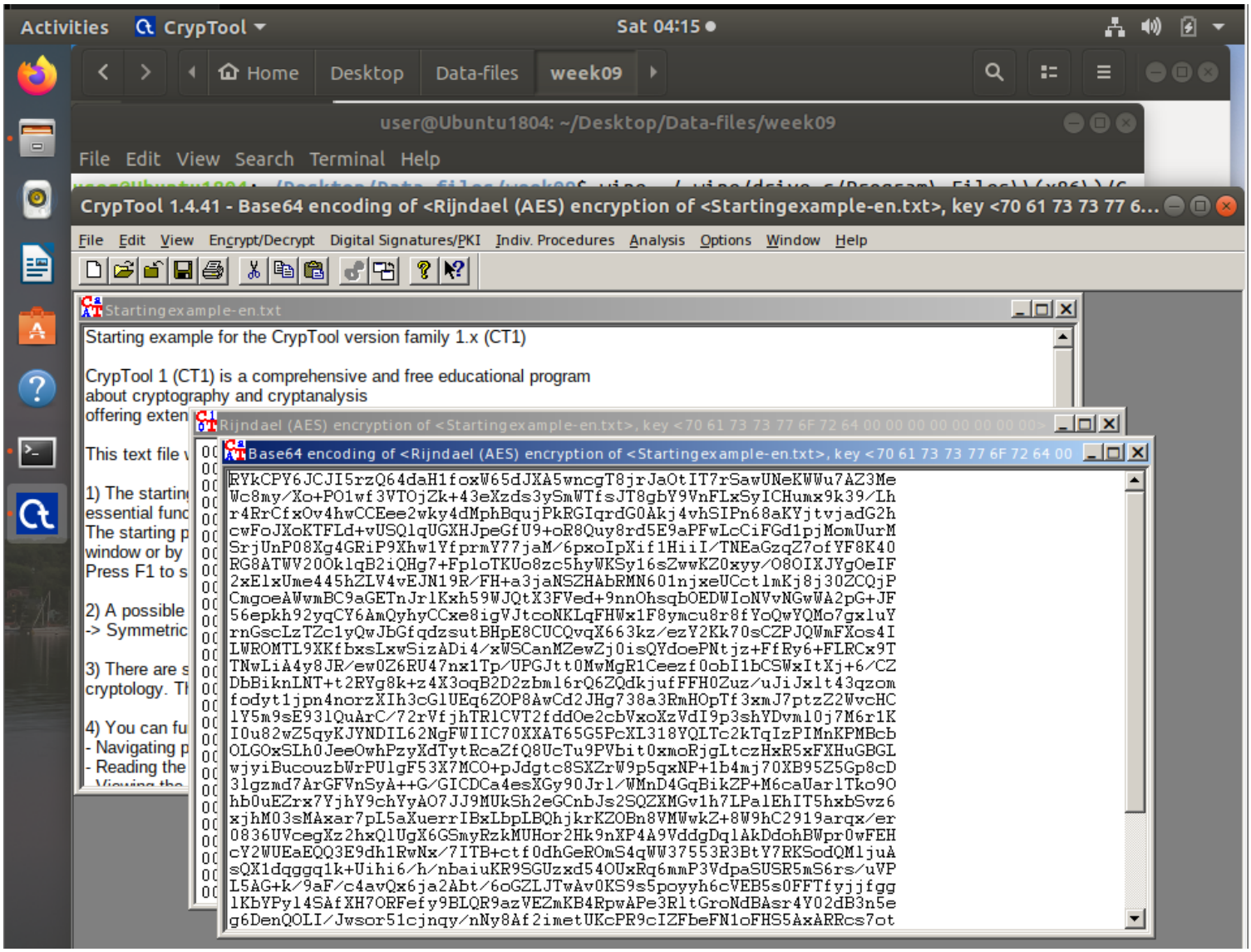
Introducing AES Encryption and BASE64 Encoding

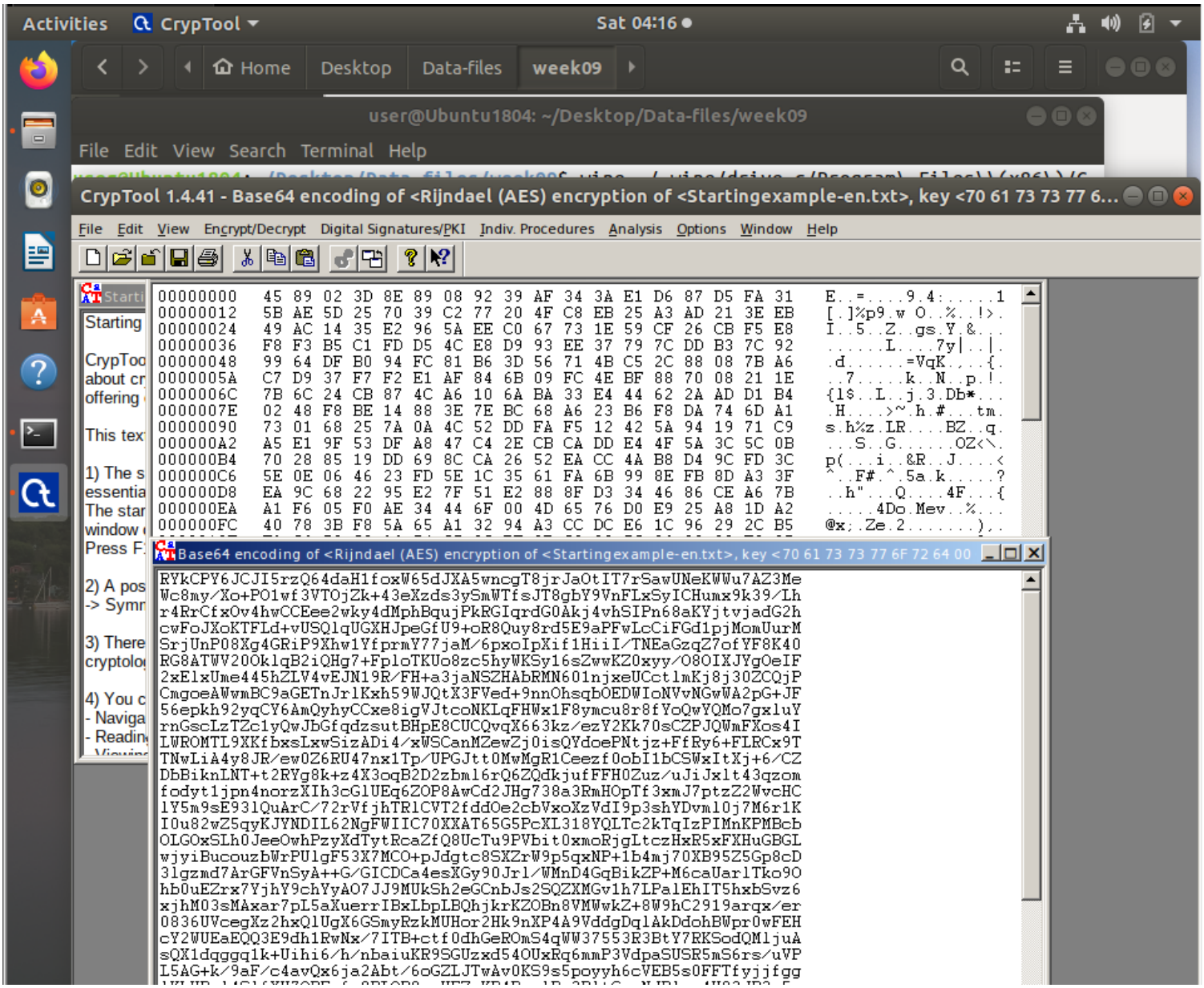
I then switched to AES, a considerably more powerful encryption technique. This seemed like a true undertaking! I took a regular text file and used CrypTool to turn it into a binary file, which is just a bewildering jumble of ones and zeros. But there's still more! Binary code is incomprehensible to humans, similar to speaking a whole other language.




Activities
CrypTool
Sat 04:13
Home
Desktop
Data-files
week09
user@Ubuntu1804: ~/Desktop/Data-files/week09
File Edit View Search Terminal Help
CrypTool 1.4.41 - Rijndael (AES) encryption of <Startingexample-en.txt>, key <70 61 73 73 77 6F 72 64 00 00 00 00 00 00 ...
