

Website protection

Convert source of a page to a human-unreadable code

Different approaches

- Using HTML
- Using Javascript
 - Using hexadecimal values
 - Using “escape/unescape”
 - Using an algorithm

Using HTML only

- In HTML, all symbols can be expressed using ASCII.

- E.g.

- 'a' = `a`

```
function encToASCII(_text)
{
    var _newText="";

    for(var i=0; i < _text.length;i++)
    {
        _newText += "&#" + _text.charCodeAt(i)
    }

    return _newText;
}
```

Using Javascript

- Using hexadecimal values
- Using “escape/unescape”
- Using an algorithm

1. Converting text into hexadec.

- Convert into hexadecimal.

```
function encToHex(_text)
{
    var _newText="";
    for (var i=0; i < _text.length; i++)
    {
        _newText += "%" + decimalToHex(_text.charCodeAt(i));
    }
    return _newText;
}
function decimalToHex(_num)
{
    return _num.toString(16);
}
```

- 'Hello World!'

'%48%65%6c%6c%6f%20%57%6f%72%6c%64%21'

1. Display text in hexadec.

- Display the hexadecimal values using **unescape**

```
<script type="text/javascript">  
document.write(unescape("%48%65%6c%6c%6f%20%57%6f%72%6c%64%21"));  
</script>
```

2. Using escape/unescape

- Convert text into url friendly string using **escape**

```
document.write(escape("Hello World!"));
```

- Result: Hello World = Hello%20World%21

- Convert it back using **unescape**

```
document.write(unescape("Hello%20World%21"));
```

3. Using an algorithm

- In this algorithm we are using **XOR** cipher.

INPUT		OUTPUT
A	B	
0	0	0
0	1	1
1	0	1
1	1	0

XOR Truth table

- $5 \text{ xor } 6 = 3$
- $5 \text{ xor } 3 = 6$
- $3 \text{ xor } 6 = 5$
- Given two numbers, we will always get third.

3. Using an algorithm

- To either encrypt or decrypt, use the same method

```
function en_doc(t,k)
{
    var a;
    var b;
    var r=new Array();
    for (var i=0; i<t.length ;i++)
    {
        a=t.charCodeAt(i);
        b=k.charAt(i%k.length);
        a^=b;
        r[i]=String.fromCharCode(a);
    }
    return r.join("");
}
```

3. Using an algorithm

NOTE: There is a big difference between the HTML Only encryption and JavaScript encryption. For example, if you encrypt your whole page with HTML Only encryption, including "tags", the result in the web-browser will be the source of the page. Encoding "<p>Hi</p>" will result "<p>Hi</p>". However, by using JavaScript, the result will be executed, as a normal page would. Encoding "<p>Hi</p>" will result "Hi".

3. Using an algorithm

- See this code in action:
 - <http://editor.clizware.net/?id=6>

Thank you

- This presentation is based on an article written by Artem Los.
- See the article
 - <http://blog.clizware.net/all/329>