

\*\*\*\*\*Draft\*\*\*\*\*  
This example is from test\_crypto.lpr to compare with openssl  
06/17/20  
\*\*\*\*\*Draft\*\*\*\*\*

### Legend:

Key

IV

Encrypted

This example is from test\_crypto.lpr to compare with openssl  
test0612.txt

Key Ascii Now we are engaged in a great ci

Key Hex 4e6f772077652061726520656e676167656420696e2061206772656174206369

IV 000102030405060708090A0B0C0D0E0F

**openssl enc -v -P -p -nosalt -aes-256-cbc -K**  
**4e6f772077652061726520656e676167656420696e2061206772656174206369 -iv**  
**000102030405060708090A0B0C0D0E0F -in text.plain -out some.secret.enc**

This from test\_crypto.lpr  
cat text.plain  
Four score and s

openssl enc -v -P -p -nosalt -aes-256-cbc -K  
4e6f772077652061726520656e676167656420696e2061206772656174206369 -iv  
000102030405060708090A0B0C0D0E0F -in text.plain -out some.secret.enc  
bufsize=8192  
key=4E6F772077652061726520656E676167656420696E2061206772656174206369  
iv =000102030405060708090A0B0C0D0E0F  
bytes read : 17  
bytes written: 32

some.secret.enc  
00000000 23 AE 14 F4 A7 B2 DC 7F 1D D8 9C F6 F0 7E 40 48 #.....~@H  
00000010 F6 55 F7 54 99 D6 0A 89 06 69 6E E8 52 05 01 26 .U.T....in.R..&

test0612.txt  
StrEnc  
23ae14f4a7b2dc7f1dd89cf6f07e4048  
501eb0abb52fd1ad788cec4d154b9fd6

openssl enc -d -v -P -p -nosalt -aes-256-cbc -K  
4e6f772077652061726520656e676167656420696e2061206772656174206369 -iv  
000102030405060708090A0B0C0D0E0F -in some.secret.enc -out text.plaindec

```
bufsize=8192
key=4E6F772077652061726520656E676167656420696E2061206772656174206369
iv =000102030405060708090A0B0C0D0E0F
bytes read : 32
bytes written: 17
```

```
cat text.plaindec
Four score and s
```