File Edit View Encrypt/Decrypt Digital Signatures/PKI Indiv. Procedures Analysis Options Window Help
Startingexample-en.txt
Starting example for the CrypTool version family 1.x (CT1)
CrypTool 1 (CT1) is a comprehensive and free educational program
about cryptography and cryptanalysis
Rijndael (AES) encryption of <Startingexample-en.txt>, key <70 61 73 73 77 6F 72 64 00 00 00 00 00 00 00 00>
00000000 45 89 02 3D 8E 89 08 92 39 AF 34 3A E1 D6 87 D5 FA 31
00000012 5B AE 5D 25 70 39 C2 77 20 4F C8 EB 25 A3 AD 21 3E EB
00000024 49 AC 14 35 E2 96 5A EE C0 67 73 1E 59 CF 26 CB F5 E8
00000036 F8 F3 B5 C1 FD D5 4C E8 D9 93 EE 37 79 7C DD B3 7C 92
00000048 99 64 DF B0 94 FC 81 B6 3D 56 71 4B C5 2C 88 08 7B A6
0000005A C7 D9 37 F7 F2 E1 AF 84 6B 09 FC 4E BF 88 70 08 21 1E
0000006C 7B 6C 24 CB 87 4C A6 10 6A BA 33 E4 44 62 2A AD D1 B4
0000007E 02 48 F8 BE 14 88 3E 7E BC 68 A6 23 B6 F8 DA 74 6D A1
00000090 73 01 68 25 7A 0A 4C 52 DD FA F5 12 42 5A 94 19 71 C9
000000A2 A5 E1 9F 53 DF A8 47 C4 2E CB CA DD E4 4F 5A 3C 5C 0B
000000B4 70 28 85 19 DD 69 8C CA 26 52 EA CC 4A B8 D4 9C FD 3C
000000C6 5E 0E 06 46 23 FD 5E 1C 35 61 FA 6B 99 8E FB 8D A3 3F
000000D8 EA 9C 68 22 95 E2 7F 51 E2 88 8F D3 34 46 86 CE A6 7B
000000EA A1 F6 05 F0 AE 34 44 6F 00 4D 65 76 D0 E9 25 A8 1D A2
000000FC 40 78 3B F8 5A 65 A1 32 94 A3 CC DC E6 1C 96 29 2C B5
0000010E EA C6 70 C0 A6 74 C7 2C BF 3B C3 88 5C 96 20 39 E2 05
00000120 DB 11 25 C5 49 9E E3 8E 61 64 B5 78 BC 42 4D D7 D4 7F
00000132 14 7F 9A DE 36 8D 49 91 C0 6D 13 0D EB 4D 67 8F 17 94
00000144 09 CB 65 98 A8 FC 8F 7D 19 09 08 CF 0A 68 28 78 05 B0
00000156 98 10 BD 68 61 13 9C 9A E5 2B 18 79 F5 62 50 B5 7D C5
00000168 55 E7 7E F6 79 CE 86 CA 9B 38 40 D6 22 83 55 BC D1 B0
0000017A 58 0D A9 1B E2 45 E7 A7 A9 92 1F 76 CA A0 98 E8 09 90
0000018C CA 1C 82 0B 17 BC 8A 05 49 B5 CA 0D 28 BA 85 1D 6C 75
0000019E 17 CC A6 72 EF 2B F1 F6 28 43 06 10 32 8E E0 C6 5B 98
000001B0 AE 71 AC 70 BC D3 65 CD 72 43 02 5B 19 FA 9D CE CB AD
000001C2 04 7A 44 F0 25 02 42 FA 97 EB AD E4 CF F7 B3 63 62 A4
000001D4 EF 4B 02 64 F2 50 5A 61 57 A2 CE 08 2D 64 4E 31 32 FD

So, I employed Base64 encoding, another CrypTool function. This process was analogous to feeding the binary code into a specialized translator and turning it into a lengthy string of characters and numbers that could be read more easily. I had the impression of being a true code master, having cracked a double layer of encryption!




Activities
CrypTool
Sat 04:16
Home
Desktop
Data-files
week09
user@Ubuntu1804: ~/Desktop/Data-files/week09
File Edit View Search Terminal Help
CrypTool 1.4.41 - Base64 encoding of <Rijndael (AES) encryption of <Startingexample-en.txt>, key <70 61 73 73 77 6...
