String and Data Encoding

PDF can encode data in multiple ways

```
5 0 obj
<< /Length 48 >>
stream
Hello World
endstream
endobj
```

Hex encoding



PDF can encode data in multiple ways

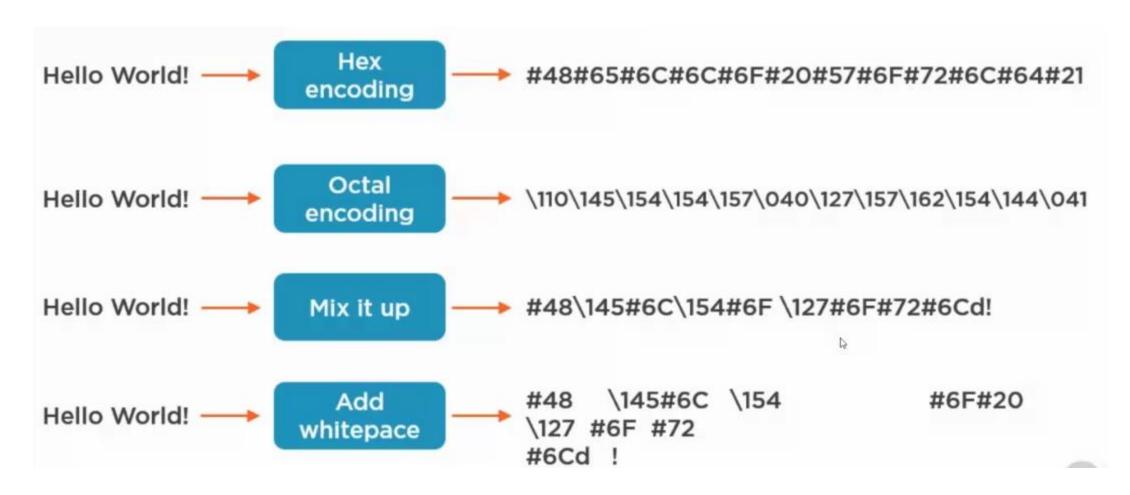
```
5 0 obj
<< /Length 48 >>
stream
Hello World
endstream
endobj
```

PDF can encode data in multiple ways

```
5 0 obj
<< /Length 48 >>
stream

#48#65#6C#6C#6F#20#57#6F#72#6C#64#21
endstream
endobj
```

Hex, Octal, Mix and White Space Obfuscation



Using Filters to decode encoded data

```
5 0 obj
<< /Length 60 /Filter /ASCIIHexDecode >>
stream
48656c6c6f20576f726c6421111111111111
endstream
endobj
```

Using Multiple Encoding

Filters are decoded in reverse

```
5 0 obj
<< /Length 60 /Filter [/ASCIIHexDecode/LZWDecode] >>
stream
J..)6T`?p&<!J9%_[umg"B7Z
endstream
endobj</pre>
```

Others

/ASCIIHexDecode

Hex encoding of characters /LZWDecode

LZW compression algorithm

/FlateDecode

Zlib compression

/ASCII85Decode

ASCII base-85 representation

/Crypt

Various encryption algorithms

Sample malicious pdf document

```
1 0 obj
<<
 /Type /Catalog
 /OpenAction 7 0 R
>>
endobj
7 0 obj
<< /S/JavaScript/JS 8 0 R >>
endobj
8 0 obj
<< /Filter[/FlateDecode/ASCIIHexDecode]/Length 100 >>
stream
endstream
endobj
```