Key Ascii Now we are engaged in a great ci

Key Hex 4e6f772077652061726520656e676167656420696e2061206772656174206369

IV 23ae14f4a7b2dc7f1dd89cf6f07e4048

```
cat text.plain1
even years ago o
```

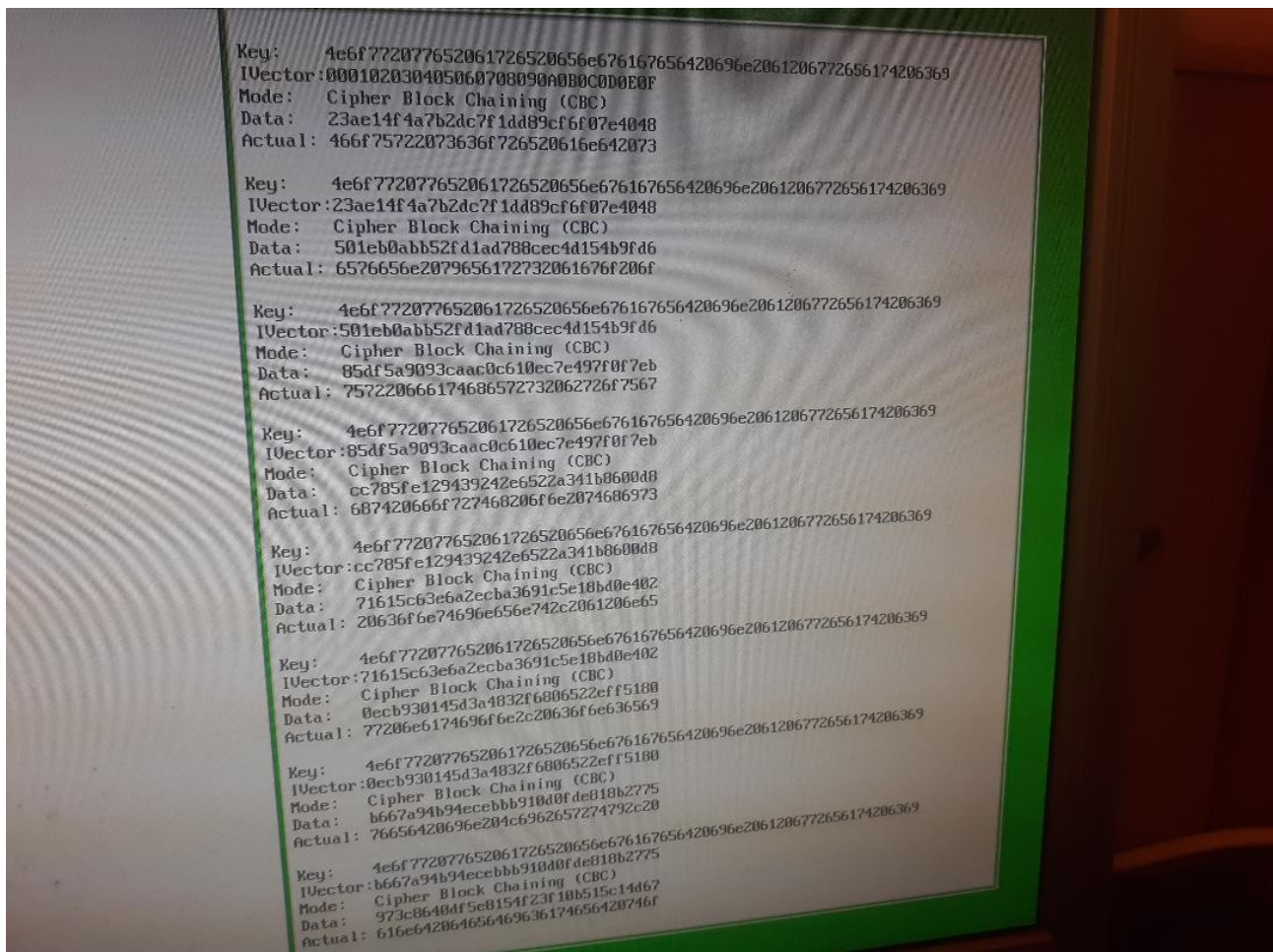
```
openssl enc -v -P -p -nosalt -aes-256-cbc -K
4e6f772077652061726520656e676167656420696e2061206772656174206369 -iv
23ae14f4a7b2dc7f1dd89cf6f07e4048 -in text.plain1 -out some.secret1.enc
```

```
bufsize=8192
key=4E6F772077652061726520656E676167656420696E2061206772656174206369
iv =23AE14F4A7B2DC7F1DD89CF6F07E4048
bytes read : 17
bytes written: 32
some.secret1.enc
00000000 50 1E B0 AB B5 2F D1 AD 78 8C EC 4D 15 4B 9F D6 P..../.x..M.K..
00000010 ED 65 F5 09 E7 2A F1 6E 3E 7D 49 2B 88 D1 DB 79 .e...*.n>}I+...y
```

```
test0612.txt
StrEnc
23ae14f4a7b2dc7f1dd89cf6f07e4048
501eb0abb52fd1ad788cec4d154b9fd6
```

```
openssl enc -d -v -P -p -nosalt -aes-256-cbc -K
4e6f772077652061726520656e676167656420696e2061206772656174206369 -iv
23ae14f4a7b2dc7f1dd89cf6f07e4048 -in some.secret1.enc -out text.plain1dec
bufsize=8192
key=4E6F772077652061726520656E676167656420696E2061206772656174206369
iv =23AE14F4A7B2DC7F1DD89CF6F07E4048
bytes read : 32
bytes written: 17
```

```
cat text.plain1dec
even years ago o
```