File Edit View Encrypt/Decrypt Digital Signatures/PKI Indiv. Procedures Analysis Options Window Help
00000000 45 89 02 3D 8E 89 08 92 39 AF 34 3A E1 D6 87 D5 FA 31
00000012 5B AE 5D 25 70 39 C2 77 20 4F C8 EB 25 A3 AD 21 3E EB
00000024 49 AC 14 35 E2 96 5A EE C0 67 73 1E 59 CF 26 CB F5 E8
00000036 F8 F3 B5 C1 FD D5 4C E8 D9 93 EE 37 79 7C DD B3 7C 92
00000048 99 64 DF B0 94 FC 81 B6 3D 56 71 4B C5 2C 88 08 7B A6
0000005A C7 D9 37 F7 F2 E1 AF 84 6B 09 FC 4E BF 88 70 08 21 1E
0000006C 7B 6C 24 CB 87 4C A6 10 6A BA 33 E4 44 62 2A AD D1 B4
0000007E 02 48 F8 BE 14 88 3E 7E BC 68 A6 23 B6 F8 DA 74 6D A1
00000090 73 01 68 25 7A 0A 4C 52 DD FA F5 12 42 5A 94 19 71 C9
000000A2 A5 E1 9F 53 DF A8 47 C4 2E CB CA DD E4 4F 5A 3C 5C 0B
000000B4 70 28 85 19 DD 69 8C CA 26 52 EA CC 4A B8 D4 9C FD 3C
000000C6 5E 0E 06 46 23 FD 5E 1C 35 61 FA 6B 99 8E FB 8D A3 3F
000000D8 EA 9C 68 22 95 E2 7F 51 E2 88 8F D3 34 46 86 CE A6 7B
000000EA A1 F6 05 F0 AE 34 44 6F 00 4D 65 76 D0 E9 25 A8 1D A2
000000FC 40 78 3B F8 5A 65 A1 32 94 A3 CC DC E6 1C 96 29 2C B5