The file was converted to a single line cat plain.txt

Four score and seven years ago our fathers brought forth on this continent, a new nation, conceived in Liberty, and dedicated to

**Note: When joining the 8 blocks I missed a space between thiscontinent this what was causing the encrypted data to be different between openssl and Ultibo.**

~~Four score and seven years ago our fathers brought forth on thiscontinent, a new nation, conceived in Liberty, and dedicated to~~

From file written by Ultibo

ASC & Hex key

Now we are engaged in a great ci

4e6f772077652061726520656e676167656420696e2061206772656174206369

Strplaintext

Four score and s

even years ago o

ur fathers broug

ht forth on this

continent, a ne

w nation, concei

ved in Liberty,

and dedicated to

StrIV

000102030405060708090A0B0C0D0E0F

23ae14f4a7b2dc7f1dd89cf6f07e4048

501eb0abb52fd1ad788cec4d154b9fd6

85df5a9093caac0c610ec7e497f0f7eb  
cc785fe129439242e6522a341b8600d8  
71615c63e6a2ecba3691c5e18bd0e402  
0ecb930145d3a4832f6806522eff5180  
b667a94b94ecebbb910d0fde818b2775

StrEnc

23ae14f4a7b2dc7f1dd89cf6f07e4048  
501eb0abb52fd1ad788cec4d154b9fd6  
85df5a9093caac0c610ec7e497f0f7eb  
cc785fe129439242e6522a341b8600d8  
71615c63e6a2ecba3691c5e18bd0e402  
0ecb930145d3a4832f6806522eff5180  
b667a94b94ecebbb910d0fde818b2775  
973c8640df5e8154f23f10b515c14d67

StrDecry

466f75722073636f726520616e642073  
6576656e2079656172732061676f206f  
757220666174686572732062726f7567  
687420666f727468206f6e2074686973  
20636f6e74696e656e742c2061206e65  
77206e6174696f6e2c20636f6e636569  
76656420696e204c6962657274792c20  
616e642064656469636174656420746f

Now all 8 blocks match with Ultibo.

~~The first 4 lines match the 2<sup>nd</sup> thru 5<sup>th</sup> IV. The question is why the 6<sup>th</sup> thru 8<sup>th</sup> do not match~~

openssl enc -v -P -p -nosalt -aes-256-cbc -K

4e6f772077652061726520656e676167656420696e2061206772656174206369 -iv

000102030405060708090A0B0C0D0E0F -in plain.txt -out encrypted

bufsize=8192

key=4E6F772077652061726520656E676167656420696E2061206772656174206369

iv =000102030405060708090A0B0C0D0E0F

bytes read : 128

bytes written: 144

~~00000000 23 AE 14 F4 A7 B2 DC 7F 1D D8 9C F6 F0 7E 40 48 #.....~@H  
00000010 50 1E B0 AB B5 2F D1 AD 78 8C EC 4D 15 4B 9F D6 P..../.x..M.K..  
00000020 85 DF 5A 90 93 CA AC 0C 61 0E C7 E4 97 F0 F7 EB ..Z.....a.....  
00000030 CC 78 5F E1 29 43 92 42 E6 52 2A 34 1B 86 00 D8 .x\_.)C.B.R\*4...  
00000040 A9 2C 44 DD D8 D4 3F 8A 6D 45 3E 21 A2 E9 AC F0 .,D...?.mE>!....  
00000050 73 92 B1 A2 EC A5 DD 06 A3 EF 57 E2 35 38 CC 3D s.....W:58.=  
00000060 76 06 59 C5 A0 33 21 98 60 D2 06 FB C3 0E B0 6C v.Y..3!.`.....!  
00000070 9F 8A 06 8D 7E 89 34 73 58 D7 FD B3 8B E9 B8 21 ....~.4sX.....!  
00000080 B3 25 71 10 4D 31 A5 90 18 5F DA C4 AF 3D 56 06~~

Now the blocks match with Ultibo.

```
00000000 23 AE 14 F4 A7 B2 DC 7F 1D D8 9C F6 F0 7E 40 48 #.....~@H
00000010 50 1E B0 AB B5 2F D1 AD 78 8C EC 4D 15 4B 9F D6 P.../.x..M.K..
00000020 85 DF 5A 90 93 CA AC 0C 61 0E C7 E4 97 F0 F7 EB ..Z.....a.....
00000030 CC 78 5F E1 29 43 92 42 E6 52 2A 34 1B 86 00 D8 .x_.)C.B.R*4....
00000040 71 61 5C 63 E6 A2 EC BA 36 91 C5 E1 8B D0 E4 02 qa\c....6.....
00000050 0E CB 93 01 45 D3 A4 83 2F 68 06 52 2E FF 51 80 ....E.../h.R..Q.
00000060 B6 67 A9 4B 94 EC EB BB 91 0D 0F DE 81 8B 27 75 .g.K.....'u
00000070 97 3C 86 40 DF 5E 81 54 F2 3F 10 B5 15 C1 4D 67 .<.@.^.T.?....Mg
00000080 96 D7 A3 5B 59 90 AF E4 2C 09 A2 CB 33 3C BE 3C
```

```
cat plain.txt
Four score and s
even years ago o
ur fathers broug
ht forth on this
continent, a ne
w nation, concei
ved in Liberty,
and dedicated to
```

```
openssl enc -v -P -p -nosalt -aes-256-cbc -K-
4e6f772077652061726520656e676167656420696e2061206772656174206369 -iv-
000102030405060708090A0B0C0D0E0F -in plain.txt -out encrypted
bufsize=8192
key=4E6F772077652061726520656E676167656420696E2061206772656174206369
iv=000102030405060708090A0B0C0D0E0F
bytes read : 136
bytes written: 144
```

```
00000000 23 AE 14 F4 A7 B2 DC 7F 1D D8 9C F6 F0 7E 40 48 #.....~@H
00000010 24 83 59 90 D3 29 7C A2 83 50 86 D1 50 DF E4 D1 $.Y.)|.P..P...
00000020 61 1E 3B 24 F3 80 23 24 25 EC 49 F0 1A 9A 40 F8 a,;$.#%&.I...@:
00000030 D6 BC A5 29 77 41 61 F4 2A 0C 66 5D D2 EE CD AE ...)wAa.*.f]....
00000040 D1 1B C6 A2 B4 9D 8C BA 5E D3 CA 7C E3 FF 64 09 .....^..|.d:
00000050 16 20 99 0F EB BD 82 A6 9C 8C 59 29 DD E1 D6 B1 .....Y)....
00000060 19 08 59 8E E4 4B C4 4B AF E3 50 B0 68 D1 49 26 ..Y..K.K..P.h.I&
00000070 AD 5B 8D B4 7C 44 02 DD D8 CC 1B 59 5E 86 4B D7 .[.|D....Y^K.
00000080 AB D6 E5 58 B2 16 77 F2 32 EB 40 38 61 6B 5D 70 ...X..w.2.@8ak]p
```

```
openssl enc -d -v -P -p -nosalt -aes-256-cbc -K-
4e6f772077652061726520656e676167656420696e2061206772656174206369 -iv-
000102030405060708090A0B0C0D0E0F -in encrypted -out decrypted
bufsize=8192
key=4E6F772077652061726520656E676167656420696E2061206772656174206369
iv=000102030405060708090A0B0C0D0E0F
bytes read : 144
bytes written: 136
```

```
cat decrypted-
```