Base64 encoding of <Rijndael (AES) encryption of <Startingexample-en.txt>, key <70 61 73 73 77 6F 72 64 00
RYkCPY6JCJI5rzQ64daH1foxW65dJXA5wncgT8jrJaOtIT7rSawUNeKWWu7AZ3Me
Wc8my/Xo+PO1wf3VTOjZk+43eXzds3ySmWTfsJT8gbY9VnFLxSyICHumx9k39/Lh
r4RrCfxOv4hwCCEee2wky4dMphBqujPkRGIqrdG0Akj4vhSIPn68aKYjtvjadG2h
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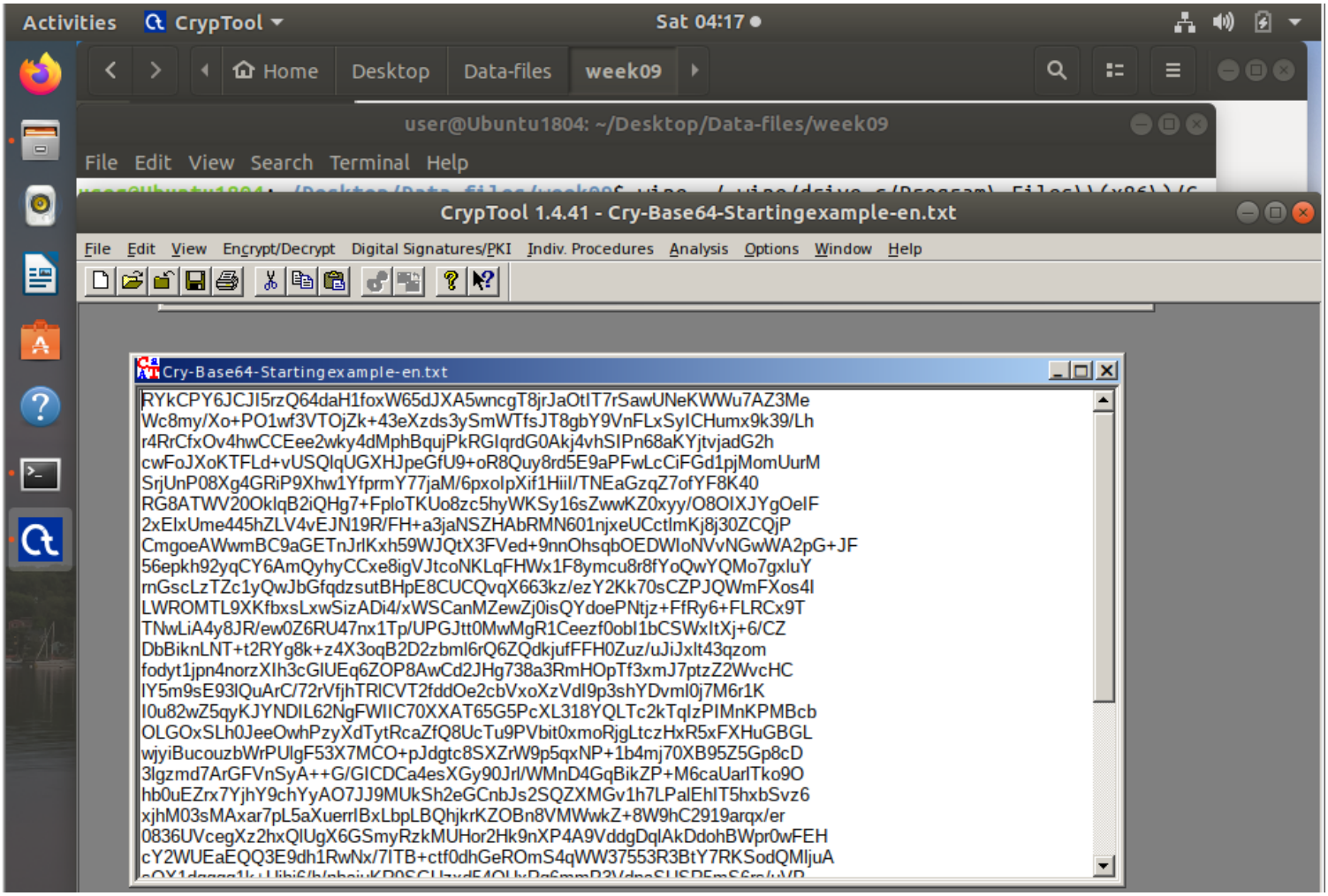
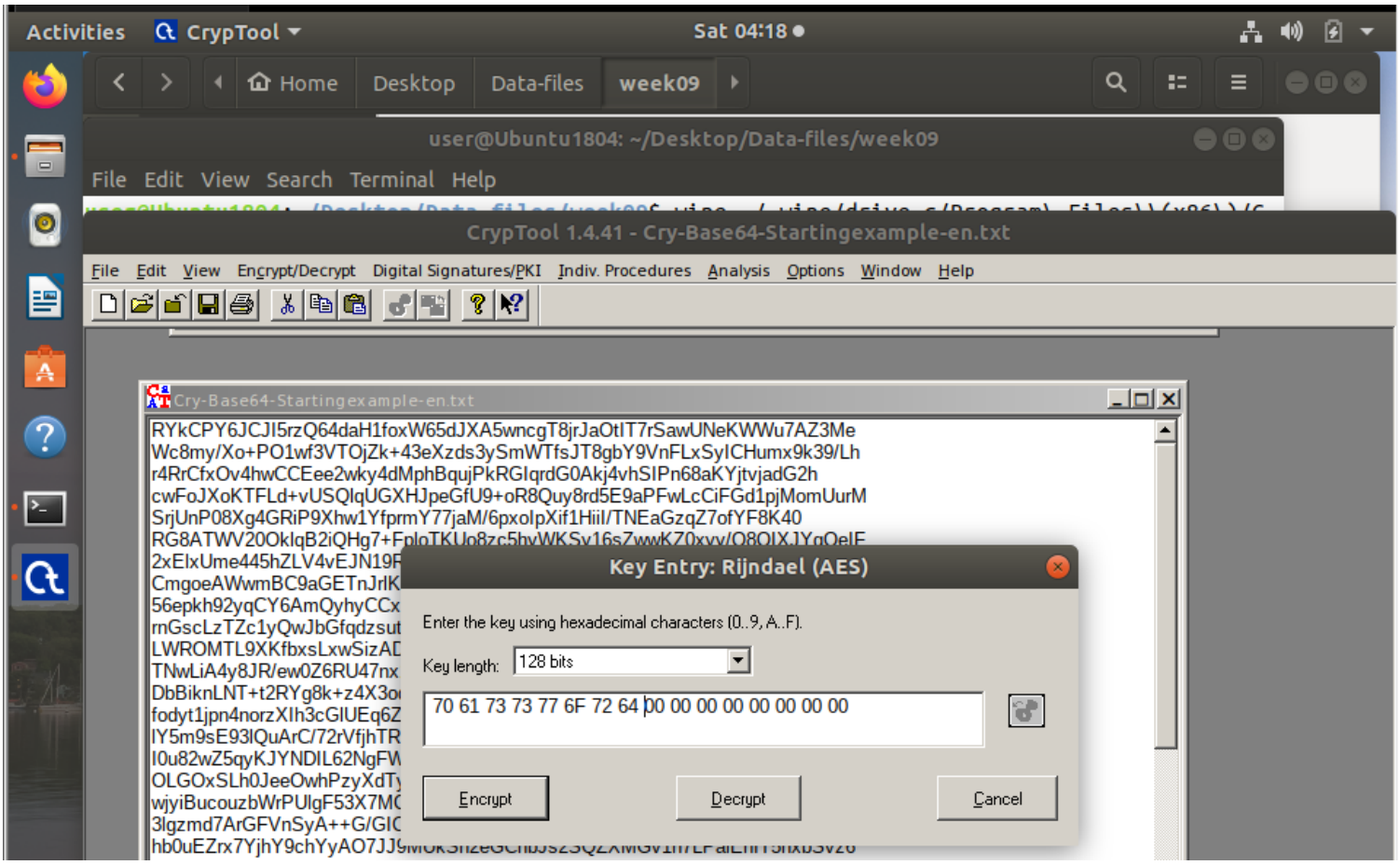
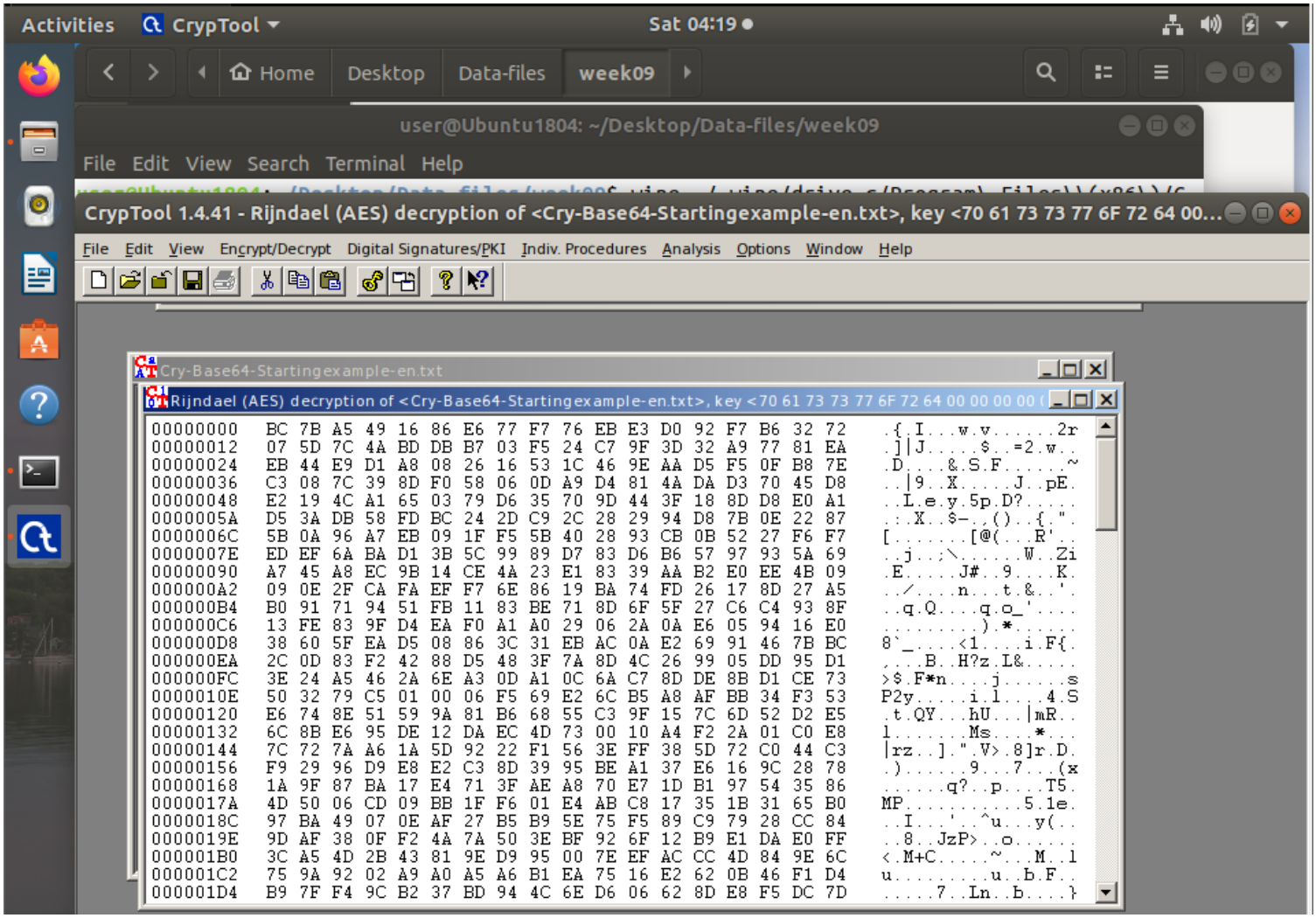
SrjUnP08Xg4GRiP9Xhw1YfprmY77jaM/6pxoIpXif1HiiI/TNEaGzqZ7ofYF8K40
RG8ATWV20OklqB2iQHg7+FploTKUo8zc5hyWKSy16sZwwKZ0xyy/O8OIXJYgOeIF
2xElxUme445hZLV4vEJN19R/FH+a3jaNSZHAbRMN601njxeUCctlmKj8j30ZCQjP
CmgoeAWwmBC9aGETnJrlKxh59WJQtX3FVed+9nnOhsqbOEDWIoNVvNGwWA2pG+JF
56epkh92yqCY6AmQyhyCCxe8igVJtcoNKLqFHWx1F8ymcu8r8fYoQwYQMo7gxluY
rnGscLzTZc1yQwJbGfqdzsutBHpE8CUCQvqX663kz/ezY2Kk70sCZPJQWmFXos4I
LWROMTL9XKfbxsLxwSizADi4/xWSCanMZewZj0isQYdoePNtjz+FfRy6+FLRCx9T
TNwLiA4y8JR/ew0Z6RU47nx1Tp/UPGJtt0MwMgR1Ceezf0obI1bCSWxItXj+6/CZ
DbBiknLNT+t2RYg8k+z4X3oqB2D2zbml6rQ6ZQdkjufFFH0Zuz/uJiJxlt43qzom