~~Four score and seven years ago our fathers brought forth on this continent, a new nation, conceived in Liberty, and dedicated to~~

```
openssl enc -d -v -P -p -nosalt -aes-256-cbc -K
4e6f772077652061726520656e676167656420696e2061206772656174206369 -iv
000102030405060708090A0B0C0D0E0F -in encrypted -out decrypted
bufsize=8192
key=4E6F772077652061726520656E676167656420696E2061206772656174206369
iv =000102030405060708090A0B0C0D0E0F
bytes read : 144
bytes written: 128
```

cat decrypted

Four score and seven years ago our fathers brought forth on thiscontinent, a new nation, conceived in Liberty, and dedicated to

```
openssl help
Standard commands
asn1parse      ca          ciphers      cms
crl            crl2pkcs7  dgst         dhparam
dsa           dsaparam   ec           ecparam
enc           engine     errstr       gensa
genpkey        genrsa     help         list
nseq          ocspl      passwd       pkcs12
pkcs7         pkcs8      pkey         pkeyparam
pkeyutl       prime      rand         rehash
req           rsa        rsautl       s_client
s_server      s_time     sess_id      smime
speed         spkac      srp          storeutl
ts            verify     version      x509
```

Message Digest commands (see the `dgst' command for more details)

```
blake2b512     blake2s256  gost         md4
md5            rmd160      sha1         sha224
sha256         sha3-224    sha3-256     sha3-384
sha3-512       sha384      sha512       sha512-224
sha512-256     shake128     shake256      sm3
```

Cipher commands (see the `enc' command for more details)

```
aes-128-cbc    aes-128-ecb  aes-192-cbc  aes-192-ecb
aes-256-cbc    aes-256-ecb  aria-128-cbc  aria-128-cfb
aria-128-cfb1  aria-128-cfb8  aria-128-ctr  aria-128-ecb
aria-128-ofb   aria-192-cbc  aria-192-cfb  aria-192-cfb1
aria-192-cfb8  aria-192-ctr  aria-192-ecb  aria-192-ofb
```

aria-256-cbc	aria-256-cfb	aria-256-cfb1	aria-256-cfb8
aria-256-ctr	aria-256-ecb	aria-256-ofb	base64
bf	bf-cbc	bf-cfb	bf-ecb
bf-ofb	camellia-128-cbc	camellia-128-ecb	camellia-192-cbc
camellia-192-ecb	camellia-256-cbc	camellia-256-ecb	cast
cast-cbc	cast5-cbc	cast5-cfb	cast5-ecb
cast5-ofb	des	des-cbc	des-cfb
des-ecb	des-ede	des-ede-cbc	des-ede-cfb
des-ede-ofb	des-ede3	des-ede3-cbc	des-ede3-cfb
des-ede3-ofb	des-ofb	des3	desx
rc2	rc2-40-cbc	rc2-64-cbc	rc2-cbc
rc2-cfb	rc2-ecb	rc2-ofb	rc4
rc4-40	seed	seed-cbc	seed-cfb
seed-ecb	seed-ofb	sm4-cbc	sm4-cfb
sm4-ctr	sm4-ecb	sm4-ofb	

openssl enc --help

Usage: enc [options]

Valid options are:

-help	Display this summary
-ciphers	List ciphers
-in infile	Input file
-out outfile	Output file
-pass val	Passphrase source
-e	Encrypt
-d	Decrypt
-p	Print the iv/key
-P	Print the iv/key and exit
-v	Verbose output
-nopad	Disable standard block padding
-salt	Use salt in the KDF (default)
-nosalt	Do not use salt in the KDF
-debug	Print debug info
-a	Base64 encode/decode, depending on encryption flag
-base64	Same as option -a
-A	Used with -[base64 a] to specify base64 buffer as a single line
-bufsize val	Buffer size
-k val	Passphrase
-kfile infile	Read passphrase from file
-K val	Raw key, in hex
-S val	Salt, in hex
-iv val	IV in hex
-md val	Use specified digest to create a key from the passphrase
-iter +int	Specify the iteration count and force use of PBKDF2
-pbkdf2	Use password-based key derivation function 2
-none	Don't encrypt
-*	Any supported cipher
-rand val	Load the file(s) into the random number generator
-writerand outfile	Write random data to the specified file
-engine val	Use engine, possibly a hardware device