fodyt1jpn4norzXIh3cG1UEq6ZOP8AwCd2JHg738a3RmHOpTf3xmJ7ptzZ2WvcHC
lY5m9sE93lQuArC/72rVfjhTRlCVT2fddOe2cbVxoXzVdI9p3shYDvml0j7M6r1K
I0u82wZ5qyKJYNDIL62NgFWIIC70XXAT65G5PcXL318YQLTc2kTqIzPIMnKPMBcb
OLGOxSLh0JeeOwhPzyXdTytRcaZfQ8UcTu9PVbit0xmoRjgLtczHxR5xFXHuGBGL
wjyiBucouzbWrPUlgF53X7MCO+pJdgtc8SXZrW9p5qxNP+1b4mj70XB95Z5Gp8cD
3lgzmd7ArGFVnSyA++G/GICDCa4esXGy90Jrl/WMnD4GqBikZP+M6caUarlTko9O
hb0uEZrx7YjhY9chYyAO7JJ9MUkSh2eGCnbJs2SQZXMGv1h7LPalEhIT5hxbSvz6
xjhM03sMAxar7pL5aXuerrIBxLbpLBQhjkrKZOBn8VMWwkZ+8W9hC2919arqx/er
0836UVcegXz2hxQlUgX6GSmyRzkMUHor2Hk9nXP4A9VddgDqlAkDdohBWpr0wFEH
cY2WUEaEQQ3E9dh1RwNx/7ITB+ctf0dhGeROmS4qWW37553R3BtY7RKSodQMljuA
sQX1dqggq1k+Uihi6/h/nbaiuKR9SGUzxd54OUxRq6mmP3VdpaSUSR5mS6rs/uVP
L5AG+k/9aF/c4avQx6ja2Abt/6oGZLJTwAv0KS9s5poyyh6cVEB5s0FFTfyjjfgg

Forensic Tasks

A file that seemed suspicious was handed to us and was encrypted using AES. I opened CrypTool again, recalling all I had learned about passwords and Base64 encoding.




Activities
CrypTool
Sat 04:18
Home
Desktop
Data-files
week09
user@Ubuntu1804: ~/Desktop/Data-files/week09
File Edit View Search Terminal Help
CrypTool 1.4.41 - Cry-Base64-Startingexample-en.txt
File Edit View Encrypt/Decrypt Digital Signatures/PKI Indiv. Procedures Analysis Options Window Help
Cry-Base64-Startingexample-en.txt
RYkCPY6JCJI5rzQ64daH1foxW65dJXA5wncgT8jrJaOtIT7rSawUNeKWWu7AZ3Me
Wc8my/Xo+PO1wf3VTOjZk+43eXzds3ySmWTfsJT8gbY9VnFLxSyICHumx9k39/Lh
r4RrCfxOv4hwCCEee2wky4dMphBqujPkRGIqrdG0Akj4vhSIPn68aKYjtvjadG2h
cwFoJXoKTFLd+vUSQlqUGXHJpeGfU9+oR8Quy8rd5E9aPFwLcCiFGd1pjMomUurM
SrjUnP08Xg4GRiP9Xhw1YfprmY77jaM/6pxoIpXif1Hiil/TNEaGzqZ7ofYF8K40
RG8ATWV20OkIqB2iQHg7+
2xElxUme445hZLV4vEJN19F
CmgoeAWwmBC9aGETnJrlK
56epkh92yqCY6AmQyhyCCx
rnGscLzTZc1yQwJbGfqdzsut
LWROMTL9XKfbxsLxwSizAD
TNwLiA4y8JR/ew0Z6RU47nx
DbBiknLNT+t2RYg8k+z4X3o
fodyt1jpn4norzXIh3cGlUEq6Z
lY5m9sE93lQuArC/72rVfjhTR
l0u82wZ5qyKJYNDIL62NgFW
OLGOxSLh0JeeOwhPzyXdTy
wjyiBucouzbWrPUlgF53X7MC
3lgzmd7ArGFVnSyA++G/GIC
hb0uEZrx7YjhY9chYyAO7JJ9
Key Entry: Rijndael (AES)
Enter the key using hexadecimal characters (0..9, A..F).
Key length:
128 bits
70 61 73 73 77 6F 72 64 00 00 00 00 00 00 00 00
Encrypt
Decrypt
Cancel


Activities
CrypTool
Sat 04:19
Home
Desktop
Data-files
week09
user@Ubuntu1804: ~/Desktop/Data-files/week09
File Edit View Search Terminal Help
CrypTool 1.4.41 - Rijndael (AES) decryption of <Cry-Base64-Startingexample-en.txt>, key <70 61 73 73 77 6F 72 64 00...
File Edit View Encrypt/Decrypt Digital Signatures/PKI Indiv. Procedures Analysis Options Window Help
Cry-Base64-Startingexample-en.txt
Rijndael (AES) decryption of <Cry-Base64-Startingexample-en.txt>, key <70 61 73 73 77 6F 72 64 00 00 00 00
00000000 BC 7B A5 49 16 86 E6 77 F7 76 EB E3 D0 92 F7 B6 32 72
00000012 07 5D 7C 4A BD DB B7 03 F5 24 C7 9F 3D 32 A9 77 81 EA
00000024 EB 44 E9 D1 A8 08 26 16 53 1C 46 9E AA D5 F5 0F B8 7E
00000036 C3 08 7C 39 8D F0 58 06 0D A9 D4 81 4A DA D3 70 45 D8
00000048 E2 19 4C A1 65 03 79 D6 35 70 9D 44 3F 18 8D D8 E0 A1
0000005A D5 3A DB 58 FD BC 24 2D C9 2C 28 29 94 D8 7B 0E 22 87
0000006C 5B 0A 96 A7 EB 09 1F F5 5B 40 28 93 CB 0B 52 27 F6 F7
0000007E ED EF 6A BA D1 3B 5C 99 89 D7 83 D6 B6 57 97 93 5A 69
00000090 A7 45 A8 EC 9B 14 CE 4A 23 E1 83 39 AA B2 E0 EE 4B 09
000000A2 09 0E 2F CA FA EF F7 6E 86 19 BA 74 FD 26 17 8D 27 A5
000000B4 B0 91 71 94 51 FB 11 83 BE 71 8D 6F 5F 27 C6 C4 93 8F
000000C6 13 FE 83 9F D4 EA F0 A1 A0 29 06 2A 0A E6 05 94 16 E0
000000D8 38 60 5F EA D5 08 86 3C 31 EB AC 0A E2 69 91 46 7B BC
000000EA 2C 0D 83 F2 42 88 D5 48 3F 7A 8D 4C 26 99 05 DD 95 D1
000000FC 3E 24 A5 46 2A 6E A3 0D A1 0C 6A C7 8D DE 8B D1 CE 73
0000010E 50 32 79 C5 01 00 06 F5 69 E2 6C B5 A8 AF BB 34 F3 53
00000120 E6 74 8E 51 59 9A 81 B6 68 55 C3 9F 15 7C 6D 52 D2 E5
00000132 6C 8B E6 95 DE 12 DA EC 4D 73 00 10 A4 F2 2A 01 C0 E8
00000144 7C 72 7A A6 1A 5D 92 22 F1 56 3E FF 38 5D 72 C0 44 C3
00000156 F9 29 96 D9 E8 E2 C3 8D 39 95 BE A1 37 E6 16 9C 28 78
00000168 1A 9F 87 BA 17 E4 71 3F AE A8 70 E7 1D B1 97 54 35 86
0000017A 4D 50 06 CD 09 BB 1F F6 01 E4 AB C8 17 35 1B 31 65 B0
0000018C 97 BA 49 07 0E AF 27 B5 B9 5E 75 F5 89 C9 79 28 CC 84
0000019E 9D AF 38 0F F2 4A 7A 50 3E BF 92 6F 12 B9 E1 DA E0 FF
000001B0 3C A5 4D 2B 43 81 9E D9 95 00 7E EF AC CC 4D 84 9E 6C
000001C2 75 9A 92 02 A9 A0 A5 A6 B1 EA 75 16 E2 62 0B 46 F1 D4
000001D4 B9 7F F4 9C B2 37 BD 94 4C 6E D6 06 62 8D E8 F5 DC 7D

I felt a sense of success as I watched the jumbled code turn back into a readable file—using the same password that I used for encryption.